2013
PRODUCT CATALOG

BUILDING AUTOMATION PRODUCTS, INC.



SENSORS FOR HVAC/R

Temperature • Humidity • Pressure
Indoor Air Quality • Accessories
Wireless • ETA Interface & Comm.

BAPI®
Sensors for HVAC/R

PEOPLE • BUILDING • SENSORS™

Welcome!

People don't like getting stuck next to me at dinner parties.

It's true. When you can go on and on about building automation products and describe in detail how to save time, money & energy, the people you're talking to tend to develop an unnatural interest in the relish tray.

I can't help myself, though. I'm passionate about this stuff.

I love the technical aspects of manufacturing devices that control how a structure consumes—and, in our case, preserves—energy. I'm excited to come to the office each day because it's another opportunity to make you, and therefore BAPI, successful—and I see my coworkers, vendors and customers as essential ingredients in that success. Since starting the company in 1993, I've focused this passion on quality, in regard to both products and professional relationships. And that sets us apart:

- That's why BAPI offers a 100% compatibility guarantee, which no one else has.
- That's why we have a 100% warranty—including labor—which is unheard of in the industry.
- That's why we continue to introduce more new products than any of our competitors.

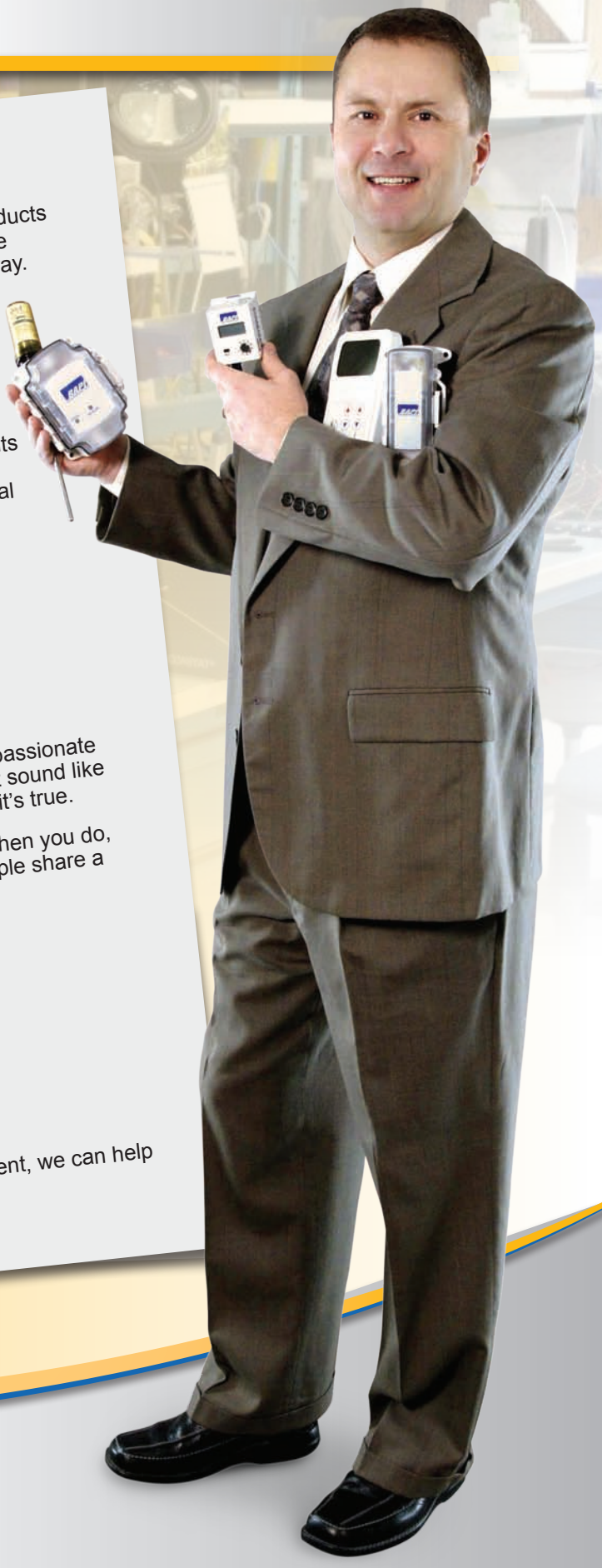
Trust me, I could go on. But the main thing here is that we're passionate about what we do, and we always do what we say. That might sound like so much talk, but observe anyone here, and they'll show you it's true.

So ignore the relish tray and flip through our new catalog. When you do, you'll see what happens when a bunch of local, talented people share a passion for building automation products.

Warmest regards,

Ritch Stevenson,
President

PS: Time isn't money, energy is. And if you've got a moment, we can help you save all three.



Temperature Sensors ..... **Section A**

Room • Communicating • Echelon Compatible • Button • Wall Plate • Duct • Averaging • Immersion • Thermowells • Strap • Remote • Outside Air

Humidity and Combination Temp/Humidity Sensors ..... **Section B**

Room • Communicating • Echelon Compatible • Remote Sensor System • Dew Point • Duct • Outside Air

Zone Pressure Sensors ..... **Section C**

Low, Standard & High Pressure Units • EZ Pressure • BAPI-Box Touch • Pressure Pickup Ports • Pressure Probes • Pressure Switch

Air Quality Sensors ..... **Section D**

Volatile Organic Compound (VOC) Room & Duct • CO_2 Room & Duct • CO Sensor • Refrigerant Leak Detectors • CO_2 Calibration Kit • VOC Verification Kit

Accessories for HVAC/R ..... **Section E**

Voltage Converters • Power Supplies • BAPI-Guard Thermostat Protectors • Adaptor Plates • Flexible Probe Brackets • BAPI-Box Cutting Tool • Water Leak Detectors & More...

Wireless Temperature and/or Humidity ..... **Section F**

Room • Duct • Immersion • Remote • Outside Air • Freezer/Cooler • BAPI-Slim • Receivers • Repeaters • Output Modules • Field Verifiers • WAM • Food Probes • Blü-Test Probes

Electronic Technician Assistant (ETA) Line ..... **Section G**

Interface & Communication Devices that Compliment a DDC Installation • Summary Modules • Sequencers • Voltage Converters • Power Supplies • Repeaters • Transceivers & More...

Sensor Specifications and Output Tables ..... **Section H**

Detailed Specifications and Output Tables for BAPI Thermistors, RTDs, Semiconductors, Temperature Transmitters, Humidity Transmitters and Pressure Sensors

BAPI Application Notes ..... **Section I**

BAPI Setpoint, Display & Mode Control Ranges • Overview of BAPI Enclosures Styles • Complete listing of App. Notes on our Website that help solve common industry challenges...

Terms and Conditions ..... **Section J**

Ordering Information • Warranties • Certificates of Accuracy and Calibration • 100 Percent Compatibility Guarantee

BAPI

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Company Overview

Rev. 11/29/12

Company Background

BAPI manufactures sensors and solutions for HVAC/R, and we bring to the table many years of combined experience in all aspects of the industry from product development and engineering to manufacturing and sales. In fact, BAPI introduced many of the products and processes that have become industry standards, and we currently hold the patents for many of these products and processes. Dedication to quality throughout the entire manufacturing process has earned our products a reputation for reliability and longevity.

Website Resources - www.bapihvac.com

Online Ordering -
The BAPI website features Online Ordering with easy navigation through the product lines and real time information on pricing, orders, shipping and account history.

Application Notes -
Have you ever had a ground loop problem or AC power noise in your sensor cables? BAPI has a wealth of information available online to help you solve these and many other common industry problems.



The BAPI-Guard Video

Instruction Sheets, Datasheets & Price Sheets -
Although Installation and Operation Sheets are included in the box of every BAPI product, sometimes these sheets do not make it to the job site. Therefore, BAPI instruction sheets are available online whenever you need them. Printable Datasheets and Price Sheets are also only a click away.

Videos -
BAPI has a library of instructional videos available on the website such as how to conduct a wireless building survey with our Field Verifier Kit.

Visio Stencils -
Designing HVAC/R control systems can be a time-consuming process. BAPI makes is easier by posting the Visio Stencils with wiring connections for our products online.

The BAPI-Box Enclosures

Durable, Waterproof and Easy to Install

ANOTHER ORIGINAL BAPI

- **High Impact, UV-Resistant Polycarbonate**
- **Meets IP66 & NEMA 4 Ratings**
- **Gasketed Cover for Waterproof Seal**
- **Hinged Cover with Thumb Latch**

The **BAPI-Box** and **BAPI-Box 2** Enclosures offer unprecedented ease of installation to save time and money on every HVAC job. The patented designs eliminate the hassle of locknuts or plugs, and remain watertight even after multiple openings of the hinged cover. They are available for the full line of BAPI duct, immersion, outside air and pressure sensors.

The **BAPI-Box 4** is made of plastic with an opaque, hinged cover. It carries a NEMA 1 rating for indoor use.



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PEOPLE • BUILDING • SENSORS™

All BAPI products are designed, engineered and manufactured at our rural Wisconsin facility by people who take pride in the quality of their work. That's why our sensors perform out of the box and far into the future.

The BAPI Difference

In addition to our exceptional people, BAPI uses only the highest quality sensing elements and meticulous manufacturing, testing and quality assurance procedures to guarantee that our products perform out of the box and far into the future. Here are a few of the extra steps that we take to protect your reputation and therefore your bottom line.

- **100% Testing at Every Step -** Each and every BAPI product is tested at multiple stages in the manufacturing process using custom designed fixtures and computer aided testing procedures to eliminate the potential for human error.
- **NIST Traceable Precision Instruments -** Product testing and calibration is conducted with precision Instrumentation and state-of-the-art Environmental Chambers, all of which are traceable to National Institute of Standards and Technology (NIST) standards.
- **Computer Aided Production Stations -** Every production station features a large computer monitor and access to a wealth of resources on the BAPI network including product specific build documents, schematics and three dimensional product renderings to assure that each product is built to our engineering specifications.
- **CE Certified & RoHS Compliant -** BAPI holds itself to a higher standard with CE certification on select models of temperature, humidity and pressure sensors. BAPI is also committed to environmentally responsible manufacturing practices and complies with the European Union's RoHS directive, which restricts the use of certain hazardous substances such as lead and mercury.
- **100% Compatibility Guarantee -** Because we go the extra mile with the steps listed above, BAPI has the confidence to provide a "100% Compatibility Guarantee". This guarantee states that if the product does not perform to our specifications, then we will not only replace the product but we will also pay the LABOR to replace the product.



A view of the BAPI facility in Gays Mills, Wisconsin.

Put more on 2 wires

With the BAPI-Com™ Multifunction Sensor





2 Wire Com Bus

- Temperature
- Temperature Setpoint
- Occupant Override
- % Relative Humidity

For videos & information on BAPI-Com™, visit **www.bapihvac.com/bapicom**!

BAPI-Stat 4 - pgs 4-7

- Large Display
- Pushbutton or Slider



BAPI-Stat 4S **BAPI-Stat 4M**

BAPI-Stat 2 - pgs 8-11

- Large Display
- Pushbutton or Slider



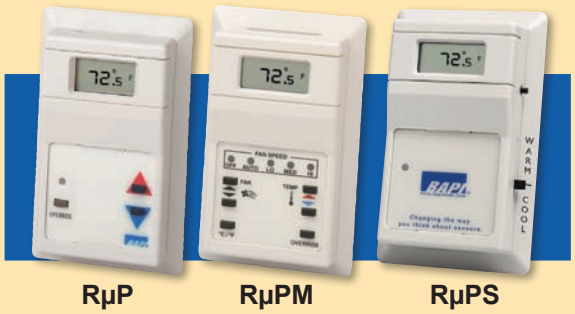
BAPI-Stat 2 without Display - pgs 10-11

Decora Style - pgs 20-21

Low Profile Room Sensor that Fits Inside a Decora Style Wall Plate



RµP Display Units - pgs 12-17



RµP **RµPM** **RµPS**

- Optional Fan Speed and Mode Control

Delta Style Room Units - pgs 18-19

- Optional Setpoint Slider Adjustment
- Optional Occupant Override or Comm Jack
- Optional Bi-Metal Indicator
- Optional Test and Balance Switch



"Button" Sensor - pgs 22-23

Ideal for locations where aesthetics are as important as the temperature measurement.

- Small Inconspicuous Sensor
- Paintable to Match the Room



BAPI-Stat 3 - pgs 24-25

Perfect for Operating Rooms, Labs or Elder Care Facilities



BAPI-Stat - pgs 26-27

Perfect for Operating Rooms, Labs or Elder Care Facilities



"X-Combo" - pgs 28-29

Temperature and Humidity Combination Unit



T1K/T100 Unit - pgs 30-31

T1K/T100 Temperature Transmitter Room Unit



BAPI-Com - pgs 32-33

Multiple Sensor Options on Existing Two Wires



BAPI-Stat 4S **BAPI-Stat 4M**

Table of Contents

Temperature Sensors

Rev. 11/26/12

PreCon & Powers - pgs 34-37



Powers - pgs 34-35
PreCon - pgs 36-37

"L-Temp" Echelon Unit - pgs 38-39

- Onboard Neuron® 3120® Chip
- °C or °F Operation
- Optional Setpoint Adjustment and Occupant Override



Wall Plate Temperature Sensors - pgs 40-43

- Low Profile Wall Plate
- Etched Teflon Leadwires
- Plate-Sized Foam Insulator
- Several Accessory Options
- Broad Range of Materials
- Limited Lifetime Warranty
- Various Finish, Color and Style Choices
- Wide Selection of Temperature Sensing Elements



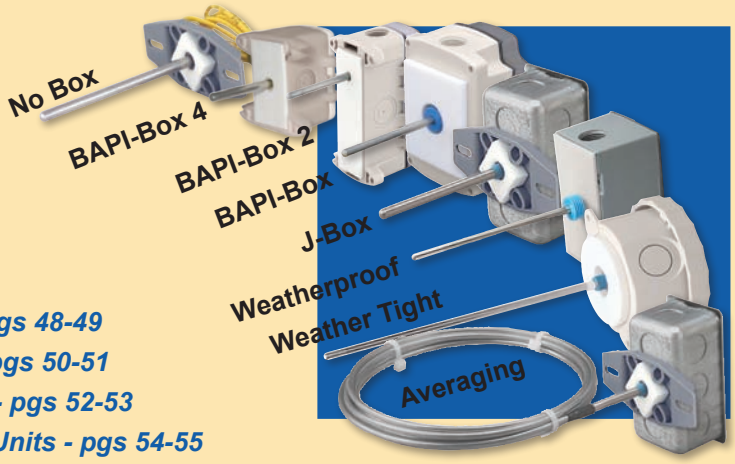


Wall Plates with Rotary Setpoint & Override - pgs 44-45

Also available with Communication Jack and Pressure Pickup Port

Duct, Duct Averaging & Submersible Units - pgs 46-55

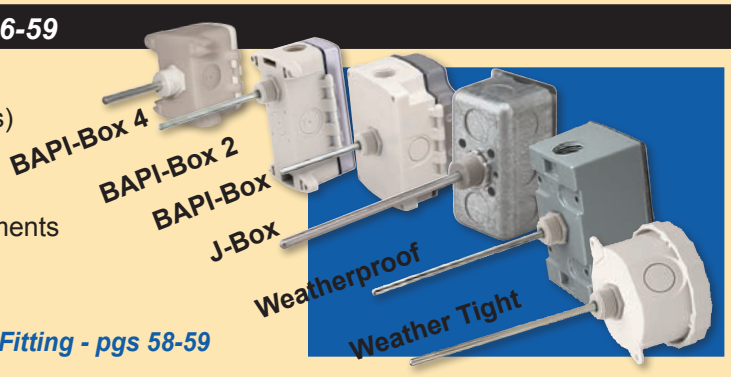
- Mounting Tabs for Easy Installation
- Series 304 Stainless Steel Probes
- Double Encapsulated Sensors
- Six Enclosure Styles
- Wide Selection of TemperatureSensing Elements
- Limited Lifetime Warranty



Duct Averaging Units - pgs 48-49
Rigid Averaging Units - pgs 50-51
Submersible Duct Units - pgs 52-53
Submersible Averaging Units - pgs 54-55

Immersion Probes - pgs 56-59

- Probe Lengths: 2", 4" and 8" (fit standard BAPI Thermowell lengths)
- Series 304 Stainless Steel Probes
- Six Enclosure Styles
- Wide Selection of Temp Sensing Elements
- Limited Lifetime Warranty



Immersion Probes with Stainless Steel Fitting - pgs 58-59

Thermowells - pgs 60-61

- Three Lengths: 2", 4" and 8" (Fit standard Immersion Unit lengths)
- Stainless Steel (304 or 316) or Brass
- Two Part (Welded) or Machined
- Other Lengths Available
- Limited Lifetime Warranty



Welded (above) & Machined

Extreme Temp. RTDs - pgs 62-65

Boiler, Stack, Cryogenic or Remote Sensors

- Stainless Steel Probe
- Double-ended 1/2" NPT Stainless Steel Fitting
- Industrial Construction
- Several Watertight Enclosure Options



Weatherproof Enclosure



Remote Probe

Strap Units - pgs 66-67

- Clamp-On, Strap On or Remote Probes
- Wide Selection of Temperature Sensing Elements

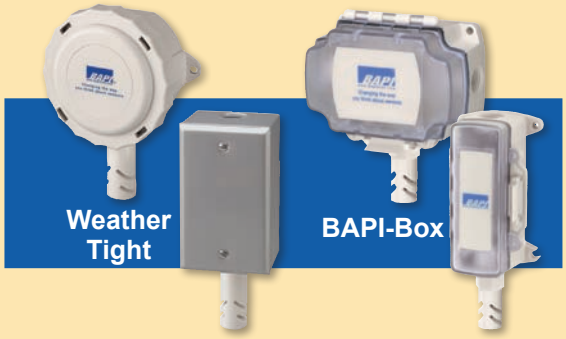
Clamp-On Strap

Spring-Loaded Strap



Outside Air Units - pgs 68-69

- Quick-Response Sensor
- Well-Vented, Light-Colored Sensor Guard



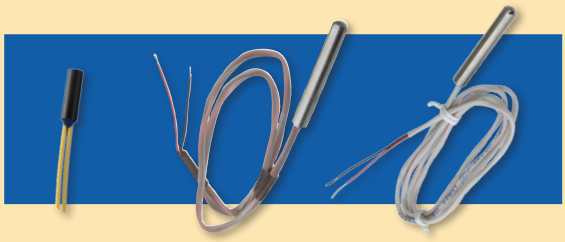
Weather Tight

BAPI-Box

Weatherproof

BAPI-Box 2

Remote Probes - pgs 70-71



Remote Sensor

Remote Probe with FEP Cable

Remote Probe w/ Plenum Cable

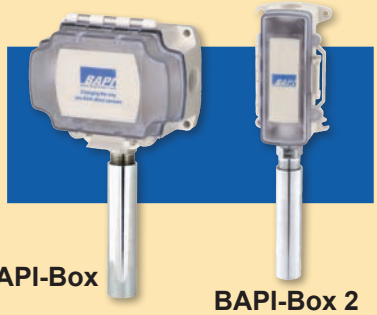
Temp. Transmitters - pgs 72-73



Transmitter Available Alone or with an Enclosure

Thermobuffers - pgs 74-75

A Special Sensor for Walk-In Coolers and Freezers.

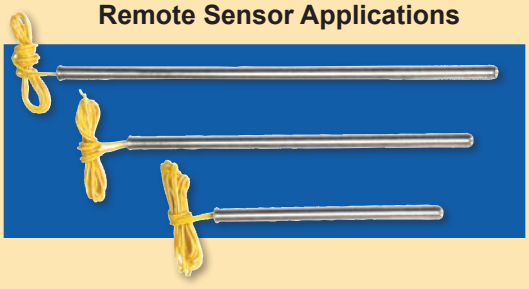


BAPI-Box

BAPI-Box 2

Replacement Probes - pgs 76-77

Fits BAPI Duct, Immersion or Remote Sensor Applications



BAPI-Stat 4™ Room Unit with Display

Temperature Sensors

Rev. 10/16/12

Features & Options

- New Enclosure Style
- Robust Tactile Pushbuttons
- Large LCD Display
- Occupancy Override
- Setpoint Adjust (Slider or Pushbutton)
- Optional Fan Speed & Mode Control
- Optional Comm. Jack and Test & Balance
- Wide Selection of Temp. Sensing Elements
- Two Year Warranty





BAPI-Stat 4 Units with Warm White Logo Plate

The patented BAPI-Stat 4 Style Enclosure features a large LCD with all the visual indicators on the display itself. It provides local indication of Temperature and Setpoint with Setpoint Adjust and Override. It also has optional Fan Speed and Mode Control for applications with Fan Coils, Heat Pumps or Unit Ventilators. The Setpoint Adjust is available as a slidepot or as pushbuttons and is displayed on the LCD for a short time after an adjustment.

The Setpoint can be displayed as an offset (i.e. -2, -1, 0, 1, 2) or as a value within a specified temperature range (i.e. 65 to 80 °F). The Override is a momentary signal that can be configured in parallel with the sensor or setpoint, or as a separate output or a latching switch. An optional 3.5mm (1/8”), RJ11 or RJ22 Communication Jack can be mounted in the base to provide direct access to the network.

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.



BAPI-Stat 4 Units with Gray Logo Plate

Specifications

Power: 5 VDC, 15 to 40 VDC (24 VDC nominal) or 15 to 28 VAC (24 VAC nominal) for Resistive Setpoint Units Only
9 to 40 VDC (24 VDC nominal) is required for 0 to 5V Setpoint Units
15 to 40 VDC (24 VDC nominal) is required for 0 to 10V Setpoint Units
Note: AC power requires a separate pair of shielded wires.

Power Consumption: 7 mA max DC; .17 VA maximum AC

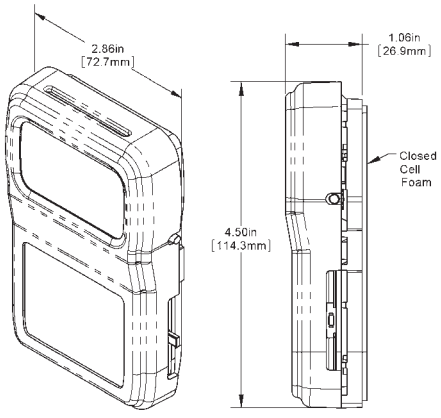
Sensing Element: Thermistor, RTD or Semiconductor

Wiring: 2 to 4 pair of 16 to 22AWG*

Comm. Jack: Optional 3.5mm (1/8”) Phono Jack or RJ11 Phone Jack

Mounting: Standard 2” by 4” J-box or drywall mount (screws provided)

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing



VC350A “EZ” - Voltage Converter



BAPI recommends using DC power on room units for a more stable reading. Our 350mA “EZ” unit is a perfect way to convert 24 VAC to 5, 12, 15 or 24 VDC. The revolutionary “EZ” mounting system allows for snaptrack, DIN rail or surface mounting. See the Accessories section for more info.

*__BAPI__ recommends that you do not run wiring for the Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils. Also, these units are not designed for line voltage applications.

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BAPI-Stat 4™ Room Unit with Display

Rev. 10/16/12

Temperature Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information											**BAPI-Stat 4 Room Unit - Temperature**	List Price	Your Order
BA/BS4M											BAPI-Stat 4 Style Enclosure with Multi-Mode Pushbuttons	$125	$_____
BA/BS4S											BAPI-Stat 4 Style Enclosure with Slidepot Setpoint Adjustment and Side Override Button	$125	$_____
	Display Mode *(Required selection)*										**Pick F (°F) or C (°C) indication**		
	F										Temperatures Displayed in °F		
	C										Temperatures Displayed in °C		
		Setpoint Configuration									***Warm/Cool legend on base is standard for BA/BS4S Units***		
		-#	**SETPOINT DISPLAY OPTIONS (Skip if not required)**										
			Desired Range	**Designator**	**Desired Range**	**Designator**							
			-2 to +2	**P**	55 to 85 °F or 13 to 30 °C	**D**							
			-3 to +3	**A**	60 to 80 °F or 15 to 27 °C	**E**							
			-5 to +5	**B**	65 to 80 °F or 18 to 27 °C	**F**							
			50 to 90 °F or 10 to 32 °C	**C**	70 to 74 °F or 21 to 23 °C	**L**							
					45 to 96 °F or 7 to 36 °C	**G**							
			See App. Notes pg I3 for Additional Setpoint Display Ranges										
		##	**SETPOINT OUTPUT VALUE RANGE (Skip if not required)**										
			Desired Range	**Designator**	**Desired Range**	**Designator**							
			889 to 111 Ω[1]	**20**	0 to 20 kΩ	**80**							
			674 to 274 Ω	**23**	4.75 to 24.75 kΩ	**81**							
			800 to 1200 Ω	**25**	6.19 to 26.19 kΩ	**82**							
			909 to 1309 Ω	**26**	7.87 to 27.87 kΩ	**83**							
			1800 to 2200 Ω	**27**	10 to 30 kΩ	**84**							
			0 to 1 kΩ	**40**	0 to 100 kΩ	**90**							
			500 to 1500 Ω	**41**	0 to 5 V[2]	**00**							
			2 to 3 kΩ	**42**	3.7V to 0.85V [1,2]	**02**							
			0 to 10 kΩ	**60**	5 to 0 V[2]	**03**							
			15 to 5 kΩ	**61**	0 to 10 V[3]	**10**							
			See App. Notes pg I2 for Additional Setpoint Ranges										
			Pushbutton Fan Speed/Mode Options *(BA/BS4M only)* *Skip if not required* *(Single resistive output)*										
			-XLD	Pushbutton Fan Speed Adjustment [Off (5K), Auto (10K), Lo (15K), Med (20K), Hi (25K)] with LCD Indication									
			-X01	Pushbutton Fan Speed Adjustment [Off (4.89K), Auto (2.33K), Lo (10.63K), Med (13.24K), Hi (16.33K)] with LCD Indication									
			-X02	Pushbutton Fan Speed Adjustment [Off (2K), Auto (4K), Lo (6K), Med (8K), Hi (10K)] with LCD Indication									
			-X06	Pushbutton Fan Speed Adjustment [Off (6.5K), Lo (8.5K), Med (10.5K), Hi (12K)] with LCD Indication									
			-HCF	Pushbutton Mode [Heat/Auto (5K), Off/Auto (10K), Cool/Auto (15K), Heat/On (20K), Off/On (25K), Cool/On (30K)] with LCD Indication									
			-H01	Pushbutton Mode [Heat/Auto (0Ω), Off/Auto (2K), Cool/Auto (4K), Heat/On (6K), Off/On (8K), Cool/On (10K)] with LCD Indication									
				Override Configuration ***Must select one***									
				-L#	Override as a Latching Switch (24VDC/VAC @ 800mA max). The "#" represents latching display options 1-9. See App. Notes pg. I9 for more information or contact your BAPI representive.							$25	
				-J	Override as a Separate Output. (Dry contact only, not intended to switch a load.)								
				-N	Override in Parallel (//) with Sensor								
				-P	Override in Parallel (//) with Setpoint: This includes voltage setpoint models								
				-Z	No Override. (Needed if no override is required)								
					Optional Communication Jack ***Mounted in unit's base***								
					-C11L	RJ11 (4 pin) Style Jack with Leads Attached						$20	$_____
					-C11LT	RJ11 (4 pin) Style Jack with Leads and a Terminal Block Attached						$20	$_____
					-C35L	3.5 mm Phono Style Jack with Leads Attached						$10	$_____
					-C35LT	3.5 mm Phono Style Jack with Leads and a Terminal Block Attached						$10	$_____
					-C22L	RJ22 (4 pin) Style Jack with Leads Attached						$25	$_____
					-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block Attached						$25	$_____
						Power Available at Panel ***Must select one***							
						-5	Regulated, 5 VDC (See full power specs on the datasheet)						
						-24	9 to 40 VDC or 15 to 28 VAC (See full power specs on the datasheet)						
							Direct Out Sensor or External Sensor ***Must select one***						
							-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.					
							-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.					
							-1NI	1K Ω Nickel RTD, 1,000 Ω @ 21°C, 5 Ω/°C temp. coeff.				$9.00	$_____
							-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.					
							-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.					
							-18	1.8K Thermistor, 1,800 Ω @ 25 °C					
							-3	3K Thermistor, 3,000 Ω @ 25 °C					
							-33	3.3K Thermistor, 3,300 Ω @ 25 °C					
							-102	10K-2 Thermistor, 10,000 Ω @ 25 °C					
							-103	10K-3 Thermistor, 10,000 Ω @ 25 °C					
							-10311	10K-3[11K] Thermistor, 5,238 Ω @ 25 °C (10K-3 Thermistor with 11kΩ shunt resistor)					
							-20	20K Thermistor, 20,000 Ω @ 25 °C					
							-50	50K Thermistor, 50,000 Ω @ 25 °C					
							-100	100K Thermistor, 100,000 Ω @ 25 °C					
							-592	AD592 Semiconductor, 273 µA @ 0 °C					
							-ES	External Sensor for Display Only. Order 10K-2 thermistor separately. 25 ft max.					
								Optional Test and Balance Switch					
								-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value, call for details. (Not available with the -ES option)			$7.50	$_____
									Connection Configuration Select one, default is common ground				
									-CG	Common Ground (must select for voltage setpoint units)			
									-DF	Differential Inputs (only available with resistive setpoint)			
										Logo Plate Color Must select one			
										-WMW	Warm White Logo Plate Color		
										-GRY	Gray Logo Plate Color		

EXAMPLE

BA/BS4M	**C**	**-80**	**-XLD**	**-N**	**-C11L**	**-24**	**-102**	**-TB**	**-DF**	**-WMW**

Example Part Number: BA/BS4MC-80-XLD-N-C11L-24-102-TB-DF-WMW

Your Part Number:

Total = $_____

All models can be field calibrated so the displayed ambient temperature value matches a reference device (±3°, ½° steps), call for details.
Override indication is activated by logic low or dry contact signal from the controller to GND.
[1] Available on pushbutton (BS4M) models only
[2] 9 to 40 VDC (24 VDC nominal) power is required. Common Ground Only (-CG)
[3] 15 to 40 VDC (24 VDC nominal) power is required. Common Ground Only (-CG)

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BAPI-Stat 4™ Style Units without Display

Temperature Sensors

Rev. 05/15/13

Features & Options

- Modern, Aesthetically Pleasing Enclosure Style
- Setpoint and/or Override (optional)
- Communication Jack (optional)
- Test and Balance Switch (optional)
- Limited Lifetime Warranty

Setpoint & Legend

The optional Setpoint is a linear slidepot adjustment that comes in various ranges, and is available as Reverse or Direct Acting. An optional Setpoint Legend can be imprinted on the base of the enclosure. Common Legends include “Cool/ Warm”, “65 to 80”(°F), “55 to 85”(°F), and “5 to 30”(°C). (See ordering grid on opposite page for all Legend options.)

Override

The optional Override is a discreet momentary signal that can be configured to be compatible with any controller.

Communication Jack

Available with RJ11 (4 pin), RJ12 (6 pin), RJ45 (8 pin), RJ22 (4 pin) or a 3.5 mm phono plug style jack.

Test and Balance Switch

A three-position slider can be provided on the back of the unit to change the sensor output as follows—the “Low” setting is “Full Cool”, “Normal” is the live sensor value, and “High” is “Full Heat”.



BAPI-Stat 4 Units with Warm White Logo Plates



BAPI-Stat 4 Units with Gray Logo Plates

For detailed specifications on the individual Sensors & Transmitters, turn to the Sensors section

* All Passive Thermistors 10K Ω and smaller are CE compliant.

The BAPI-Guard

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



Specifications

Environmental
Operation Range:

Temperature: 32 to 122 °F (0 to 50 °C)

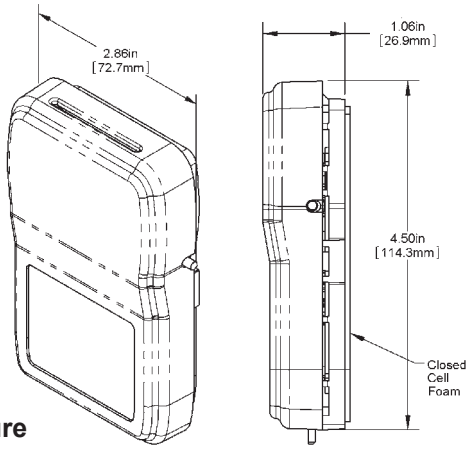
Humidity: 0 to 95%, non-condensing

Material:

ABS Plastic

Material Rating:

UL 94, V-0



BAPI-Stat 4 Style Enclosure

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BAPI-Stat 4™ Style Units without Display

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information			*BAPI-Stat 4 Style Room Units without Display - Temperature*						List Price	Your Order
BA/										
	Sensor Type *(Must select one)*		**Use the designator number (shown to the left in bold) to indicate the sensor**							
			THERMISTORS		**RTDs**				**Thermistors**	
	#	**1.8K**	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.				**$18 Each**	$_____
		3K	3K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.					
		3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.				**RTD's**	
		3.3K	3.3K Ω @ 25 °C	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.				**$25 Each**	
		10K-2	10K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.				**or**	$_____
		10K-3	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.				**$35 for 1K[NI]**	
		10K-3[11K]	5,238 Ω @ 25 °C							
		20K	20K Ω @ 25 °C		**SEMICONDUCTORS**				**Semi-**	
		50K	50K Ω @ 25 °C	**334**	LM334 Semiconductor				**conductors**	
		100K	100K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C				**$25 Each**	$_____
				592-10K	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C					
	Enclosure Style *(Must select one)*									
		-B4	BAPI-Stat 4 Style Room Enclosure							
		Setpoint	***If setpoint is required, must select Range and Legend***							
			SETPOINT OUTPUT VALUE RANGE (insert Designator #)						**$6 for Setpoint**	$_____
			Desired Range / **Designator** / **Desired Range** / **Designator**							
			800 to 1200 Ω — **25** — 15 to 5 kΩ — **61**							
		##	909 to 1309 Ω — **26** — 0 to 20 kΩ — **80**							
			1800 to 2200 Ω — **27** — 4.75 to 24.75 kΩ — **81**							
			0 to 1 kΩ — **40** — 6.19 to 26.19 kΩ — **82**							
			500 to 1500 Ω — **41** — 7.87 to 27.87 kΩ — **83**							
			2 to 3 kΩ — **42** — 10 to 30 kΩ — **84**							
			0 to 10 kΩ — **60** — See App. Notes for other Setpoint Ranges							
			SETPOINT LEGEND (insert Designator #)							
			Legend Range / **Designator** / **Legend Range** / **Designator**							
			5-30 C — **L1** — 68-70-72 — **L5**							
			55-85 F — **L2** — COOL/WARM — **L6**							
			60-85 F — **L3** — WARM/COOL — **L7**							
			65-80 F — **L4** — No Legend — **L0**							
			Override Configuration *Must select one*							
			-J	Override as a Separate Input (Not available with voltage setpoint)					**$5 for any Override**	$_____
			-N	Override in Parallel (//) with Sensor						
			-P	Override in Parallel (//) with Setpoint (Not available with voltage setpoint)						
			-Z	No Override						
				Communication Jack *Select one if required, omit if not required*						
				-C35	3.5 mm Phono Style Jack				**$7**	$_____
				-C11	RJ11 (4 pin) Style Jack				**$7**	$_____
				-C12	RJ12 (6 pin) Style Jack				**$7**	$_____
				-C22	RJ22 (4 pin) Style Jack				**$12**	$_____
					Optional Test & Balance					
					-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value. Call for details.			**$7.50**	$_____
						Connection Configuration *Must select one*				
						-CG	Common Ground (Required for voltage setpoint)			
						-DF	Differential Inputs			
							Logo Plate Color			
							-WMW	Warm White Logo Plate Color (standard)		
							-GRY	Gray Logo Plate Color		
EXAMPLE										
BA/	**10K-2**	**-B4**	**25L1**	**-J**	**-C35**		**-CG**	**-WMW**		
Example Part Number: BA/10K-2-B425L1-J-C35-CG-WMW									**Total =**	$_____
Your Part Number:										

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

BAPI-Stat 2™ Room Unit with Display

Temperature Sensors

Rev. 10/16/12

Features & Options

- Patented BAPI Enclosure Style
- Robust Tactile Pushbuttons
- Large Display with Multiple Indicators
- Occupancy Override
- Slider or Pushbutton Setpoint Adjustment
- Optional Fan Speed & Mode Control
- Optional Communication Jack and Test & Balance
- Wide Selection of Temp. Sensing Elements
- Two Year Warranty



BAPI-Stat 2S **BAPI-Stat 2M**

The patented BAPI-Stat 2 unit features a large LCD with all the indicators on the display itself. It provides local indication of Temperature and Setpoint with Setpoint Adjust and Override. It also has optional Fan Speed and Mode Control for applications with Fan Coils, Heat Pumps or Unit Ventilators.

The Setpoint is available as a slidepot or as pushbuttons and is displayed on the LCD for a short time after an adjustment. The Setpoint can be displayed as an offset (i.e. -2, -1, 0, 1, 2) or as a value within a specified temperature range (i.e. 65 to 80°F). The Override is a momentary signal that can be configured in parallel with the sensor or setpoint, or as a separate output or a latching switch. An optional 3.5mm (1/8") or RJ11 Communication Jack can be mounted in the base to provide direct access to the network.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

Specifications

Power: 5 VDC, 15 to 40 VDC (24 VDC nominal) or 15 to 28 VAC (24 VAC nominal) for Resistive Setpoint Units Only
9 to 40 VDC (24 VDC nominal) is required for 0 to 5V Setpoint Units
15 to 40 VDC (24 VDC nominal) is required for 0 to 10V Setpoint Units
Note: AC power requires a separate pair of shielded wires.

Power Consumption: 7 mA max DC; .17 VA maximum AC

Sensing Element: Thermistor, RTD or Semiconductor

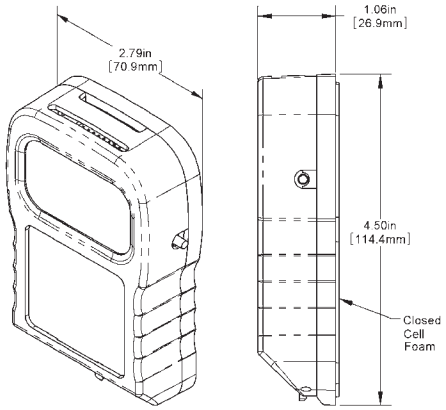
Wiring: 2 to 4 pair of 16 to 22AWG*

Comm. Jack: Optional 3.5mm (1/8") Phono Jack or RJ11 Phone Jack

Mounting: Standard 2" by 4" J-box or drywall mount (screws provided)

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing

Enclosure Material & Rating: ABS Plastic, UL94, V-0



VC350A "EZ" - Voltage Converter



BAPI recommends using DC power on room units for a more stable reading. Our 350mA "EZ" unit is a perfect way to convert 24 VAC to 5, 12, 15 or 24 VDC. The revolutionary "EZ" mounting system allows for snaptrack, DIN rail or surface mounting. See the Accessories section for more info.

*__BAPI__ recommends that you do not run wiring for the Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils. Also, these units are not designed for line voltage applications.

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BAPI-Stat 2™ Room Unit with Display

Rev. 10/16/12

Temperature Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information										**BAPI-Stat 2 Room Unit with Display - Temperature**	List Price	Your Order
BA/BS2M										BAPI-Stat 2 Style Enclosure with Multi-Mode Pushbuttons	$125	$_____
BA/BS2S										BAPI-Stat 2 Style Enclosure with Slidepot Setpoint Adjustment	$125	$_____
	Display Mode *(Required selection)*									**Pick F (°F) or C (°C) indication**		
	F									Temperatures Displayed in °F		
	C									Temperatures Displayed in °C		
		Setpoint Configuration								***(Must select for BS2M. Optional for BS2S)*** ***Cool\Warm legend on base is standard for BS2S***		
		-#								**SETPOINT DISPLAY OPTIONS (Skip if not required)**		
										Desired Range / Designator: -2 to +2 **P**; -3 to +3 **A**; -5 to +5 **B**; 50 to 90 °F or 10 to 32 °C **C**; 55 to 85 °F or 13 to 30 °C **D**; 60 to 80 °F or 15 to 27 °C **E**; 65 to 80 °F or 18 to 27 °C **F**; 70 to 74 °F or 21 to 23 °C **L**; 45 to 96 °F or 7 to 36 °C **G**		
		##								**SETPOINT OUTPUT VALUE RANGE (Skip if not required)**		
										Desired Range / Designator: 889 to 111 Ω[1] **20**; 674 to 274 Ω **23**; 800 to 1200 Ω **25**; 909 to 1309 Ω **26**; 1800 to 2200 Ω **27**; 0 to 1 kΩ **40**; 500 to 1500 Ω **41**; 2 to 3 kΩ **42**; 0 to 10 kΩ **60**; 15 to 5 kΩ **61**; 0 to 20 kΩ **80**; 4.75 to 24.75 kΩ **81**; 6.19 to 26.19 kΩ **82**; 7.87 to 27.87 kΩ **83**; 10 to 30 kΩ **84**; 0 to 100 kΩ **90**; 0 to 5 V[2] **00**; 3.7V to 0.85V [1,2] **02**; 5 to 0 V[2] **03**; 0 to 10 V[3] **10**		
										See App. Notes pg 2 for Additional Setpoint Ranges		
			Pushbutton Fan Speed/Mode Options (BS2M only)							***Skip if not required*** ***(Single resistive output)***		
			-XLD							Pushbutton Fan Speed Adjustment [Off (5K), Auto (10K), Lo (15K), Med (20K), Hi (25K)] with LCD Indication		
			-X01							Pushbutton Fan Speed Adjustment [Off (4.89K), Auto (2.33K), Lo (10.63K), Med (13.24K), Hi (16.33K)] with LCD Indication		
			-X02							Pushbutton Fan Speed Adjustment [Off (2K), Auto (4K), Lo (6K), Med (8K), Hi (10K)] with LCD Indication		
			-X06							Pushbutton Fan Speed Adjustment [Off (6.5K), Lo (8.5K), Med (10.5K), Hi (12K)] with LCD Indication		
			-HCF							Pushbutton Mode [Heat/Auto (5K), Off/Auto (10K), Cool/Auto (15K), Heat/On (20K), Off/On (25K), Cool/On (30K)] with LCD Indication		
			-H01							Pushbutton Mode [Heat/Auto (0Ω), Off/Auto (2K), Cool/Auto (4K), Heat/On (6K), Off/On (8K), Cool/On (10K)] with LCD Indication		
				Override Configuration						***Must select one***		
				-L#						Override as a Latching Switch (24VDC/VAC @ 800mA max). The "#" represents latching display options 1-9. See App. Notes pg. I9 for more information or contact your BAPI representive.	← $25	
				-J						Override as a Separate Output. (Dry contact only, not intended to switch a load.)		
				-N						Override in Parallel (//) with Sensor		
				-P						Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models		
				-Z						No Override. (Needed if no override is required)		
					Optional Communication Jack					***Mounted in unit's base***		
					-C11L					RJ11 (4 pin) Style Jack with Leads Attached	$20	$_____
					-C11LT					RJ11 (4 pin) Style Jack with Leads and a Terminal Block Attached	$20	$_____
					-C35L					3.5 mm Phono Style Jack with Leads Attached	$10	$_____
					-C35LT					3.5 mm Phono Style Jack with Leads and a Terminal Block Attached	$10	$_____
					-C22L					RJ22 (4 pin) Style Jack with Leads Attached	$25	$_____
					-C22LT					RJ22 (4 pin) Style Jack with Leads and Terminal Block Attached	$25	$_____
						Power Available at Panel				***Must select one***		
						-5				Regulated, 5 VDC (See Power Specifications on datasheet)		
						-24				9 to 40 VDC or 15 to 28 VAC (See Power Specifications on datasheet)		
							Direct Out Sensor			***Optional***		
							-0			100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.		
							-1375			1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.		
							-1NI			1K Ω Nickel RTD, 1,000 Ω @ 21°C, 5 Ω/°C temp. coeff.	← $9	$_____
							-1			1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.		
							-2			2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.		
							-18			1.8K Thermistor, 1,800 Ω @ 25 °C		
							-3			3K Thermistor, 3,000 Ω @ 25 °C		
							-33			3.3K Thermistor, 3,300 Ω @ 25 °C		
							-102			10K-2 Thermistor, 10,000 Ω @ 25 °C		
							-103			10K-3 Thermistor, 10,000 Ω @ 25 °C		
							-10311			10K-3[11K] Thermistor, 5,238 Ω @ 25 °C, 11kΩ shunt resistor		
							-20			20K Thermistor, 20,000 Ω @ 25 °C		
							-50			50K Thermistor, 50,000 Ω @ 25 °C		
							-100			100K Thermistor, 100,000 Ω @ 25 °C		
							-592			AD592 Semiconductor, 273 µA @ 0 °C		
							-ES			External Sensor for Display Only. Order 10K-2 thermistor separately. 25 feet max.		
								Optional Test and Balance Switch				
								-TB		Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value, **call for details.**	$7.50	$_____
									Connection Configuration (Select one, default is common ground)			
									-CG	Common Ground (must select for voltage setpoint units)		
									-DF	Differential Inputs (only available with resistive setpoint)		
									Optional Copla White Enclosure (Warm White is Standard)			
									-CPW	Copla White Enclosure Color		

EXAMPLE

BA/BS2M	C	-80	-XLD	-N	-C11L	-24	-102	-TB	-DF

Example Part Number: BA/BS2MC-80-XLD-N-C11L-24-102-TB-DF

Your Part Number:

Total = $_____

All models can be field calibrated so the displayed ambient temperature value matches a reference device (±3°, ½° steps), call for details.
Override indication is activated by logic low or dry contact signal from the controller to GND.
[1] Available on pushbutton (BS2M) models only
[2] 9 to 40 VDC (24 VDC nominal) power is required. Common Ground Only (-CG)
[3] 15 to 40 VDC (24 VDC nominal) power is required. Common Ground Only (-CG)

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BAPI-Stat 2™ Room Units without Display

Temperature Sensors

Rev. 05/15/13

Features & Options

- Modern, Aesthetically Pleasing Enclosure Style
- Setpoint and/or Override (optional)
- Communication Jack (optional)
- Test and Balance Switch (optional)
- Wide Selection of Temperature Sensing Elements
- Limited Lifetime Warranty



BAPI-Stat 2 Style Unit



BAPI-Stat 2 Style Unit with Setpoint & Override

Setpoint & Legend

The optional Setpoint is a linear slidepot adjustment that comes in various ranges, and is available as Reverse or Direct Acting. An optional Setpoint Legend can be imprinted on the base of the enclosure. Common Legends include “Cool/Warm”, “65 to 80”(°F), “55 to 85”(°F), and “5 to 30”(°C). (See ordering grid on opposite page for all Legend options.)

Override

The optional Override is a discreet momentary signal that can be configured to be compatible with any controller.

Communication Jack

Available with RJ11 (4 pin), RJ12 (6 pin), RJ45 (8 pin), RJ22 (4 pin) or a 3.5 mm phono plug style jack.

Test and Balance Switch

A three-position slider can be provided on the back of the unit to change the sensor output as follows—the “Low” setting is “Full Cool”, “Normal” is the live sensor value, and “High” is “Full Heat”.

For detailed specifications on the individual Sensors & Transmitters, turn to the Sensors section

* All Passive Thermistors 10K Ω and smaller are CE compliant.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



Specifications

Environmental Operation Range:

Temperature: 32 to 122 °F (0 to 50 °C)

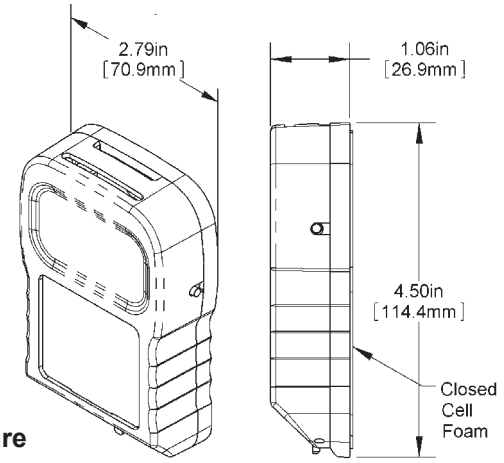
Humidity: 0 to 95%, non-condensing

Material:

ABS Plastic

Material Rating:

UL 94, V-0



BAPI-Stat 2 Style Enclosure

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BAPI-Stat 2™ Room Units without Display

Temperature Sensors

Rev. 05/15/13

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information								*BAPI-Stat 2 Style Room Units without Display - Temperature*	List Price	Your Order
BA/										
	Sensor Type	***Must select one***						**Use the designator number (shown to the left in bold) to indicate the sensor**		
			THERMISTORS					**RTDs**	**Thermistors**	
	#	**1.8K**	1.8K Ω @ 25 °C				**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
		3K	3K Ω @ 25 °C				**100[3W]**	3 Wire 100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.		
		3.25K	3.25K Ω @ 25 °C (T30 type)				**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
		3.3K	3.3K Ω @ 25 °C				**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
		10K-2	10K Ω @ 25 °C				**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
		10K-3	10K Ω @ 25 °C				**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
		10K-3[11K]	5,238 Ω @ 25 °C							
		20K	20K Ω @ 25 °C					**SEMICONDUCTORS**	**Semi-**	
		50K	50K Ω @ 25 °C				**334**	LM334 Semiconductor	**conductors**	
		100K	100K Ω @ 25 °C				**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
							592-10K	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
	Enclosure Style	***Must select one***								
	-B	BAPI-Stat 2 Style Room Enclosure								
	Setpoint	***If setpoint is required, must select Range and Legend***								
		##	**SETPOINT OUTPUT VALUE RANGE (insert Designator #)**						**$6 for Setpoint**	$_____
			Desired Range	**Designator**	**Desired Range**	**Designator**				
			800 to 1200 Ω	**25**	15 to 5 kΩ	**61**				
			909 to 1309 Ω	**26**	0 to 20 kΩ	**80**				
			1800 to 2200 Ω	**27**	4.75 to 24.75 kΩ	**81**				
			0 to 1 kΩ	**40**	6.19 to 26.19 kΩ	**82**				
			500 to 1500 Ω	**41**	7.87 to 27.87 kΩ	**83**				
			2 to 3 kΩ	**42**	10 to 30 kΩ	**84**				
			0 to 10 kΩ	**60**	See App. Notes for other Setpoint Ranges					
			SETPOINT LEGEND (insert Designator #)							
			Legend Range	**Designator**	**Legend Range**	**Designator**				
			5-30 C	**L1**	68-70-72	**L5**				
			55-85 F	**L2**	COOL/WARM	**L6**				
			60-85 F	**L3**	WARM/COOL	**L7**				
			65-80 F	**L4**	No Legend	**L0**				
			Override Configuration	***Must select one***						
			-J	Override as a Separate Input						
			-N	Override in Parallel (//) with Sensor					**$5 for any Override**	$_____
			-P	Override in Parallel (//) with Setpoint						
			-Z	No Override						
				Communication Jack	**Select one if required, omit if not required**					
				-C35	3.5 mm Phono Style Jack				**$7**	$_____
				-C11	RJ11 (4 pin) Style Jack				**$7**	$_____
				-C12	RJ12 (6 pin) Style Jack				**$7**	$_____
				-C22	RJ22 (4 pin) Style Jack				**$12**	$_____
					Optional Test & Balance					
					-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value. Call for details.			**$7.50**	$_____
						Connection Configuration	**Must select one**			
						-CG	Common Ground			
						-DF	Differential Inputs			
						Optional Copla White Enclosure (Warm White is Standard)				
						-CPW	Copla White Enclosure Color			
EXAMPLE										
BA/	**10K-2**	**-B**	**25L1**	**-J**	**-C35**		**-CG**		**Total =**	$_____
Example Part Number: BA/10K-2-B25L1-J-C35-CG										
Your Part Number:										

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

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RµP™ Room Unit

Temperature Sensors

Rev. 10/16/12

Features & Options

- Robust Tactile Pushbuttons
- Digital Display
- Pushbutton Setpoint Adjustment
- Occupancy Override with LED
- Low Profile Enclosure
- Optional Communication Jack
- Optional Test & Balance
- Wide Selection of Temperature Sensing Elements
- Two Year Warranty

100% Compatible with your System GUARANTEED!



RµPF
(F=ºF indication)

The RµP family of sensors provide local indication of Temperature and Setpoint with Setpoint Adjust and Override. An optional 3.5mm (1/8") or RJ11 comm jack can be mounted in the base to provide direct access to the network. The Setpoint is displayed for a short time after an adjustment.

The Setpoint can be programmed to display as an offset (i.e. -2 to 2) or as a value within a specified temperature range (i.e. 65 to 80 °F) and includes a user selectable setpoint lockout. The Override is a momentary signal that can be configured in parallel with the Sensor, Setpoint or as a separate output.

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



Specifications

Power: 5 VDC (only if 5 VDC option is selected when ordered)
7 to 35 VDC (15 to 24 VDC recommended)
12 to 30 VAC (requires a separate pair of shielded wires)

Power Consumption: 10 mA max. DC, .2 VA maximum AC

Sensing Element: Thermistor, RTD or Semiconductor

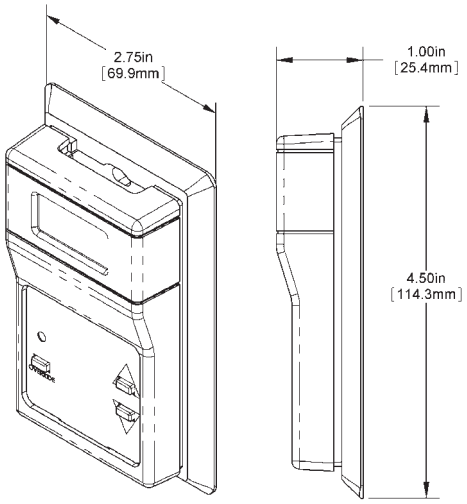
Wiring: 2 to 4 pair of 16 to 22AWG*

Comm. Jack: Optional 3.5mm (1/8") Phono Jack or RJ11 Phone Jack

Mounting: Standard 2" by 4" J-box or drywall mount (mounting screws provided)

Environmental Operation Range:
Temperature: 32 to 122 ºF (0 to 50 ºC)
Humidity: 0 to 95%, non-condensing

Enclosure Material & Rating: ABS Plastic, UL94, V-0



VC350A "EZ" - Voltage Converter



BAPI recommends using DC power on room units for a more stable reading. Our 350mA "EZ" unit is a perfect way to convert 24 VAC to 5, 12, 15 or 24 VDC. The revolutionary "EZ" mounting system allows for snaptrack, DIN rail or surface mounting. See the Accessories section for more info.

***BAPI** recommends that you do not run wiring for the Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils. Also, the RµP is not designed for line voltage applications.

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Ordering Information										List Price	Your Order
BA/RuP	Microprocessor Based Room Sensor with LCD Readout									$125	$_____
	Display Mode *Pick F (°F) or C (°C) indication*										
	F	Temperatures Displayed in °F									
	C	Temperatures Displayed in °C									
	Optional Setpoint Configuration If setpoint is required, you must pick a display designator and an output designator.										
	- #	**SETPOINT DISPLAY RANGE** (Skip if setpoint is not required.)									
		Desired Range / **Designator**: -3 to +3 = **A**; -5 to +5 = **B**; 50 to 90 °F or 10 to 32 °C = **C**; 55 to 85 °F or 13 to 30 °C = **D**; 60 to 80 °F or 15 to 27 °C = **E**; 65 to 80 °F or 18 to 27 °C = **F**									
	##	**SETPOINT OUTPUT VALUE RANGE** (Skip if setpoint is not required.)									
		Desired Range / **Designator**: 0 to 20 kΩ = **80**; 4.75 to 24.75 kΩ = **81**; 6.19 to 26.19 kΩ = **82**; 7.87 to 27.87 kΩ = **83**; 10 to 30 kΩ = **84**; 0 to 5 V* = **00**; 1 to 5 V* = **01**; 3.7 to 0.85 V = **02**; 0 to 10 kΩ = **60**; 15 to 5 kΩ = **61**; 9577 to 1422 Ω = **62**									
		Additional output range values are available. See App. Notes pg 2 for complete listing.									
		Override Configuration *Must select one*									
		-J	Override as a Separate Input (Only available on units without setpoint)								
		-N	Override in Parallel (//) with Sensor								
		-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models								
		-Z	No Override								
			Optional Communication Jack *Mounted in unit's base*								
			-C11L	RJ11 (4 pin) Style Jack with Leads Attached						$20	$_____
			-C11LT	RJ11 (4 pin) Style Jack with Leads and a Terminal Block Attached						$20	$_____
			-C35L	3.5 mm Phono Style Jack with Leads Attached						$10	$_____
			-C35LT	3.5 mm Phono Style Jack with Leads and a Terminal Block Attached						$10	$_____
			-C22L	RJ22 (4 pin) Style Jack with Leads Attached						$25	$_____
			-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block Attached						$25	$_____
				Power Available at Panel *Must select one*							
				-5	Regulated, 5 VDC only						
				-24	24 VDC = 7 to 35 VDC or 12 to 30 VAC						
					Direct Sensor Options *(Must select one)*						
					-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/ °C temp. coeff.					
					-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/ °C temp. coeff.					
					-1NI	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.				← $9	$_____
					-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/ °C temp. coeff.					
					-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/ °C temp. coeff.					
					-18	1.8K Thermistor, 1,800 Ω @ 25 °C					
					-3	3K Thermistor, 3,000 Ω @ 25 °C					
					-33	3.3K Thermistor, 3,300 Ω @ 25 °C					
					-102	10K-2 Thermistor, 10,000 Ω @ 25 °C					
					-103	10K-3 Thermistor, 10,000 Ω @ 25 °C					
					-10311	10K-3[11K] Thermistor, 5,238 Ω @ 25 °C, 11kΩ shunt resistor					
					-20	20K Thermistor, 20,000 Ω @ 25 °C					
					-50	50K Thermistor, 50,000 Ω @ 25 °C					
					-100	100K Thermistor, 100,000 Ω @ 25 °C					
					-592	AD592 Semiconductor, 273 µA @ 0 °C					
						Optional Test and Balance Switch					
						-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value. Call for details.			$7.50	$_____
							Setpoint Lockout *Must select one*				
							-NL	No Lockout			
							-SL	Lockout Enabled			
								Connection Configuration *Must select one*			
								-CG	Common Ground		
								-DF	Differential Inputs		
									Optional Copla White Enclosure		
									-CPW Copla White Enclosure Color		
EXAMPLE											
BA/RuP	**F**	**-E83**	**-N**	**-C11LT**	**-5**	**-0**	**-TB**	**-NL**	**-CG**	Total =	$_____
Example Part Number: BA/RuPF-E83-N-C11LT-5-0-TB-NL-CG											
Your Part Number:											

All models can be field calibrated so the displayed ambient temperature value matches a reference device (±3°, 1° steps), call for details.

All models include an LED which can be activated by logic LOW (GND) at the terminal block and which is limited via a 1kΩ series resistor. Other options are available. Call your BAPI representative for more information.

*Common Ground Only

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

RµPM™ Room Unit

Temperature Sensors

Rev. 10/16/12

Features & Options

- Robust Tactile Pushbuttons
- Setpoint Adjust & Occupant Override
- Optional Fan Speed and Mode Control
- Low Profile Enclosure
- Optional Communication Jack
- Optional Test & Balance
- Wide Selection of Temperature Sensing Elements
- Two Year Warranty



RµPM

Designed for use in applications with Fan Coils, Heat Pumps, Unit Ventilators and other Terminal Units, the RµPM provides local indication of Temperature and Setpoint with Setpoint Adjust, Override, Fan Speed or Mode options. An optional 3.5mm (1/8") or RJ11 Communication Jack can be mounted in the base to provide direct access to the network. The Setpoint is displayed for a short time after an adjustment.

The Setpoint can be programmed to display as an offset (i.e. -2, -1, 0, 1, 2) or as a value within a specified temperature range (i.e. 65 to 80 °F). The Override is a momentary signal that can be configured in parallel with the Sensor or Setpoint. Fan Speed or Mode are provided as a single analog output (resistive) and include appropriate LED indicators.

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



Specifications

Power:
5 VDC (only if 5 VDC option is selected when ordered)
11 to 35 VDC (15 to 24 VDC recommended) for 0 to 5V Setpoint
15 to 35 VDC (15 to 24 VDC recommended) 0 to 10V Setpoint
15 to 28 VAC (Requires a separate pair of shielded wires)

Power Consumption: 10 mA max. DC, .2 VA maximum AC

Sensing Element: Thermistor, RTD or Semiconductor

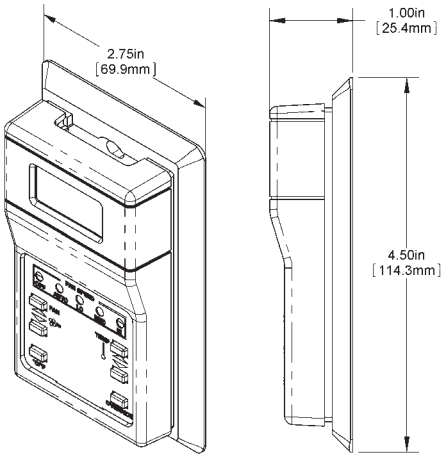
Wiring: 2 to 4 pair of 16 to 22AWG*

Comm. Jack: Optional 3.5mm (1/8") Phono Jack or RJ11 Phone Jack

Mounting: Standard 2" by 4" J-box or drywall mount (mounting screws provided)

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing

Enclosure Material & Rating: ABS Plastic, UL94, V-0



VC350A "EZ" - Voltage Converter



BAPI recommends using DC power on room units for a more stable reading. Our 350mA "EZ" unit is a perfect way to convert 24 VAC to 5, 12, 15 or 24 VDC. The revolutionary "EZ" mounting system allows for snaptrack, DIN rail or surface mounting. See the Accessories section for more info.

*__BAPI__ recommends that you do not run wiring for the Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils. Also, the RµP is not designed for line voltage applications.

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Ordering Information										List Price	Your Order
RupM Room Unit - Temperature											
BA/RuPM	Microprocessor Based Room Sensor with Multi-Mode Pushbuttons and LCD Readout									$125	$_____
Display Mode ***(Must select one)*** ***Pick F (°F) or C (°C) indication***											
F	Temperatures Displayed in °F										
C	Temperatures Displayed in °C										
	Active Sensor Option ***Skip if not required***										
	-3	3K Thermistor, 3,000 Ω @ 25 °C									
	-102	10K-2 Thermistor, 10,000 Ω @ 25 °C									
	-103	10K-3 Thermistor, 10,000 Ω @ 25 °C									
	-10311	10K-3[11K] Thermistor, 5,238 Ω @ 25 °C, 11kΩ shunt resistor									
	Setpoint Configuration Option ***If setpoint is required, you must pick a display designator and an output designator.***										
		- # **SETPOINT DISPLAY RANGE. (Skip if setpoint is not required)**									
		Desired Range / **Designator**									
		-3 to +3 **A**									
		-5 to +5 **B**									
		50 to 90 °F or 10 to 32 °C **C**									
		55 to 85 °F or 13 to 30 °C **D**									
		60 to 80 °F or 15 to 27 °C **E**									
		65 to 80 °F or 18 to 27 °C **F**									
		## **SETPOINT OUTPUT VALUE RANGE (Skip if setpoint is not required.)**									
		Desired Range / **Designator**									
		889 to 111 Ω **20**									
		792 to 208 Ω **21**									
		695 to 305 Ω **22**									
		674 to 274 Ω **23**									
		597 to 305 Ω **24**									
		800 to 1200 Ω **25**									
		2 to 3 kΩ **42**									
		0 to 20 kΩ **80**									
		4.75 to 24.75 kΩ **81**									
		6.19 to 26.19 kΩ **82**									
		7.87 to 27.87 kΩ **83**									
		10 to 30 kΩ **84**									
		0 to 5 V **00**									
		0 to 10 V **10**									
		Additional output range values are available. See App. Notes page I2 for complete listing.									
		Fanspeed/Mode Options ***- Single resistive output Skip if not required (Other modes available, see page I3)***									
		-XLD*	Pushbutton Fanspeed Adjustment [Off (5K), Auto (10K), Lo (15K), Med (20K), Hi (25K)] with LED Indicators								
		-X01*	Pushbutton Fanspeed Adjustment [Off (4.89K), Auto (2.33K), Lo (10.63K), Med (13.24K), Hi (16.33K)] with LED Indicators								
		-X02*	Pushbutton Fanspeed Adjustment [Off (2K), Auto (4K), Lo (6K), Med (8K), Hi (10K)] with LED Indicators								
		-HCF**	Pushbutton Mode [Heat/Auto (5K), Off/Auto (10K), Cool/Auto (15K), Heat/On (20K), Off/On (25K), Cool/On (30K)] with LED Indicators								
		-H01**	Pushbutton Mode [Heat/Auto (0Ω), Off/Auto (2K), Cool/Auto (4K), Heat/On (6K), Off/On (8K), Cool/On (10K)] with LED Indicators								
			Override Configuration ***Must select one***								
			-J	Override as a Separate Output *(only available on units without setpoint)*							
			-N	Override in Parallel (//) with Active Sensor *(not available for the direct passive sensor output)*							
			-P	Override in Parallel (//) with Setpoint *(setpoint option required)*							
			-Z	No Override *(needed if no override is required)*							
				Optional Communication Jack ***Mounted in unit's base***							
				-C11L	RJ11 (4 pin) Style Jack with Leads Attached					$20	$_____
				-C11LT	RJ11 (4 pin) Style Jack with Leads and a Terminal Block Attached					$20	$_____
				-C35L	3.5 mm Phono Style Jack with Leads Attached					$10	$_____
				-C35LT	3.5 mm Phono Style Jack with Leads and a Terminal Block Attached					$10	$_____
				-C22L	RJ22 (4 pin) Style Jack with Leads Attached					$25	$_____
				-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block Attached					$25	$_____
					Power Available at Panel ***Must select one***						
					-5	Regulated, 5 VDC					
					-24	11 to 35 VDC or 15 to 28 VAC (See Power Specifications on opposite page)					
						Direct Passive Sensor Option **Skip if not required**					
						-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.				
						-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.				
						-1NI	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.			← $9	$_____
						-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.				
						-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.				
						-18	1.8K Thermistor, 1,800 Ω @ 25 °C				
						-3	3K Thermistor, 3,000 Ω @ 25 °C				
						-33	3.3K Thermistor, 3,300 Ω @ 25 °C				
						-102	10K-2 Thermistor, 10,000 Ω @ 25 °C				
						-103	10K-3 Thermistor, 10,000 Ω @ 25 °C				
						-10311	10K-3[11K] Thermistor, 5,238 Ω @ 25 °C, 11kΩ shunt resistor				
						-20	20K Thermistor, 20,000 Ω @ 25 °C				
						-50	50K Thermistor, 50,000 Ω @ 25 °C				
						-100	100K Thermistor, 100,000 Ω @ 25 °C				
						-592	AD592 Semiconductor, 273 µA @ 0 °C				
						-ES	External sensor. Order 10K-2 thermistor separately. 24" max (output as active sensor only).				
							Optional Test and Balance Switch				
							-TB	Three Position Test & Balance Switch - "Low" & "High" values vary, "Normal" is live sensor value, **call for details**.		$7.50	$_____
								Optional Copla White Enclosure			
								-CPW	Copla White Enclosure Color		
EXAMPLE											
BA/RuPM	**F**	**-102**	**-B21**	**-XLD**	**-N**	**-C11LT**	**-24**	**-0**	**-TB**		
Example Part Number: BA/RuPMF-102-B21-XLD-N-C11LT-24-0-TB										**Total =**	$_____
Your Part Number:											

All models can be field calibrated so the displayed ambient temperature value matches a reference device (±3°, ½° steps), call for details.
All models are Common Ground Only.
*Includes two "Fan" buttons and one "°C/°F" select button.
**Includes one "System" button and one "Fan" button
Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

RµPS™ Room Unit

Temperature Sensors

Rev. 10/16/12

Features & Options

- LCD Readout of Local Temperature
- Slidepot Setpoint Adjustment
- Pushbutton Occupancy Override with LED
- Low Profile Enclosure
- Optional Setpoint Indication
- Optional Communication Jack
- Optional Test & Balance Switch
- Wide Selection of Temperature Sensing Elements
- Two Year Warranty





RµPS

The RµPS sensor provides measurement and display of local temperature with Setpoint Adjust and Occupancy Override. Room temperature is displayed on an easy-to-read LCD readout. The Setpoint Adjust is a vertical slidepot which provides an analog output and comes with a Warm/Cool legend imprinted on the unit's base (Optional setpoint indication is available).

Setpoint values are transmitted as resistive or voltage values for easy configuration with the controller. The Override is a momentary signal that can be configured as a direct output or in parallel with the Sensor or Setpoint. An optional 3.5mm (1/8"), RJ11 or RJ22 comm. jack can be mounted in the base. The sensor and setpoint outputs can be configured for "common ground" or "differential" controller inputs.

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



Specifications

Power: 5 VDC (only if 5 VDC option is selected when ordered)
9 to 40 VDC (15 to 24 VDC recommended)
15 to 28 VAC (Requires a separate pair of shielded wires)

Power Consumption: 10 mA max DC, .2 VA max AC

Sensing Element: Thermistor, RTD or Semiconductor

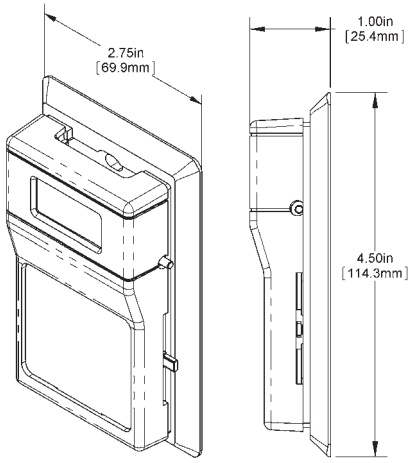
Wiring: 2 to 5 pair of 16 to 22AWG*

Comm. Jack: Optional 3.5mm (1/8") Phono Jack or RJ11 Phone Jack

Mounting: Standard 2" by 4" J-box or drywall mount (screws provided)

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing

Enclosure Material & Rating: ABS Plastic, UL94, V-0



VC350A "EZ" - Voltage Converter



BAPI recommends using DC power on room units for a more stable reading. Our 350mA "EZ" unit is a perfect way to convert 24 VAC to 5, 12, 15 or 24 VDC. The revolutionary "EZ" mounting system allows for snaptrack, DIN rail or surface mounting. See the Accessories section for more info.

*__BAPI__ recommends that you do not run wiring for the Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils. Also, the RµP is not designed for line voltage applications.

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Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information									RµPS Room Unit - Temperature	List Price	Your Order
BA/RuPS									Microprocessor Based Room Sensor with LCD readout, LED lamp & optional slide setpoint.	$125	$_____
	Display Mode (Must select one) Pick F (°F) or C (°C) indication										
	F								Temperatures Displayed in °F		
	C								Temperatures Displayed in °C		
		Setpoint Configuration Option Warm/Cool legend imprinted on base of enclosure is standard.									
		-#	SETPOINT DISPLAY OPTIONS (Skip if not required)								
			Desired Range	Designator	Desired Range	Designator					
			-2 to +2	P	55 to 85 °F or 13 to 30 °C	D					
			-3 to +3	A	60 to 80 °F or 15 to 27 °C	E					
			-5 to +5	B	65 to 80 °F or 18 to 27 °C	F					
			50 to 90 °F or 10 to 32 °C	C	70 to 74 °F or 21 to 23 °C	L					
		##	SETPOINT OUTPUT VALUE RANGE (Skip if not required)								
			Desired Range	Designator	Desired Range	Designator					
			800 to 1200 Ω	25	0 to 20 kΩ	80					
			909 to 1309 Ω	26	4.75 to 24.75 kΩ	81					
			1800 to 2200 Ω	27	6.19 to 26.19 kΩ	82					
			0 to 1 kΩ	40	7.87 to 27.87 kΩ	83					
			500 to 1500 Ω	41	10 to 30 kΩ	84					
			2 to 3 kΩ	42	0 to 100 kΩ	90					
			0 to 10 kΩ	60	0 to 5 V*	00					
			15 to 5 kΩ	61	5 to 0 V*	03					
			See App. Notes pg I2 and I3 for additional Setpoint Output Ranges and Setpoint Display Ranges								
		Override Configuration Must select one									
		-J	Override as a Separate Input								
		-N	Override in Parallel (//) with Sensor: NOT available on voltage sensor models								
		-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models								
		-Z	No Override (needed if system designator present and ordering a unit with setpoint, but NO override)								
			Optional Communication Jack Mounted in unit's base								
			-C11L	RJ11 (4 pin) Style Jack with Leads Attached						$20	$_____
			-C11LT	RJ11 (4 pin) Style Jack with Leads and a Terminal Block Attached						$20	$_____
			-C35L	3.5 mm Phono Style Jack with Leads Attached						$10	$_____
			-C35LT	3.5 mm Phono Style Jack with Leads and a Terminal Block Attached						$10	$_____
			-C22L	RJ22 (4 pin) Style Jack with Leads Attached						$25	$_____
			-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block Attached						$25	$_____
				Power Available at Panel Must select one							
				-5	Regulated, 5 VDC						
				-24	9 to 40 VDC or 15 to 28 VAC						
					Direct Out Sensor Must select one						
					-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.					
					-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.					
					-1NI	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.				← $9	$_____
					-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.					
					-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.					
					-18	1.8K Thermistor, 1,800 Ω @ 25 °C					
					-3	3K Thermistor, 3,000 Ω @ 25 °C					
					-33	3.3K Thermistor, 3,300 Ω @ 25 °C					
					-102	10K-2 Thermistor, 10,000 Ω @ 25 °C					
					-103	10K-3 Thermistor, 10,000 Ω @ 25 °C					
					-10311	10K-3[11K] Thermistor, 5,238 Ω @ 25 °C, 11kΩ shunt resistor					
					-20	20K Thermistor, 20,000 Ω @ 25 °C					
					-50	50K Thermistor, 50,000 Ω @ 25 °C					
					-100	100K Thermistor, 100,000 Ω @ 25 °C					
					-592	AD592 Semiconductor, 273 µA @ 0 °C					
					-ES	External sensor for display. Order 10K-2 separately. 24" max. (No direct sensor. A separate sensor for the controller input is required).					
						Optional Test and Balance Switch Skip if not required					
						-TB	Three Position Test & Balance Switch - "Low" & "High" values vary, "Normal" is live sensor value, **call for details**.			$7.50	$_____
							Connection Configuration Select one, default is common ground				
							-CG	Common Ground (Required for Voltage Setpoint)			
							-DF	Differential Inputs (only with resistive setpoint)			
								Optional Copla White Enclosure			
								-CPW	Copla White Enclosure Color		
EXAMPLE										Total =	$_____
BA/RuPS	C	-41	-N	-C11LT	-24	-1	-TB	-DF			
Example Part Number: BA/RuPSC-41-N-C11LT-24-1-TB-DF											
Your Part Number:											

All models can be field calibrated so the displayed ambient temperature value matches a reference device (±3°, ½° steps), call for details.

All models include an LED which can be activated by logic LOW (GND) at the terminal block and which is limited via a 1kΩ series resistor. Other options are available. Call your BAPI representative for more information.

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

*Common Ground Only

Delta Style Room Units

Temperature Sensors

Rev. 05/15/13

Features & Options

- Low Profile Delta Enclosure
- Optional Setpoint, Override or Bi-Metal Indicator
- Optional Comm. Jack and Test & Balance Switch
- Wide Selection of Temperature Sensing Elements
- Limited Lifetime Warranty



Delta Style Units with and without Setpoint, Override and Indicator

Setpoint & Legend

The optional Setpoint is a linear slidepot adjustment that comes in various ranges, and is available as Reverse or Direct Acting. An optional Setpoint Legend can be imprinted on the base of the enclosure. Common Legends include “Cool/Warm”, “65 to 80”(°F), “55 to 85”(°F), and “5 to 30”(°C). (See ordering grid on opposite page for all Legend options.)

Override

The optional Override is a discreet momentary signal that can be configured to be compatible with any controller.

Communication Jack

Available with RJ11 (4 pin), RJ12 (6 pin), RJ45 (8 pin), RJ22 (4 pin) or a 3.5 mm phono plug style jack.

Bi-Metal Indicator

An optional Bi-Metal Indicator shows room temperature; accurate to ±1 °F. The display is protected by an acrylic plate and comes with a 50 to 90 °F or 10 to 30 °C legend.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



Test and Balance Switch

A three-position slider can be provided on the back of the unit to change the sensor output as follows—the “Low” setting is “Full Cool”, “Normal” is the live sensor value, and “High” is “Full Heat”.

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors Section

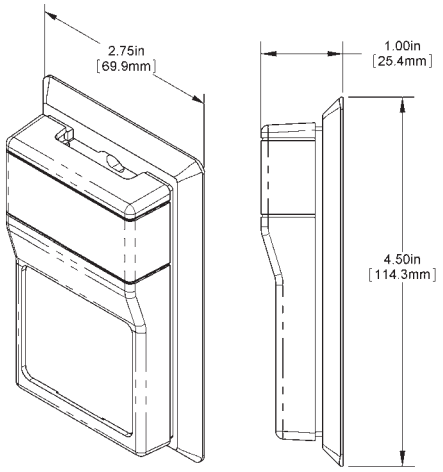
* All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing

Material:
ABS Plastic

Material Rating:
UL 94, V-0



Delta Style Enclosure

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Ordering Information									*Delta Style Room Units - Temperature*	List Price	Your Order
BA/											
Sensor Type	***Must select one***								**Use the designator number (shown to the left in bold) to indicate the sensor**		
			THERMISTORS				**RTDs**			**Thermistors**	
	#		**1.8K**	1.8K Ω @ 25 °C		**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.			**$18 Each**	**$**_____
			3K	3K Ω @ 25 °C		**100[3W]**	3 Wire 100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.				
			3.25K	3.25K Ω @ 25 °C (T30 type)		**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.			**RTD's**	
			3.3K	3.3K Ω @ 25 °C		**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.			**$25 Each**	
			10K-2	10K Ω @ 25 °C		**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.			**or**	**$**_____
			10K-3	10K Ω @ 25 °C		**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.			**$35 for 1K[NI]**	
			10K-3[11K]	5,238 Ω @ 25 °C							
			20K	20K Ω @ 25 °C			**SEMICONDUCTORS**			**Semi-conductors**	
			50K	50K Ω @ 25 °C		**334**	LM334 Semiconductor			**$25 Each**	**$**_____
			100K	100K Ω @ 25 °C		**592**	AD592 Semiconductor, 273 µA @ 0 °C				
						592-10K	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C				
	Enclosure Style	***Required selection***									
	-R	Delta Style Room Enclosure									
		Optional Setpoint	***If setpoint is required, must select Range and Legend***								
			SETPOINT OUTPUT VALUE RANGE (insert Designator #)							**$6 for Setpoint**	**$**_____
			Desired Range	**Designator**	**Desired Range**	**Designator**					
			800 to 1200 Ω	**25**	15 to 5 kΩ	**61**					
		##	909 to 1309 Ω	**26**	0 to 20 kΩ	**80**					
			1800 to 2200 Ω	**27**	4.75 to 24.75 kΩ	**81**					
			0 to 1 kΩ	**40**	6.19 to 26.19 kΩ	**82**					
			500 to 1500 Ω	**41**	7.87 to 27.87 kΩ	**83**					
			2 to 3 kΩ	**42**	10 to 30 kΩ	**84**					
			0 to 10 kΩ	**60**	See App. Notes pg. I2 for other Setpoint Ranges						
			SETPOINT LEGEND (insert Designator #)								
			Legend Range	**Designator**	**Legend Range**	**Designator**					
			5-30 C	**L1**	68-70-72	**L5**					
			55-85 F	**L2**	COOL/WARM	**L6**					
			60-85 F	**L3**	WARM/COOL	**L7**					
			65-80 F	**L4**	No Legend	**L0**					
			Override Configuration	***Must select one***							
			-J	Override as a Separate Input (Not available with transmitter)							
			-N	Override in Parallel (//) with Sensor						**$5 for any Override**	**$**_____
			-P	Override in Parallel (//) with Setpoint (Only available with Resistive Setpoint)							
			-Z	No Override							
				Optional Communication Jack	**Skip if not required**						
				-C35	3.5 mm Phono Style Jack					**$7**	**$**_____
				-C11*	RJ11 (4 pin) Style Jack (Not available with Bi-Metal Indicator)					**$7**	**$**_____
				-C12*	RJ12 (6 pin) Style Jack (Not available with Bi-Metal Indicator)					**$7**	**$**_____
				-C22*	RJ22 (4 pin) Style Jack (Not available with Bi-Metal Indicator)					**$12**	**$**_____
					Optional Indicator	**Skip if not required**					
					-BM5090	Bi-Metal Indicator: 50 to 90 °F legend				**$60 for any Indicator**	**$**_____
					-BM1030	Bi-Metal Indicator: 10 to 30 °C legend					
						Optional Test & Balance	**Skip if not required**				
						-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value. Call for details.			**$7.50**	**$**_____
							Connection Configuration	**Must select one**			
							-CG	Common Ground (Required with Voltage Setpoint Units)			
							-DF	Differential Inputs			
								Optional Copla White Enclosure (Warm White is Standard)			
								-CPW	Copla White Enclosure Color		
EXAMPLE											
BA/	**10K-2**	**-R**	**25L1**	**-J**	**-C35**	**-BM5090**		**-CG**		**Total =**	**$**_____
Example Part Number: BA/10K-2-R25L1-J-C35-BM5090-CG											
Your Part Number:											

*Not available with Voltage Setpoint.

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

Decora Style Room Unit

Temperature Sensors

Rev. 07/03/13

Features & Options

- LCD Readout of Local Temperature
- Setpoint Adjustment (optional)
- Decora Style Enclosure
- °F or °C Indication (field selectable via setpoint pushbuttons)
- Wide Selection of Temperature Sensing Elements



Decora Style Unit with and without Setpoint Adjustment

The low profile Decora Style Room Unit fits inside a Decora Style Wall Plate. It features measurement and display of local temperature with optional pushbutton setpoint adjustment. The room temperature is shown on an easy-to-read LCD display in either °F or °C (field selectable via front pushbuttons for setpoint models). The Setpoint values are transmitted as resistive values for easy configuration with the controller. The sensor and setpoint outputs can be configured for "common ground" or "differential" controller inputs. Besides the standard wall plate cover, the unit is also available with two styles of decorative wall plate covers: the "Curved" style or "Dentil" style (see opposite page).



Now available with Decorative Wall Plate Covers

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

VC350A "EZ" - Voltage Converter



BAPI recommends using DC power on room units for a more stable reading. Our 350mA "EZ" unit is a perfect way to convert 24 VAC to 5, 12, 15 or 24 VDC. The revolutionary "EZ" mounting system allows for snaptrack, DIN rail or surface mounting. See the Accessories section for more info.

Specifications

Power: 5 VDC to 12 VDC ±5%

Power Consumption: 0.5 mA

Sensing Element: Thermistor, RTD or Semiconductor

Wiring: 2 to 3 pair of 16 to 22AWG*

Mounting: Standard 2"x4" J-box with Decora Style Trim Plate

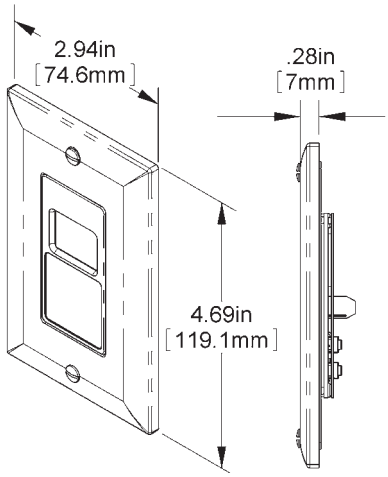
Environmental Operation Range:

Temperature: 32 to 122 °F (0 to 50 °C)

Humidity: 0 to 95%, non-condensing

Material: ABS Plastic

Material Rating: UL94, V-0



*__BAPI__ recommends that you do not run wiring for the Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils. Also, the Decora Style Unit is not designed for line voltage applications.

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Ordering Information								List Price	Your Order
BA/RuPD	Decora Style Room Sensor with Pushbutton Setpoint Adjustment and LCD Readout							$125	$_____
	Display Mode				*Pick F (°F) or C (°C) indication*				
	F	Temperatures Displayed in °F							
	C	Temperatures Displayed in °C							
		Setpoint Configuration			*Skip if setpoint is not required*				
		-#	**SETPOINT DISPLAY OPTIONS** (Required if there is a setpoint) See pg I3 for more options.						
			Desired Range / **Designator**: -2 to +2 = **P**; -3 to +3 = **A**; -5 to +5 = **B**; 50 to 90 °F or 10 to 32 °C = **C**; 55 to 85 °F or 13 to 30 °C = **D**; 60 to 80 °F or 15 to 27 °C = **E**; 65 to 80 °F or 18 to 27 °C = **F**; 70 to 74 °F or 21 to 23 °C = **L**				
		##	**SETPOINT OUTPUT VALUE RANGE** (Required if there is a setpoint) See pg I2 for more options.						
			Desired Range / **Designator**: 0 to 10 kΩ = **60**; 15 to 5 kΩ = **61**; 0 to 20 kΩ = **80**; 0 to 100 kΩ = **90**; 4.75 to 24.75 kΩ = **81**; 6.19 to 26.19 kΩ = **82**; 7.87 to 27.87 kΩ = **83**; 10 to 30 kΩ = **84**; 0 to 5 Volts* = **00***; 0 to 10 Volts** = **10****				
			Direct Out Sensor		*Must select one*				
			-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.					
			-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.					
			-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.					
			-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.					
			-18	1.8K Thermistor, 1,800 Ω @ 25 °C					
			-3	3K Thermistor, 3,000 Ω @ 25 °C					
			-33	3.3K Thermistor, 3,300 Ω @ 25 °C					
			-102	10K-2 Thermistor, 10,000 Ω @ 25 °C					
			-103	10K-3 Thermistor, 10,000 Ω @ 25 °C					
			-20	20K Thermistor, 20,000 Ω @ 25 °C					
			-47	47K Thermistor, 47,000 Ω @ 25 °C					
			-50	50K Thermistor, 50,000 Ω @ 25 °C					
			-100	100K Thermistor, 100,000 Ω @ 25 °C					
			-592	AD592 Semiconductor, 273 µA @ 0 °C					
			-ES	External Sensor for Display Only. Order 10K-2 Thermistor sensor separately					
				Optional Setpoint Display Only (Room Temperature is not shown on the display)					
				-SDO	Setpoint Display Only (This option is field changeable)				
					Connection Configuration	*Select one, default is common ground*			
					-CG	Common Ground (Required with Voltage Setpoint)			
					-DF	Differential Inputs (Only with Resistive Setpoint)			
						Wall Plate Cover Options			
						-NC	No Wall Plate Cover	-$10	$_____
						-SWC	Standard White Wall Plate Cover	$0	$_____
						-DWCC	Decorative White Curved Wall Plate Cover	$23	$_____
						-DWDC	Decorative White Dentil Wall Plate Cover	$31	$_____
EXAMPLE									
BA/RuPD	**C**	**-D80**	**-102**		**-CG**	**-SWC**		**Total =**	$_____
Example Part Number: BA/RuPDC-D80-102-CG-SWC									
Your Part Number:									

All models can be field calibrated so the displayed ambient temperature value matches a reference device (±10°, 1° steps), call for details.

*Unit must be powered by at least 7 VDC to have the 0 to 5 Volt Setpoint Output Range Option

**Unit must be powered by 12 VDC to have the 0 to 10 Volt Setpoint Output Range Option

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Dentil style wall plate cover



Decorative Wall Plate Covers for the Decora Style Units

Besides the standard wall plate cover, the unit is also available with two styles of decorative wall plate covers: the "Curved" style or "Dentil" style.



Curved style wall plate cover

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A22 Low Profile "Button" Sensor

Temperature Sensors

CE*

Rev. 10/16/12

Features & Options

- Small Flush Sensor Mounting
- Accurate Direct Air Measurement
- Paintable with Latex or Oil Base
- Wide Selection of Sensing Elements
- Limited Lifetime Warranty



Low Profile Wall Sensor



The Low Profile "Button" Sensor is ideal for locations where aesthetics are as important as the temperature measurement. The inconspicuous wall sensor mounts easily by pushing through a 3/8" hole and secured with a peel off tape strip. The only visible portion is a flush 7/8" dot on the wall.

The Low Profile "Button" Sensor is available in multiple thermistor or RTD sensors as shown in the specifications. Other sensor types are available on request.

* All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

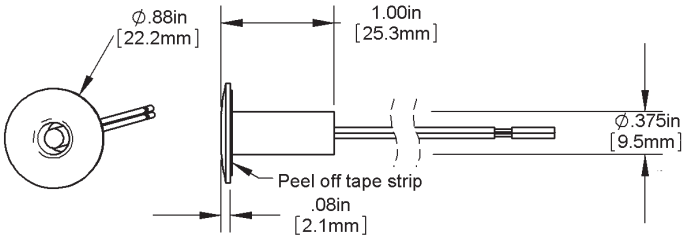
Sensor ..... Passive
Thermistor ..... NTC, 2 wire
RTD ..... PTC, 2 or 3 wire

Thermistor ..... Thermal resistor
Temp. Output..... Resistance
Accuracy (Std) ..... ±0.36ºF, (±0.2ºC)
Accuracy (High)..... ±0.18ºF, (±0.1ºC), **[XP]** option
Stability ..... < 0.036ºF/Year, (<0.02ºC/Year)
Heat dissipation .... 2.7 mW/ºC
Temp. Drift ..... <0.02ºC per year
Probe range ..... -40º to 221ºF (-40º to 105ºC)

RTD ..... Resistance Temperature Device
Platinum (PT)..... 100Ω or 1KΩ @0ºC, 385 curve,
Platinum (PT)..... 1KΩ @0ºC, 375 curve
PT Accuracy (Std).. 0.12% @Ref, or ±0.55ºF, (±0.3ºC)
PT Accuracy (Hi) ... 0.06% @Ref, or ±0.277ºF, (±0.15ºC), **[A] option**
PT Stability ..... ±0.25ºF, (±0.14ºC)
PT Self Heating .... 0.4 ºC/mW @0ºC
PT Probe range .... -40º to 221ºF, (-40 to 105ºC)
Nickel (Ni) ..... 1000Ω @70ºF, JCI curve
Ni Probe range ..... -40º to 221ºF (-40 to 105ºC)

Sensitivity
Thermistor ...Non-linear
Go to bapihvac.com "Sensor Specs"
RTD (PT) .....3.85Ω/ºC for 1KΩ RTD
3.75Ω/ºC for 1KΩ RTD
0.385Ω/ºC for 100Ω RTD
Nickel (Ni) ....2.95Ω/ºF for the JCI RTD

Lead wire: 2 or 3 conductor, 22 AWG stranded wire



Wire Insulation: Etched Teflon, Plenum rated

Wiring: Two 22 AWG wires (non-polar)

Mounting: 3/8" hole, push in plastic sheath with peal off tape strip.

Dimensions: ..... Plastic Sheath
Insertion..... 1.0" depth, into a 0.375" hole
Sleeve..... 0.375" Diameter
Bezel..... 0.875" Diameter

Enclosure Type: Round Flush Sensor Sheath

Enclosure ratings: NEMA 1

Encl. Material: White Delrin, UL94V-HB

Ambient (Encl.)
0 to 100% RH, Non-condensing
-40ºF to 185ºF, (-40º to 85ºC)

Agency
RoHS, CE* (Thermistor's <10KΩ)
PT= DIN43760, IEC Pub 751-1983, JIS C1604-1989

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Ordering Information	Low Profile "Button" Sensor - Temperature				List Price	Your Order
BA/						
	Sensor Type	**Use the designator number (shown to the left in bold) to indicate the sensor**				
		THERMISTORS		**RTDs**	**Thermistors**	
		1.8K 1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.		
	#	**2.2K** 2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	**$_____**
		3K 3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.		
		3.25K 3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**RTD's**	
		3.3K 3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**$25 Each**	
		10K-2 10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**or**	**$_____**
		10K-3 10K Ω @ 25 °C			**$35 for 1K[NI]**	
		10K-3[11K] 5,238 Ω @ 25 °C				
		10K-5 10K Ω @ 25 °C				
		20K 20K Ω @ 25 °C				
		30K 30K Ω @ 25 °C				
		47K 47K Ω @ 25 °C				
		50K 50K Ω @ 25 °C				
		100K 100K Ω @ 25 °C				
		Wall Mount Fitting				
		-LP	Low Profile Flush Mounting Sheath w/ 6" Teflon Leads		**$7**	**$_____**
		Optional Lead Lengths	**6" leads are standard**			
			-5	5 feet of Plenum Rated Cable	**$2**	**$_____**
			-10	10 feet of Plenum Rated Cable	**$4**	**$_____**
			-15	15 feet of Plenum Rated Cable	**$6**	**$_____**
EXAMPLE						
BA/	**10K-2**	**-LP**			**Total =**	**$_____**
Example Part Number: BA/10K-2-LP		Low Profile "Button" Sensor, 10K-2 thermistor				
Your Part Number:						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

BAPI-Stat 3™ Room Unit

Temperature Sensors

Rev. 10/16/12

Membrane Pushbuttons for Wipedown Cleaning



BAPI-Stat 3 Units with Gray & Off White Keypads (shown with optional humidity setpoint)

Features & Options

- Designed for Operating Rooms and Clean Rooms
- Large Easy-to-Read Display
- Temperature Alone or Combination Temperature/Humidity
- Membrane Pushbuttons for Wipedown Cleaning
- Temperature and Humidity Setpoints and Override
- 2% RH Accuracy
- Two Year Warranty

The BAPI-Stat 3 is designed for operating rooms, clean rooms and elder care facilities. It features a large display and membrane pushbuttons for wipedown cleaning. It is available as a temperature sensor alone or as a combination temp/humidity sensor. Depending upon the options selected, the unit can display room temperature, room humidity, temperature setpoint, humidity setpoint and override status.

The unit includes a number of field adjustments including °F or °C display, temperature offset (±5 °F or °C in increments of 0.1°), RH offset (±5% in increments of 0.1%), or setpoint lockout (which disables the setpoint pushbuttons). The display can also be set to show a large temperature and small RH, a large RH and a small temperature, or to alternate between these settings every 5 seconds.

This unit can be configured with up to four transmitted variables. Contact your BAPI representative for details.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

Specifications

Power: 10 to 35 VDC (15 to 24 VDC recommended) for 4 to 20 mA or 0 to 5 VDC Outputs
15 to 35 VDC (15 to 24 VDC recommended) for 0 to 10 VDC Output
12 to 28 VAC (Requires a separate pair of shielded wires) for 0 to 5 VDC Output
15 VAC to 28 VAC (Requires a separate pair of shielded wires) 0 to 10 VDC Output

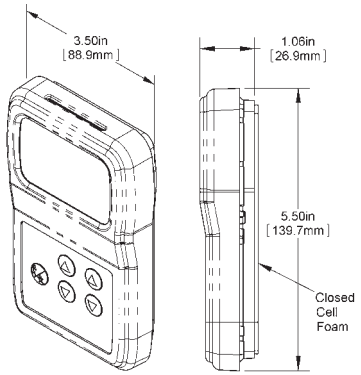
Power Consumption:
60 mA max. DC: 4 to 20 mA or 0 to 5 VDC Outputs
10 mA max. DC: 0 to 10 VDC Output
1.44 VA max. AC: 0 to 5 VDC Outputs
0.2 VA max. AC: 0 to 10 VDC Output

RH/Temp Sensor Construction: Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10% to 90%) @25°C, Fully Compensated
Temp: Semiconductor Band Gap, ±0.3°C @ 25°C

Optional Direct Temp. Sensor: Therm., RTD or Semiconductor

Mounting: 2" by 4" J-box or drywall mount - screws provided

Environmental Specifications:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing



Wiring: 2 to 5 pair of 16 to 22 AWG*

Material: ABS Plastic - UL 94, V-0

*__BAPI__ recommends that you do not run wiring for Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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Ordering Information BAPI-Stat 3 Room Unit - Temperature, Humidity or Combination																																	List Price	Your Order
BA/BS3																																	**$200**	$_____
	Temperature Display Mode																																	
	F	Temperatures Displayed in °F																																
	C	Temperatures Displayed in °C																																
		Humidity Sensor Accuracy (skip if ordering a temperature only unit)																																
		2	Accuracy in % for the Relative Humidity Output (i.e. ±2% RH)																														**$80**	$_____
			Channel # 1* - *T*, *H*, *R* are placeholders for the range options. (See inset charts)																															
			-0 *T*	Temperature Output, 4 - 20 mA																														
			-1 *T*	Temperature Output, 0 - 5 V																													**$50 for Channel #1**	$_____
			-2 *T*	Setpoint Output, Temperature 4 - 20 mA																														
			-3 *T*	Setpoint Output, Temperature 0 - 5 V																														
			-4 *H*	Setpoint Output, %RH 4 - 20 mA																														
			-5 *H*	Setpoint Output, %RH 0 - 5V																														
			-6 *T*	Temperature Output 0 - 10V																														
			-7 *T*	Setpoint Output, Temperature 0 - 10V																														
			-8 *H*	Setpoint Output, %RH 0 - 10V																														
				Channel # 2* - *T*, *H*, R are placeholders for the range options. (See inset charts)																														
				-10 *H*	%RH Output, 4 - 20 mA																														
				-11 *H*	%RH Output, 0 - 5 V																													**$50 for Channel #2**	$_____
				-12 *T*	Setpoint Output, Temperature 4 - 20 mA																														
				-13 *T*	Setpoint Output, Temperature 0 - 5 V																														
				-14 *H*	Setpoint Output, %RH 4 - 20 mA																														
				-15 *H*	Setpoint Output, %RH 0 - 5 V																														
				-16 *H*	%RH Output, 0 - 10 V																														
				-17 *T*	Setpoint Output, Temperature 0 - 10 V																														
				-18 *H*	Setpoint Output, %RH 0 - 10 V																														
					Optional Additional Outputs Ch 3 & 4 - *T*, *H*, *R* are placeholders for range options. (See inset charts)																														
					-20 *T* *R* G	Setpoint Output, Temperature Resistive w/ Override (DF is wired to Channel 3 & 4)																														
					-22 *H* *R* G	Setpoint Output, %RH Resistive w/ Override (DF is wired to Channel 3 & 4)																													**$50 for Channel #3**	$_____
					-24 *T* *R* G	Setpoint Output, Temperature Resistive w/o Override (DF is wired to Channel 3 & 4)																														
					-25 *T* *R* G	Setpoint Output,Temperature voltage w/o Override (Common Ground required)																														
					-26 *H* *R* G	Setpoint Output, %RH Resistive w/o Override (DF is wired to Channel 3 & 4)																														
					-27 *H* *R* G	Setpoint Output, %RH Voltage w/o Override (Common Ground required)																														
					-28 G	Override Only [High Ω -> Low Ω ->High Ω] (DF is wired to Channel 3 & 4)																														
					-29 G	Override Only [5 V -> 0 V -> 5V] (Common Ground required)																														
						Optional Override Ch 3 or 4 - dry contact																														
						-60 G	Dry Contact Override Ch4 (If the unit is DF, use terminals CH3 & CH4)																														
						-61 G	Dry Contact Override Ch5 [Temp - Temp]																														
							Optional Sensor Type Ch 5 (if resistive sensor required)																														
							-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.																														
							-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.																														
							-1NI	1K Ω Nickel RTD, 1,000 Ω @ 21°C, 5 Ω/°C temp. coeff.																														
							-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.																														
							-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.																														
							-18	1.8K Thermistor, 1,800 Ω @ 25 °C																														
							-3	3K Thermistor, 3,000 Ω @ 25 °C																														
							-33	3.3K Thermistor, 3,300 Ω @ 25 °C																														
							-102	10K-2 Thermistor, 10,000 Ω @ 25 °C																														
							-103	10K-3 Thermistor, 10,000 Ω @ 25 °C																														
							-10311	10K-3[11K] Therm., 5,238 Ω @ 25 °C, 11kΩ shunt resistor																														
							-20	20K Thermistor, 20,000 Ω @ 25 °C																														
							-50	50K Thermistor, 50,000 Ω @ 25 °C																														
							-100	100K Thermistor, 100,000 Ω @ 25 °C																														
							-592	AD592 Semiconductor, 273 µA @ 0 °C																														
							-ES	External Sensor connection. 10K-2 thermistor purchased separately.***																														
								Optional Communication Jack																														
								-C11L	RJ11 (4 pin) Style Jack with Leads																														
								-C11LT	RJ11 (4 pin) Style Jack w/ Leads and Terminal Block																														
								-C35L	3.5 mm Phono Jack w/ Leads Attached																														
								-C35LT	3.5 mm Phono Style Jack w/ Leads and Term. Block																														
								-C22L	RJ22 (4 pin) Style Jack with Leads Attached																														
								-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block																														
									Optional Test & Balance Switch**																														
									-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value, call for details.*																														
										Keypad Color Must Select One																														
										-GRY	Gray Keypad Color																														
										-OFW	Off White Keypad Color																														
EXAMPLE																																		
BA/BS3	**F**	**2**	**0**	**C**	**-10**	**M**	**-24**	**C**	**80**	**CG**	**-61**	**CG**	**-102**	**-C35L**	**-TB**	**-GRY**																	**Total =**	$_____
Example Part Number: BA/BS3F2-0C-10M-24C80CG-61CG-102-C35L-TB-GRY																																		
Your Part Number:																																		

R = Output Range Designator

Designator	Output Range	Span
00	0 to 5 V	5 Volts
01	1 to 5 V	4 Volts
02	3.7 to 0.85 V	2.85 Volts
03	5 to 0 V	5 Volts
04	4.2 to 1.2 V	3 Volts
10	0 to 10 V	10 Volts
20	889 to 111 Ω	778Ω
21	792 to 208 Ω	584Ω
22	695 to 305 Ω	390Ω
23	674 to 274 Ω	400Ω
24	597 to 305 Ω	292Ω
25	800 to 1200	400Ω
26	909 to 1309	400Ω
27	1800 to 2200	400Ω
28	866 to1286	400Ω
40	0 to 1 kΩ	1 kΩ
41	500 to 1500 Ω	1 kΩ
42	2 to 3 kΩ	1 kΩ
43	249 to 1249 Ω	1 kΩ
44	10 to 11 kΩ	1 kΩ
45	12.5K-11.5K Ω	1 kΩ
46	1K to 0 Ω	1 kΩ
47	182 to 1182 Ω	1 kΩ
50	0 to 5 kΩ	5 kΩ
51	7.87k to 2.87kΩ	5 kΩ
60	0 to 10 kΩ	10 kΩ
61	15 to 5 kΩ	10 kΩ
62	9577 to 1422 Ω	
63	1 to 11 kΩ	10 kΩ
64	200 to 10200	10 kΩ
80	0 to 20 kΩ	20 kΩ
81	4.75 to 24.75 kΩ	20 kΩ
82	6.19 to 26.19 kΩ	20 kΩ
83	7.87 to 27.87 kΩ	20 kΩ
84	10 to 30 kΩ	20 kΩ

***T* = Temperature, Output & Display Range**

	°F	°C
A	-3 to +3	-3 to +3
B	-5 to +5	-5 to +5
C	50 to 90 °F	10 to 32 °C
D	55 to 85 °F	13 to 30 °C
E	60 to 80 °F	15 to 27 °C
F	65 to 80 °F	18 to 27 °C
G	45 to 96 °F	7 to 35 °C
J	68 to 78 °F	20 to 26 °C
K	65 to 95 °F	18 to 35 °C
L	70 to 74 °F	21 to 23 °C
P	-2 to +2	-2 to +2
X	40 to 80 °F	4 to 27 °C

***H* = Relative Humidity Range**

Designator	%RH
M	0 to 100
N	35 to 70

G = Connection Configuration

Designator	Type
CG	Common Grnd
DF	Differential Grnd

RTD's $25 Each or $35 for 1NI

Thermistors $18 Each

Semi conductors $25 Each

All ranges and options may not be shown here, call BAPI for additional options or with questions about this ordering grid

* Channel 1 or 2 are Common Ground

** Test & Balance is only available with Direct Sensor Type Output

***Must use a 10K-2 thermistor for the External Sensor option. Thermistor is purchased separately. (25' max) This option is only available on units without humidity

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BAPI-Stat™ Room Unit

Temperature Sensors

Rev. 10/16/12

Membrane Pushbuttons for Wipedown Cleaning

Features & Options

- Designed for Operating Rooms and Clean Rooms
- Temperature Alone or Combination Temperature/Humidity
- Membrane Pushbuttons for Wipedown Cleaning
- Temperature and Humidity Setpoint and Override
- Communication Jack (optional)
- 2% RH Accuracy
- Two Year Warranty



BAPI-Stat Units with Gray & Off White Keypads (shown with optional humidity setpoint)

The BAPI-Stat is designed for operating rooms, clean rooms and elder care facilities. It features a large display and membrane pushbuttons for wipedown cleaning. It is available as a temperature sensor alone or as a combination temp/humidity sensor. Depending upon the options selected, the unit can display room temperature, room humidity, temperature setpoint, humidity setpoint and override status.

The unit includes a number of field adjustments including °F or °C display, temperature offset (±5 °F or °C in increments 0.1°), RH offset (±5% in increments of 0.1%), or setpoint lockout (which disables the setpoint pushbuttons). The display can also be set to show a large temperature and small RH, a large RH and a small temperature, or to alternate between these settings every five seconds.

This unit can be configured with up to four transmitted variables. Contact your BAPI representative for details.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

Specifications

Power: 10 to 35 VDC (15 to 24 VDC recommended) for 4 to 20 mA or 0 to 5 VDC Outputs
15 to 35 VDC (15 to 24 VDC recommended) for 0 to 10 VDC Output
12 to 28 VAC (Requires a separate pair of shielded wires) for 0 to 5 VDC Output
15 VAC to 28 VAC (Requires a separate pair of shielded wires) 0 to 10 VDC Output

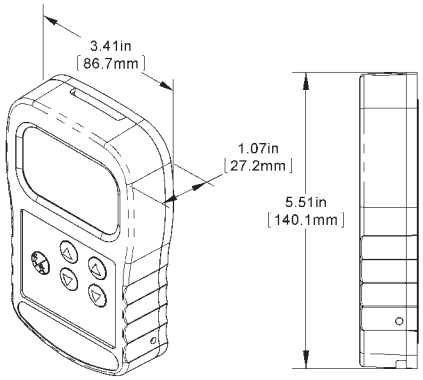
Power Consumption:
60 mA max. DC: 4 to 20 mA or 0 to 5 VDC Outputs
10 mA max. DC: 0 to 10 VDC Output
1.44 VA max. AC: 0 to 5 VDC Outputs
0.2 VA max. AC: 0 to 10 VDC Output

RH/Temp Sensor Construction: Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10% to 90%) @25°C, Fully Compensated
Temperature: Semiconductor Band Gap, ±0.3°C @ 25°C

Optional Direct Temp. Sensor: Therm., RTD or Semi-conductor

Mounting: 2" by 4" J-box or drywall mount - screws provided

Environmental Specifications:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing



Wiring: 2 to 5 pair of 16 to 22 AWG*

Material: ABS Plastic - UL 94, V-0

*__BAPI__ recommends that you do not run wiring for Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information BAPI-Stat Room Unit - Temperature, Humidity or Combination																List Price	Your Order
BA/BS																**$200**	$_____
	Temperature Display Mode																
	F	Temperatures Displayed in °F															
	C	Temperatures Displayed in °C															
		Humidity Sensor Accuracy (skip if ordering a temperature only unit)															
		2	Accuracy in % for the Relative Humidity Output (i.e. ±2% RH)													**$80**	$_____
			Channel # 1* - *T*, *H*, *R* are placeholders for the range options. (See inset charts)														
			-0 ***T***	Temperature Output, 4 - 20 mA													
			-1 ***T***	Temperature Output, 0 - 5 V												**$50 for Channel #1**	$_____
			-2 ***T***	Setpoint Output, Temperature 4 - 20 mA													
			-3 ***T***	Setpoint Output, Temperature 0 - 5 V													
			-4 ***H***	Setpoint Output, %RH 4 - 20 mA													
			-5 ***H***	Setpoint Output, %RH 0 - 5V													
			-6 ***T***	Temperature Output 0 - 10V													
			-7 ***T***	Setpoint Output, Temperature 0 - 10V													
			-8 ***H***	Setpoint Output, %RH 0 - 10V													
				Channel # 2* - *T*, *H*, R are placeholders for the range options. (See inset charts)													
				-10 ***H***	%RH Output, 4 - 20 mA												
				-11 ***H***	%RH Output, 0 - 5 V											**$50 for Channel #2**	$_____
				-12 ***T***	Setpoint Output, Temperature 4 - 20 mA												
				-13 ***T***	Setpoint Output, Temperature 0 - 5 V												
				-14 ***H***	Setpoint Output, %RH 4 - 20 mA												
				-15 ***H***	Setpoint Output, %RH 0 - 5 V												
				-16 ***H***	%RH Output, 0 - 10 V												
				-17 ***T***	Setpoint Output, Temperature 0 - 10 V												
				-18 ***H***	Setpoint Output, %RH 0 - 10 V												
					Optional Additional Outputs Ch 3 & 4 - *T*, *H*, *R* are placeholders for range options. (See inset charts)												
					-20 ***T*** ***R*** **G**	Setpoint Output, Temperature Resistive w/ Override (DF is wired to Channel 3 & 4)											
					-22 ***H*** ***R*** **G**	Setpoint Output, %RH Resistive w/ Override (DF is wired to Channel 3 & 4)										**$50 for Channel #3**	$_____
					-24 ***T*** ***R*** **G**	Setpoint Output, Temperature Resistive w/o Override (DF is wired to Channel 3 & 4)											
					-25 ***T*** ***R*** **G**	Setpoint Output,Temperature voltage w/o Override (Common Ground required)											
					-26 ***H*** ***R*** **G**	Setpoint Output, %RH Resistive w/o Override (DF is wired to Channel 3 & 4)											
					-27 ***H*** ***R*** **G**	Setpoint Output, %RH Voltage w/o Override (Common Ground required)											
					-28 **G**	Override Only [High Ω -> Low Ω ->High Ω] (DF is wired to Channel 3 & 4)											
					-29 **G**	Override Only [5 V -> 0 V -> 5V] (Common Ground required)											
						Optional Override Ch 3 or 4 - dry contact											
						-60 **G**	Dry Contact Override Ch4 (If the unit is DF, use terminals CH3 & CH4)										
						-61 **G**	Dry Contact Override Ch5 [Temp - Temp]										
							Optional Sensor Type Ch 5 (if resistive sensor required)										
							-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.								**RTD's**	
							-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.								**$25 Each**	
							-1NI	1K Ω Nickel RTD, 1,000 Ω @ 21°C, 5 Ω/°C temp. coeff.								**or**	$_____
							-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.								**$35 for 1NI**	
							-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.									
							-18	1.8K Thermistor, 1,800 Ω @ 25 °C									
							-3	3K Thermistor, 3,000 Ω @ 25 °C								**Thermistors**	
							-33	3.3K Thermistor, 3,300 Ω @ 25 °C								**$18 Each**	$_____
							-102	10K-2 Thermistor, 10,000 Ω @ 25 °C									
							-103	10K-3 Thermistor, 10,000 Ω @ 25 °C									
							-10311	10K-3[11K] Therm., 5,238 Ω @ 25 °C, 11kΩ shunt resistor									
							-20	20K Thermistor, 20,000 Ω @ 25 °C									
							-50	50K Thermistor, 50,000 Ω @ 25 °C								**Semi**	
							-100	100K Thermistor, 100,000 Ω @ 25 °C								**conductors**	
							-592	AD592 Semiconductor, 273 µA @ 0 °C								**$25 Each**	$_____
							-ES	External Sensor connection. 10K-2 thermistor purchased separately.***									
								Optional Communication Jack									
								-C11L	RJ11 (4 pin) Style Jack with Leads							**$20**	$_____
								-C11LT	RJ11 (4 pin) Style Jack w/ Leads and Terminal Block							**$20**	$_____
								-C35L	3.5 mm Phono Jack w/ Leads Attached							**$10**	$_____
								-C35LT	3.5 mm Phono Style Jack w/ Leads and Term. Block							**$10**	$_____
								-C22L	RJ22 (4 pin) Style Jack with Leads Attached							**$25**	$_____
								-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block							**$25**	$_____
									Optional Test & Balance Switch**								
									-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value, call for details.*						**$7.50**	$_____
										Keypad Color Must Select One							
										-GRY	Gray Keypad Color						
										-OFW	Off White Keypad Color						

R = Output Range Designator

Designator	Output Range	Span
00	0 to 5 V	5 Volts
01	1 to 5 V	4 Volts
02	3.7 to 0.85 V	2.85 Volts
03	5 to 0 V	5 Volts
04	4.2 to 1.2 V	3 Volts
10	0 to 10 V	10 Volts
20	889 to 111 Ω	778Ω
21	792 to 208 Ω	584Ω
22	695 to 305 Ω	390Ω
23	674 to 274 Ω	400Ω
24	597 to 305 Ω	292Ω
25	800 to 1200	400Ω
26	909 to 1309	400Ω
27	1800 to 2200	400Ω
28	866 to1286	400Ω
40	0 to 1 kΩ	1 kΩ
41	500 to 1500 Ω	1 kΩ
42	2 to 3 kΩ	1 kΩ
43	249 to 1249 Ω	1 kΩ
44	10 to 11 kΩ	1 kΩ
45	12.5K-11.5K Ω	1 kΩ
46	1K to 0 Ω	1 kΩ
47	182 to 1182 Ω	1 kΩ
50	0 to 5 kΩ	5 kΩ
51	7.87k to 2.87kΩ	5 kΩ
60	0 to 10 kΩ	10 kΩ
61	15 to 5 kΩ	10 kΩ
62	9577 to 1422 Ω	
63	1 to 11 kΩ	10 kΩ
64	200 to 10200	10 kΩ
80	0 to 20 kΩ	20 kΩ
81	4.75 to 24.75 kΩ	20 kΩ
82	6.19 to 26.19 kΩ	20 kΩ
83	7.87 to 27.87 kΩ	20 kΩ
84	10 to 30 kΩ	20 kΩ

***T* = Temperature, Output & Display Range**

	°F	°C
A	-3 to +3	-3 to +3
B	-5 to +5	-5 to +5
C	50 to 90 °F	10 to 32 °C
D	55 to 85 °F	13 to 30 °C
E	60 to 80 °F	15 to 27 °C
F	65 to 80 °F	18 to 27 °C
G	45 to 96 °F	7 to 35 °C
J	68 to 78 °F	20 to 26 °C
K	65 to 95 °F	18 to 35 °C
L	70 to 74 °F	21 to 23 °C
P	-2 to +2	-2 to +2
X	40 to 80 °F	4 to 27 °C

***H* = Relative Humidity Range**

Designator	%RH
M	0 to 100
N	35 to 70

G = Connection Configuration

Designator	Type
CG	Common Grnd
DF	Differential Grnd

EXAMPLE

BA/BS	F	2	0	C	-10	M	-24	C	80	CG	-61	CG	-102	-C35L	-TB	-GRY

Example Part Number: BA/BSF2-0C-10M-24C80CG-61CG-102-C35L-TB-GRY

Your Part Number:

Total = $_____

All ranges and options may not be shown here, call BAPI for additional options or with questions about this ordering grid

* Channel 1 or 2 are Common Ground

** Test & Balance is only available with Direct Sensor Type Output

***Must use a 10K-2 thermistor for the External Sensor option. Thermistor is purchased separately. (25' max) This option is only available on units without humidity

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BAPI-Stat 4 “X-Combo” Room Unit

Temperature Sensors

Rev. 10/16/12

Temperature & Humidity Setpoint

Features & Options

- Large Easy-to-Read Display, °F or °C
- Fully Compensated 2% RH Sensor
- Temperature and Humidity Setpoint Adjustment
- Adjustable Toggle Rate Between Temp and Humidity Display
- Optional Override, Passive Sensor, Test and Balance Switch and Communication Jack
- Two Year Warranty



BAPI-Stat 4 “X-Combo” Units with Warm White and Gray Logo Plate

The BAPI-Stat 4 “X-Combo” Room Unit features local indication of both temperature and humidity with optional Temperature Setpoint, Humidity Setpoint and Local Occupancy Override. The optional LCD shows room temperature in °C or °F and room humidity in %RH. In addition, the unit has adjustable offsets for both temperature and humidity and both transmitter ranges can be configured in the field.

The unit has 4 output channels. Channel 1 and 2 can be ordered as voltage or current, channel 3 can be ordered as voltage or resistance and channel 4 is for a passive temperature sensor.

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)

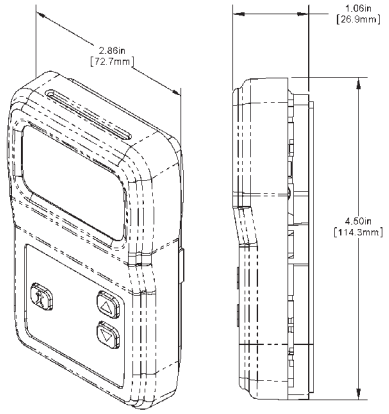


Specifications

Supply Volts: (Contact BAPI if AC power is required)
0 to 10V Output: 16 to 30VDC
0 to 5V & 4 to 20mA Output: 12 to 30VDC

Supply Power:	VDC = 50mA
Temperature Sensor:	Semiconductor Band Gap, ±0.6ºC
RH Sensor:	2% Accuracy, Capacitive
Available Outputs:	3 Configurable, 1 Passive Sensor
Channels 1 & 2	Voltage or Current
Channel 3	Voltage or Resistance
Channel 4	Passive Sensor
Output Signals:	
Voltage, VDC	0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V, Impedance>10KΩ
Current (Sourcing)	4 to 20mA, 500Ω@13.5VDC
Resistance (Setpoint)	Available on Ch. 3 Only
Passive Sensor (Ch. 4)	Thermistor, RTD or Solid State
Input (Digital):	1 (lights Occ/Un-Occ. BAPI-Man)
Termination:	8 Terminals, 16 to 22 AWG*
Optional Override:	Shunt on any of 4 Channels
Optional Comm. Jack:	Located in Base
Test & Balance:	3 Temp. Positions: Hi/Sensor/Lo
Active type	Standard Program Mode, Ch. 1
Passive Sensor	Optional for Ch. 4 w/ 3-Way Switch

Indicators on Display:	Temp, RH, SP, Override
Display Size	2.04”W x 1.33”H
Mounting:	Standard 2x4” J-Box or Drywall, screws provided
Enclosure Material:	ABS Plastic, UL94V-0
Ambient (Enclosure):	32 to 122ºF (0 to 50ºC) 0 to 95%RH, Non-Cond.
Agency:	RoHS



*__BAPI__ recommends that you do not run wiring for the room units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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BAPI-Stat 4 "X-Combo" Room Unit

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information: Required | Optional

			List Price	Your Order
X-Combo in a BAPI-Stat 4 Enclosure (required)				
BA/BS4XC	BAPI-Stat 4 w/ Optional (Rm. Temp., Rm. RH, Temp. Setpoint, Humidity Setpoint, Override and/or Display)		$165	$_____
Display Mode (required) - °F or °C display can be changed in the field				
-F	Temperature factory displayed in ˚F.		$35	$_____
-C	Temperature factory displayed in ˚C.			
-X	No Display Option (Setpoint options require a display)		-	
Humidity Sensor Accuracy (required)				
-2	2% Humidity Sensor		$80	$_____
**** Channel 1 Output** (optional) - replace "D" & "R" with codes from Table D & R or from App notes (p. I2 & I3)				
-10 D R	Temperature	Not available with resistance outputs	$50	$_____
-15 D R	Setpoint Temperature or Setpoint Humidity ^^^			
**** Channel 2 Output** (required) - replace "D" & "R" with codes from Table D & R or from App notes (p. I2 & I3)				
-20 D R	Humidity output	Not available with resistance outputs	$50	$_____
-25 D R	Setpoint Temperature or Setpoint Humidity ^^^			
**** Channel 3 Output ^^^** (optional) - replace "D" & "R" with codes from Table D & R or from App notes (p. I2 & I3)				
-35 D R	Setpoint Temperature or Setpoint Humidity (Not available with R=16, 4-20mA)		$50	$_____
*****Override Button Configuration** (required)				
-CH1	Override in Parallel (//) with Channel 1 (0V, 1V, 2V or 4mA)		$5	$_____
-CH2	Override in Parallel (//) with Channel 2 (0V, 1V, 2V or 4mA)			
-CH3	Override in Parallel (//) with Channel 3 (0V, 1V, 2V or Low ohms)			
-CH4	Dry Contact Override in Parallel (//) with Channel 4 (<1 ohm) ^ (Not available for solid state sensors)			
-Z	No Override. (No override button unless two setpoint channels are selected above)		-	
Channel 4 (optional) - Passive 2-wire Sensor Selection, "Temp + to Temp -"				
-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.		$25	$_____
-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.			
-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.			
-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.			
-1NI	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.		$35	
-18	1.8K Thermistor, 1,800 Ω @ 25 °C		$18	
-3	3K Thermistor, 3,000 Ω @ 25 °C			
-33	3.3K Thermistor, 3,300 Ω @ 25 °C			
-102	10K-2 Thermistor, 10,000 Ω @ 25 °C			
-103	10K-3 Thermistor, 10,000 Ω @ 25 °C			
-10311	10K-3(11K) Therm., 5,238 Ω @ 25 °C, 11kΩ shunt resistor			
-20	20K Thermistor, 20,000 Ω @ 25 °C			
-50	50K Thermistor, 50,000 Ω @ 25 °C			
-100	100K Thermistor, 100,000 Ω @ 25 °C			
-592	AD592 Solid State Semiconductor, 273 µA @ 0 °C, 2 wire only		$25	
-334	LM334 Solid State Semiconductor 2 wire only			
Communication Jack (optional) - Mounted in unit's base				
-C11L	RJ11 (4 pin) Style Jack with Leads		$20	
-C11LT	RJ11 (4 pin) Style Jack with Leads and Terminal Block			
-C35L	3.5 mm Phono Jack w/ Leads Attached		$10	
-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block			
-C22L	RJ22 (4 pin) Style Jack with Leads Attached		$25	
-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block			
Test and Balance Switch ^^ (optional)				
-TB	Three Position Switch - "Low & High" values vary by sensor type, Normal is live passive sensor value.		$7.50	$_____
Connection Configuration (Only required if Channel 4 sensor is used)				
-CG	Common Ground for - TEMP sensor terminal		-	
-DF	+ and - TEMP sensor terminals are isolated			
Logo Plate Color (required)				
-WMW	Warm White		-	
-GRY	Gray			
			Total =	$_____

Table D - Output & Display Range

Code	°F	°C	% RH
A	-3 to +3	-3 to +3	
C	50 to 90 °F	10 to 32 °C	
D	55 to 85 °F	13 to 30 °C	
E	60 to 80 °F	15 to 27 °C	
F	65 to 80 °F	18 to 27 °C	
G	45 to 96 °F	7 to 35 °C	
M			0 to 100%
N			35 to 70%
P	-2 to +2	-2 to +2	
AA	60 to 85°F	15 to 30°C	
EE	67 to 77°F	19 to 25°C	
GG	0 to 100°F	-18 to 38°C	

Table R - Signal Range

Code	Signal Range	Span
00	0 to 5 V	5 Volts
01	1 to 5 V	4 Volts
10	0 to 10 V	10 Volts
11	2 to 10 V	8 Volts
16	4 to 20 mA*	16 mA
60	0 to 10 kΩ	10 kΩ
61	15 to 5 kΩ	10 kΩ
62	9577 to 1422 Ω	8.15 kΩ
63	1 to 11 kΩ	10 kΩ
64	200 to 10200	10 kΩ
65	10.4k to 400Ω	10 kΩ
66	10 kΩ to 0	10 kΩ
67	5 to 15 kΩ	10 kΩ
68	9629 to 806	~10 kΩ
80	0 to 20 kΩ	20 kΩ
81	4.75 to 24.75 kΩ	20 kΩ
82	6.19 to 26.19 kΩ	20 kΩ
83	7.87 to 27.87 kΩ	20 kΩ
84	10 to 30 kΩ	20 kΩ
85	24.75 to 4.75 kΩ	20 kΩ

Example Part Number:

BA/BS4XC	-F	-2	-10C00	-20M10	-35C80	-CH4				-CG	-WMW	= BA/BS4XC-F-2-10C00-20M10-35C80-CH4-CG-WMW

Your Part Number: Shaded cells are optional selections

BA/BS4XC											

Notes:

* This sensor is not loop powered. The output sources the 4-20mA output. The sensor will always require external power.

** Common Ground only, for voltage, current, and resistive outputs.

*** An override adds one button on the sensor. Selecting temperature and humidity setpoints adds a mode button. The override and mode button are the same single button.

^ Front button if setpoints are used or side button if override only. Not intended to switch a load. (0.5A MAX @24V)

^ ^ This is for the passive sensor only. Active Test & Balance is through the sensor Mode select

^ ^ ^ The option adds setpoint buttons. This sensor can only have 2 setpoint buttons. The override button is used to toggle between Temperature and Humidity setpoints

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

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T1K/T100 Transmitter Room Unit

Temperature Sensors

Rev. 10/16/12

Features & Options

- Delta Style, BAPI-Stat 2 or BAPI-Stat 4 Enclosures
- 4 to 20 mA Temperature Output
- Optional Display on the BAPI-Stat 4
- Optional Override and Setpoint on the BAPI-Stat 2 & BAPI-Stat 4
- Optional Communications Jack
- Two Year Warranty



BAPI-Stat 4 Units with Display, Setpoint and Override, and white and gray logo plate.

The T1K/T100 Transmitter Room Unit comes in the Delta style, BAPI-Stat 2 and BAPI-Stat 4 style enclosures. They measure the room temperature and output a 4 to 20mA signal per the custom range selected at the time of order.

The BAPI-Stat 4 Style unit offers a full range of options including setpoint, override, display, communication jack, field offset, field ranging, ºF or ºC and a new stylish look.

The BAPI-Stat 2 is available with the same options except display, while the Delta Style is a simplified unit with temperature measurement only.

For detailed specifications on the T1K & T100 Transmitters, turn to the Sensors section



BAPI-Stat 2 Unit with Optional Setpoint and Override



Delta Style Unit (Not available with Display, Setpoint, Override or Comm. Jack.)

Specifications

Power: 12 to 30VDC (28 VDC max. recommended)

Transmitter Output: 4 to 20mA, 600Ω to 850Ω@24VDC

Power Consumption: 40 mA maximum

Sensing Element: 100Ω or 1KΩ Platinum RTD

Environmental Operation Range:
Temperature, Delta & BS2: 32 to 122ºF (0 to 50ºC)
Temperature, BS4: 15ºF to 130ºF, (-9º to 54ºC)
Humidity: 0 to 95%, non-condensing

Mounting: Standard 2” by 4” J-box or drywall mount (mounting screws provided)

Wiring: 1 to 3 pair of 16 to 22AWG, plus comm. jack

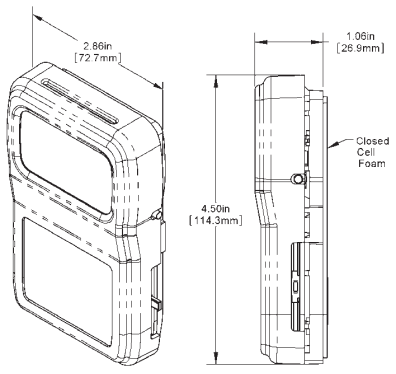
Options:

Comm. Jack	Optional 3.5mm (1/8”) Phono Jack or RJ11 Phone Jack
Setpoint	BS2 & BS4, Resistive or 4 to 20mA
Display	BS4, 3.5 digit, 2”W x 1.1”H
External Sensor	BS2 & BS4, Remote Mounted RTD

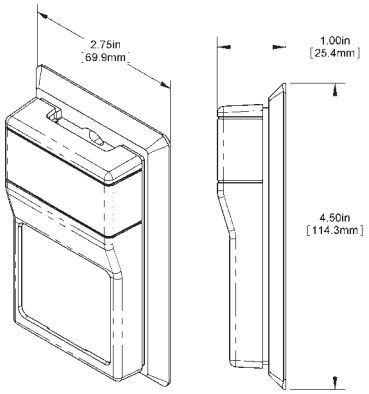
Material: ABS Plastic

Material Rating: UL94, V-0

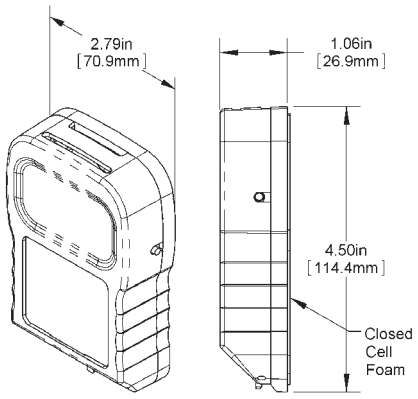
Agency: RoHS



BAPI-Stat 4 Enclosure



Delta Style Enclosure



BAPI-Stat 2 Enclosure

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Ordering Information T1K/T100 Temperature Transmitter Room Unit											List Price	Your Order
BA/												
Temperature Transmitter Type Must select one - Must include a Range												
T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output										$100	$_____
T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED* 4 to 20 mA Output										$280	$_____
T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output										$100	$_____
T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED* 4 to 20 mA Output										$280	$_____
Ranges for Temperature Transmitters Custom temperature transmitter ranges are available. Common ranges are listed below: 65 TO 80F; 60 TO 80F; 55 TO 85F; 50 TO 90F; 18 TO 27C; 15 TO 27C; 13 TO 30C; 10 TO 32C; 40 TO 90F; 45 TO 96F; 0 TO 100F; 4 TO 32C; 7 TO 35C; -18 TO 38C												
Enclosure Style Must select one												
-R	Delta Style Room Enclosure (Not available with Display, Setpoint, Override or Comm. Jack in the Delta Style Enclosure)											
-B	BAPI-Stat 2 Style Room Enclosure (Not available with Display)											
-B4S	BAPI-Stat 4 Style Room Enclosure										$50	$_____
	LCD Display Must select one											
	D	LCD Display (Only available for the BAPI-Stat 4 Style Enclosure)									$35	$_____
	X	No LCD Display										
		Setpoint Display Options Must select one - Setpoint display only availablefor BAPI-Stat 4 units										
		Note: Setpoint display range cannot be larger than the Temperature Transmitter range selected above.										
		- #	**SETPOINT DISPLAY OPTIONS** See page I3 for Additional Setpoint Display Ranges.									
			Desired Range	**Designator**	**Desired Range**	**Designator**						
			-2 to +2	P	65 to 80 °F or 18 to 27 °C	F						
			-3 to +3	A	45 to 96 °F or 7 to 36 °C	G						
			-5 to +5	B	70 to 74 °F or 21 to 23 °C	L						
			50 to 90 °F or 10 to 32 °C	C	60 to 85 °F or 15 to 30 °C	AA						
			55 to 85 °F or 13 to 30 °C	D	41 to 85 °F or 5 to 30 °C	CC						
			60 to 80 °F or 15 to 27 °C	E	No Setpoint Display	X						
		Optional Setpoint If setpoint is selected, you must select a Range and Legend)										
		##	**SETPOINT OUTPUT VALUE RANGE** See page I2 for Additional Setpoint Output Ranges								$6 for Setpoint	$_____
			Desired Range	**Designator**	**Desired Range**	**Designator**						
			674 to 274 Ω	23	15 to 5 kΩ	61						
			800 to 1200 Ω	25	0 to 20 kΩ	80						
			909 to 1309 Ω	26	4.75 to 24.75 kΩ	81						
			1800 to 2200 Ω	27	6.19 to 26.19 kΩ	82						
			0 to 1 kΩ	40	7.87 to 27.87 kΩ	83						
			2 to 3 kΩ	42	10 to 30 kΩ	84						
			0 to 10 kΩ	60	4-20 mA	16***					$60 for #16	$_____
			SETPOINT LEGEND									
			Legend Range	**Designator**	**Legend Range**	**Designator**						
			5-30 C	L1	65-80 F	L4						
			55-85 F	L2	COOL/WARM	L6						
			60-85 F	L3	No Legend	L0						
			Override Configuration Must select one - Override not available for Delta Style Units									
			-J	Override as a Separate Input							$5 for any Override	$_____
			-N	Override in Parallel (//) with the Sensor (Only available for the BAPI-Stat 4 Style Units)								
			-P	Override in Parallel (//) with Setpoint (Not available on BS2 with 4-20mA Setpoint Output)								
			-Z	No Override								
				Optional Comm. Jack Skip if not required - Not available for Delta Style units								
				-C11L	RJ11 (4 pin) Style Jack with Leads Attached						$20	$_____
				-C11LT	RJ11 (4 pin) Style Jack with Leads and a Terminal Block Attached						$20	$_____
				-C35L	3.5 mm (3 pin) Phono Style Jack with Leads Attached						$10	$_____
				-C35LT	3.5 mm (3 pin) Phono Style Jack with Leads and a Terminal Block Attached						$10	$_____
				-C22L	RJ22 (4 pin) Style Jack with Leads Attached						$25	$_____
				-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block Attached						$25	$_____
					Connection Configuration Must select one							
					-CG	Common Return**						
					-DF	Differential Inputs^ - Required for 4-20 mA setpoint						
					Optional External Sensor for BAPI-Stat 2 & 4							
					-ES	External RTD Sensor (order separately)						
					BAPI-Stat 4 Logo Plate Color							
					-WMW	Warm White Logo Plate Color						
					-GRY	Gray Logo Plate Color						
EXAMPLE												
BA/	T100[65 TO 80F]	-B4S	D	-P	25L6	-J	-C35L	-CG		-GRY		Total = $_____
Example Part Number: BA/T100[65 TO 80F]-B4SD-P25L6-J-C35L-CG-GRY												
Your Part Number:												

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

*Matched transmitters use Class A & are matched at 25%, 50% & 75% of calibrated scale

**There is a common between the setpoint and override if the setpoint is resistive.

***If 4-20 mA setpoint output range (#16) is selected, then the bottom of a vertical slider equals a setpoint output of 4 mA and the top on a vertical slider equals a 20 mA setpoint output. The 4-20 mA setpoint can only be used with the –B4S enclosure sensor and requires a –DF (differential input) designation.

^Setpoint and Override terminals do not share a common connection

BAPI-Com, Two-wire Multifunction Sensor

Temperature Sensors

Rev. 10/16/12

Features & Options

- Power and Communication on Just Two Wires
- Available with Temperature Sensing, Temperature Setpoint, Occupant Override, Optional Display and Optional %RH Sensing
- Thermistor, Voltage, Resistance or Dry Contact Outputs
- Up to 500 Foot Wire Runs — Perfect for Existing Wires

Many existing buildings have two wire sensors that lack the features customers expect in today's sophisticated systems. The BAPI-Com system uses those existing two wires and offers the owner a full function temperature sensor with temperature setpoint, occupant override, an optional easy-to-read display and optional %RH sensing.

This retrofit sensor can update old systems to a new look without pulling new wire or disrupting the occupants while saving on labor.

The sensors are powered and communicate over two wires to a Communication Output Module for use by a BAS system. The outputs are configurable as a thermistor, voltage, resistance or dry contact override output. The sensor is powered by the Communication Output Module which itself is supplied by any 24VDC/VAC source.



BAPI-Com Pushbutton and Slider Units with White and Gray Logo Plates (each BAPI-Com includes a BAPI-Stat 4 Room Sensor & Communication Output Module)

Specifications

ROOM SENSOR

Power: 18VDC, from the Comm. Output Module

Wiring: 2 wires, Up to 500ft (new or existing)

AWG gauge .....22 to 14AWG
Twist per foot .....5 per ft preferred
Shielding.....Preferred (not required)
Wire spec typical ...Belden 9841

Temperature Sensor: Thermistor, ±0.36ºF (±0.2ºC)

RH/Temp Sensor Construction:
Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10% to 90%) @25°C, Fully Compensated
Temperature: Semi-conductor Band Gap, ±0.3°C @ 25°C

Pole Rate: 400 ms

Options:
Setpoint .....Slide or Pushbutton
Test & Balance.....Available with Display
Humidity.....2% Accuracy, Capacitive
Override.....Pushbutton
Display.....LCD

Ambient:
32 to 122°F (0 to 50°C),
0 to 95%RH, non-condensing

COMMUNICATION OUTPUT MODULE

Power in: 24VDC/AC, 30mA

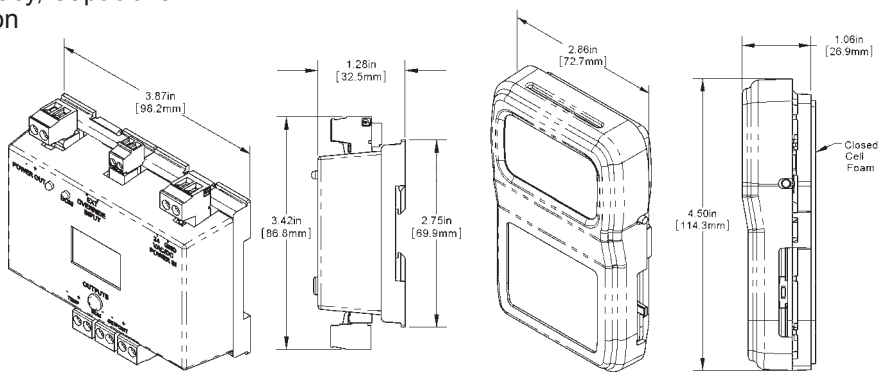
Terminations:
Comm. & PWR .....2 wires to the sensor
Power in.....2 wires, 12 to 28 AWG
Output.....2 wires per output, 12 to 28 AWG
Override Input.....2 wires, 16-30 AWG

Outputs:.....Three Maximum
Volts.....0 to 5 or 0 to 10VDC,10kΩ min
Resistance.....20K span
Thermistor .....10K-2 or 10K-3

Input (DI): Ext. Override Dry Contact, Closed = Occupied

Mounting: .....3 EZ mount methods
35mm DIN Rail ....Quick tab release
2.75" Snaptrack ....4" length
Screw Mount.....Four tabs w/0.125" holes

Material:.....ABS Plastic, UL94V-0, RoHS



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Ordering Information													List Price	Your Order
***BAPI-Com Room Temperature Sensor* Unit**														
BA/BS4MCOM	BAPI-Stat 4 Enclosure Sensor with Pushbuttons for Setpoint & Override & the Communication Output Module. (Must use display -F or -C)												**$290.00**	**$**_____
BA/BS4SCOM	BAPI-Stat 4 Enclosure Sensor with Slide Setpoint & the Communication Output Module. (Override button on the side if needed)												**$290.00**	**$**_____
	Display Option (Required Selection Field, Select Only One)													
	-F	Display Configurable in the field (default is in °F), (Optional Legend selection below)											**$35.00**	**$**_____
	-C	Display Configurable in the field (default is in °C), (Optional Legend selection below)											**$35.00**	**$**_____
	-X	No Display Option (Must use a Slide for the Setpoint), (Required Legend selection below)											**$0.00**	
		Humidity Sensing (Skip if not required)												
		-2	2% Humidity Sensor										**$80.00**	**$**_____
			Temperature Output Range (Also used for the voltage output module range) (Required)											
			-#	**Temperature Output**	**Designator**	**Temperature Output**	**Designator**						**$0.00**	
				50 to 90˚F or 10 to 32˚C	**C**	65 to 80˚F or 18 to 27˚C	**F**							
				55 to 85˚F or 13 to 30˚C	**D**	70 to 74˚F or 21 to 23˚C	**L**							
				60 to 80˚F or 15 to 27˚C	**E**	See Application Notes, pg I3 for more ranges								
				Setpoint Configuration (Skip if no display is required)										
				-#	**Setpoint Display**	**Designator**	**Setpoint Display**	**Designator**					**$0.00**	
					-2 to +2	**P**	65 to 80˚F or 18 to 27˚C	**F**						
					-3 to +3	**A**	70 to 74˚F or 21 to 23˚C	**L**						
					-5 to +5	**B**	0 to 100% RH	**M**						
					50 to 90˚F or 10 to 32˚C	**C**	35 to 70% RH	**N**						
					55 to 85˚F or 13 to 30˚C	**D**	0 to 100˚F or -18 to 38˚C	**GG**						
					60 to 80˚F or 15 to 27˚C	**E**	See Application Notes, pg I3 for more ranges							
					Legend Designator on the Sensor Cover (Required for all slide type sensors)									
					-L0	No Legend							**$0.00**	
					-L6	COOL/WARM							**$0.00**	
						Logo Plate Color (Required)								
						-WMW	Warm White Logo Plate Color						**$0.00**	
						-GRY	Gray Logo Plate Color						**$0.00**	
							Special Factory Configurations — List in Alpha order as needed (-ES-SDO) (Skip if not required)							
							-ES	External Temp Sensor (Requires separately purchased 10K-2 sensor), (Not available with humidity)					**$0.00**	
							-SDO	Setpoint Display Only					**$0.00**	
								Setpoint Output Value Range (Skip if not required)						
								-#	**Desired Range**	**Designator**	**Desired Range**	**Designator**	**$80.00**	**$**_____
									0 to 20KΩ	**80**	10K to 30KΩ	**84**		
									4.75K to 24.75KΩ	**81**	0 to 5V*	**00**		
									6.19K to 26.19KΩ	**82**	0 to 10V*	**10**		
									7.87K to 27.87KΩ	**83**	See App. Notes, pg I2 for more ranges			
									Override Output — Momentary for 3-5 seconds (Required)					
									-J	Dry Contact Override on dedicated terminals (Not Available for Humidity Units)			**$50.00**	**$**_____
									-M	Override in Parallel (*//*) with RH signal			**$0.00**	
									-N	Override in Parallel (*//*) with Sensor			**$0.00**	
									-P	Override in Parallel (*//*) with Setpoint			**$0.00**	
									-Z	No Override			**$0.00**	
										Room Humidity Output Value (Skip if humidity is not required)				
										-M00	Humidity Output 0-5V = 0-100%RH (Common ground only)		**$50.00**	**$**_____
										-M10	Humidity Output 0-10V = 0-100%RH (Common ground only)		**$50.00**	**$**_____
											Room Temperature Output Value (Skip if not required)			
											-102	Thermistor Temperature Output, 10K-2, 10KΩ @ 25˚C		
											-103	Thermistor Temperature Output, 10K-3, 10KΩ @ 25˚C		
											-10311	Thermistor Temp Output, 10K-3 w/ 11KΩ shunt, 5238Ω @ 25˚C		
											-00	0 to 5V over the Temp Output Range (Common grnd only)		
											-10	0 to 10V over the Temp Output Range (Common grnd only)		
												Connection Configuration (Required)		
												-CG Common ground for resistive and voltage outputs	**$0.00**	
												-DF Differential ground for resistive outputs	**$0.00**	
EXAMPLE														
BA/BS4SCOM	**-F**		**-C**	**-P**	**-L6**	**-WMW**		**-82**	**-N**		**-103**	**-DF**	**Total =**	**$**_____
BA/BS4SCOM-F-C-P-L6-WMW-82-N-103-DF - BS4 sensor, w/slide setpoint & override, Outputs for sensor, setpoint and override														
Your Part Number:														

*Common Ground Only

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Powers Style Room Units

Temperature Sensors

CE*

Rev. 10/16/12

Features & Options

- Excellent Air Flow Properties
- Drywall Mounting
- Optional Bi-Metal Display
- Limited Lifetime Warranty
- Wide Selection of Temperature Sensing Elements

100% Compatible with your System GUARANTEED!

Bi-Metal Indicator

An optional Bi-Metal Indicator can display room temperature; accurate to ±1 °F. The display is protected by a view plate and comes standard with a 50 to 80 °F Legend. This legend is printed in dark brown on a tan background.



Powers Style Enclosure

For detailed specifications on the individual Sensors & Transmitters, turn to the Sensors section.

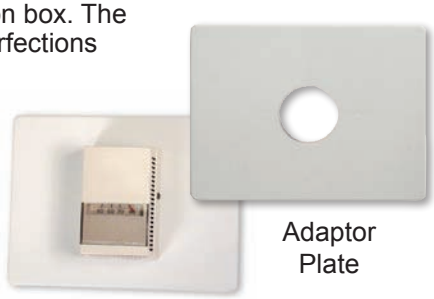
* All Passive Thermistors 10K Ω and smaller are CE compliant.



Powers Style Enclosure with Bi-metal Indicator

BAPI Adaptor Plates for Retrofits

The BAPI Adaptor Plates allow the Powers Style Room units to be mounted on a standard 2”x4” junction box. The Adaptor Plates also cover wall imperfections in locations where a larger Room Unit (or sensor) has been previously mounted. The Adaptor Plates are made of flame retardant ABS plastic, and are available in four colors to match any BAPI room unit. They can be mounted vertically or horizontally. For more info, see “Accessories”.



Adaptor Plate

Plate & Room Unit

Specifications

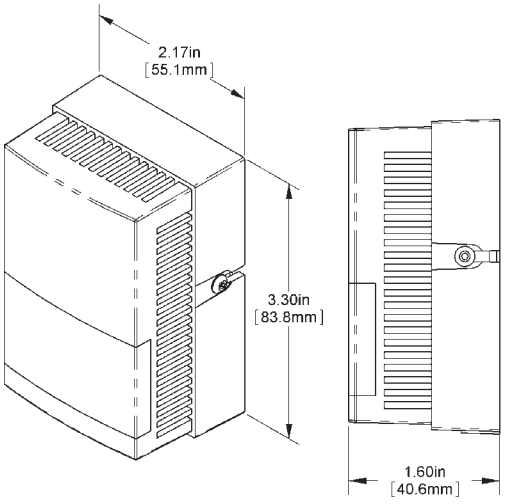
Material: ABS Plastic

Material Rating: UL 94, HB

Environmental Operation Range:

Temperature: 32 to 122 °F (0 to 50 °C)

Humidity: 0 to 95%, non-condensing



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Ordering Information	Powers Style Room Unit - Temperature			List Price	Your Order
BA/					
Sensor Type *(Required selection)*	**Use the designator number (shown to the left in bold) to indicate the sensor**				
##	**THERMISTORS**		**RTDs**	**Thermistors**	
1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
10K-3	10K Ω @ 25 °C				
10K-3[11K]	5,238 Ω @ 25 °C		**SEMICONDUCTORS**	**Semi-conductors**	
20K	20K Ω @ 25 °C	**334**	LM334 Semiconductor	**$25 Each**	$_____
47K	47K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C		
50K	50K Ω @ 25 °C	**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
100K	100K Ω @ 25 °C				
	TEMPERATURE TRANSMITTERS			**Temperature Transmitters**	
T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**$100 for T100, T1K & T10K**	$_____
T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED* 4 to 20 mA Output				
T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output				
T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED* 4 to 20 mA Output			**$280 for T100M & T1KM**	$_____
	TEMPERATURE TRANSMITTER RANGES				
	Custom temperature transmitter ranges are available. Common ranges are listed below				
	65 TO 80F	**18 TO 27C**	**40 TO 90F**	**4 TO 32C**	
	60 TO 80F	**15 TO 27C**	**45 TO 96F**	**7 TO 35C**	
	55 TO 85F	**13 TO 30C**	**0 TO 100F**	**-18 TO 38C**	
	50 TO 90F	**10 TO 32C**			
Enclosure	**Required selection**				
-RSS	Powers Style Room Enclosure			**$55**	$_____
	Optional Indicator				
	-BM775	Bi-Metal Indicator: Brown 50 to 80 °F legend on a tan background		**$18**	$_____
EXAMPLE					
BA/	**10K-2**	**-RSS**	**-BM775**	**Total =**	$_____
Example Part Number: BA/10K-2-RSS-BM775					
Your Part Number:					

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

PreCon Style Room Units

Temperature Sensors

Rev. 10/16/12

Features & Options

- Low Profile Enclosure
- Optional Setpoint and Override
- Optional Communication Jack
- Optional Bi-Metal Indicator
- Wide Selection of Temperature Sensing Elements
- Limited Lifetime Warranty

Setpoint

A 3-position switch allows limited control over the zone's Setpoint. In the center position, the Setpoint is at the system default. If the switch is moved to the left or right, the Setpoint is decreased or increased by a system defined amount.

Override

Allows the occupant to extend the zone occupancy schedule by a system determined amount. Each time the switch is moved to the side, the amount of time that the occupancy is extended increases by a set amount of time.

Communication Jack

An optional communication jack is available.

Bi-Metal Indicator

An optional Bi-Metal Indicator can display room temperature; accurate to ±1 °F. The display is protected by an acrylic plate and comes with a 50 to 90 °F or 10 to 30 °C legend.



PreCon Style with Setpoint and Override



PreCon Style with Bi-metal Indicator

For detailed specs on the individual Sensors & Transmitters, turn to "Sensors".

* All Passive Thermistors 10KΩ and smaller are CE compliant.

BAPI Adaptor Plates for Retrofits

The BAPI Adaptor Plates are designed for locations where a larger room unit has been previously mounted. The plates are made of flame retardant ABS plastic, and are available in four colors to match any BAPI room unit. The plates can be mounted vertically or horizontally. For more info, see the Accessories section.



Plate & Room Unit



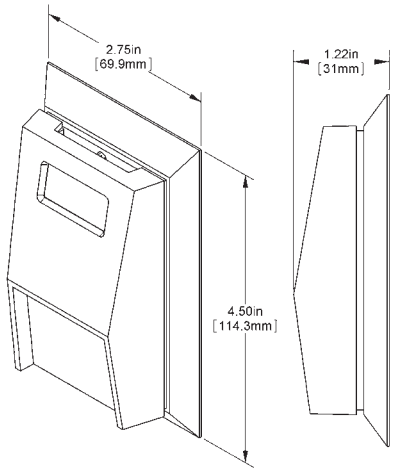
Adaptor Plate

Specifications

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing

Material: ABS Plastic

Material Rating: UL 94, HB



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Ordering Information	PreCon Style Room Units - Temperature				List Price	Your Order
BA/						
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**				
#		**THERMISTORS**		**RTDs**	**Thermistors $18 Each**	**$_____**
	1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.		
	2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
	3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's $25 Each or $35 for 1K[NI]**	**$_____**
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.		
	3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.		
	10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.		
	10K-3	10K Ω @ 25 °C				
	10K-3[11K]	5,238 Ω @ 25 °C		**SEMICONDUCTORS**		
	20K	20K Ω @ 25 °C	**334**	LM334 Semiconductor	**Semi-conductors $25 Each**	**$_____**
	47K	47K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C		
	50K	50K Ω @ 25 °C	**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
	100K	100K Ω @ 25 °C				
		TEMPERATURE TRANSMITTERS ***Must include a "range" figure***				
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**Temperature Transmitters $100 for T100 & T1K**	**$_____**
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED* 4 to 20 mA Output				
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output				
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED* 4 to 20 mA Output				
		TEMPERATURE TRANSMITTER RANGES				
		Custom temperature transmitter ranges are available. Common ranges are listed below				
		65 TO 80F **18 TO 27C** **40 TO 90F** **4 TO 32C**			**Temperature Transmitters $280 for T100M & T1KM**	
		60 TO 80F **15 TO 27C** **45 TO 96F** **7 TO 35C**				
		55 TO 85F **13 TO 30C** **0 TO 100F** **-18 TO 38C**				
		50 TO 90F **10 TO 32C**				
	Enclosure	**Required selection**				
	-RSZ	PreCon Style Room Enclosure			**$20**	**$_____**
		Optional Plus Model				
		+	"Plus" Model includes Setpoint, Override, and Comm Jack (+ Model is not available with a temperature transmitter)		**$24 for + model**	**$_____**
			Optional Indicator			
			BM5090	Bi-Metal Indicator: Black 50 to 90 °F legend on a brushed aluminum plate	**$60 for any Indicator**	**$_____**
			BM1030	Bi-Metal Indicator: Black 10 to 30 °C legend on a brushed aluminum plate		
EXAMPLE						
BA/	**10K-2**	**-RSZ**	**+**	**BM5090**		
Example Part Number: BA/10K-2-RSZ+BM5090					**Total =**	**$_____**
Your Part Number:						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Echelon® Compatible “L-Temp”

Temperature Sensors

Rev. 10/16/12

Features & Options

- Optional Setpoint, Display, Override and Fanspeed
- °C or °F Operation (user selectable)
- Onboard Neuron® 3120® Chip
- Standard 4-Wire Termination
- Two Year Warranty



BAPI’s Echelon® compatible “L-Temp” Room Unit features measurement and display of local temperature (°C or °F), as well as display of outdoor temperature and outdoor humidity – all in one aesthetically-pleasing package. An onboard Neuron® chip allows connection directly to a LonWorks® network using star, bus, or loop topology. Additional options include Temperature Setpoint and Local Override as well as Fan Speed Control for Fan Coils, Heat Pumps, Unit Ventilators or other Terminal Units. The Fan Speed is provided as a Network Variable and includes appropriate LCD Indicators.



L-Temp Unit with Setpoint & Override

Combination Temp./Humidity Unit

BAPI also offers an Echelon® compatible Temperature/Humidity Combination Room Unit called an “L-Combo”. The combo unit includes all the features of the “L-Temp” except the Fanspeed adjustment and has a user adjustable toggle rate between temperature and humidity,.
For more info on the “L-Combo”, see the Humidity section.

The “L-Temp” and “L-Combo” were designed following the LonMark® Interoperability Guidelines, and incorporates standard configuration property types (SCPT). A complete SNVT/SCPT list with definitions is available upon request. Echelon®, LonWorks®, Neuron®, and 3120® are trademarks of Echelon Corporation registered in the United States and other countries. LonMark® is a trademark of the LonMark Interoperability Association registered in the United States and other countries.

Specifications

Power: 8 to 24VDC (recommended) or 12 to 28VAC

Power Consumption: 35 mA maximum DC

Sensing Elements:

Temp. - Semiconductor Band Gap, Proportional to Absolute Temperature, ±0.3°C

Optional Humidity - Capacitive Polymer, ±2% RH Accuracy

Wiring: 4 wire, twisted pair 22 AWG minimum*

For additional wiring information and requirements, refer to Echelon® Corporation’s Bulletin titled “Junction Box and Wiring Guidelines for Twisted Pair LonWorks® Networks” which can be found online at the following URL: www.echelon.com/support/documentation/Bulletin/005-0023-01K.pdf

Communication:
Neuron® 3120®, 78 kbps using FTT-10A transceiver

Mounting:
Standard 2” by 4” J-box or drywall mount - mounting screws provided

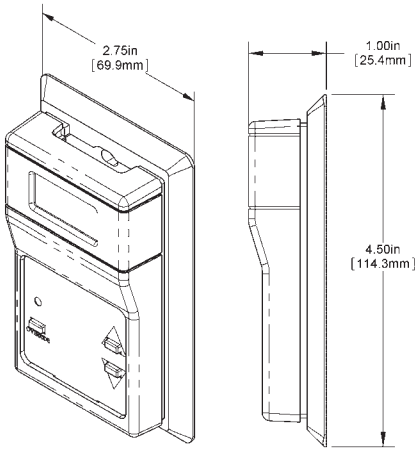
*__BAPI__ recommends that you do not run wiring for the Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

Environmental Specifications:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing

Material: ABS Plastic

Material Rating: UL 94, V-0

Range: -40 to 85ºC



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Echelon® Compatible "L-Temp"

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information						List Price	Your Order
"L-Temp" & "L-Combo" Room Units							
BA/LC						**$240**	**$_____**
	Humidity Accuracy	**Skip this number if ordering a temperature only unit**					
	H2	±2% RH Accuracy				**$80**	**$_____**
		Enclosure	**Required selection**				
		-R	Delta Style Room Enclosure				
			Options	**Select in order as required**			
			S	Temperature Setpoint (Display is required if Setpoint is selected)		**$6**	**$_____**
			O	Override		**$5**	**$_____**
			D	Display		**$35**	**$_____**
			XLD*	Fan Speed Adjustment and Temperature Setpoint Adjustment. Note: SOD options are not needed if XLD is selected.		**$46**	**$_____**
				Optional Copla White Enclosure (Warm White is Standard)			
				-CPW	Copla White Enclosure Color		
EXAMPLE							
BA/LC		**-R**	**SOD**				
Example Part Number: BA/LC-RSOD - "L-Temp" Unit with setpoint, override and display							
BA/LC	**H2**	**-R**	**SOD**			**Total =**	**$_____**
Example Part Number: BA/LCH2-RSOD - "L-Combo" Unit with ±2% RH, setpoint, override & display							
Your Part Number:							

Call BAPI if you have questions about the above ordering/pricing grid.
*XLD option is not available with Humidity
*XLD option includes Setpoint, Override & Display

Wall Plate Units

Temperature Sensors

Rev. 10/16/12

Features & Options

- Etched Teflon Leadwires and Foamback Insulator
- Several Material, Finish and Color Options
- Wide Selection of Temperature Sensing Elements
- Limited Lifetime Warranty

100% Compatible with Your System GUARANTEED!

Wall Plates are ideal for areas where a discreet, rugged zone sensor is required. All Wall Plates feature ¼" closed cell, medical-grade foam backing which covers the plate and insulates it from wall temperature. All units also feature etched Teflon leadwires and double encapsulated sensors to create a watertight package that can perform under real world conditions.

Override
A momentary Override is available as a Keyswitch or three styles of Pushbutton — Standard (-O), Durable (-O1) & Low Profile (-O2). The Standard model features a small, momentary pushbutton while the Durable model features a larger and stronger momentary pushbutton. The Low Profile Model is water resistant for washdown/wipedown applications and is available with a red or green LED indicator.

Security Screws & Bit



Spanner Security Screws and the Spanner Bit are available for any Stainless Steel Wall Plate Unit. For more info, see Accessories.

Replacement Key



Replacement keys are available for Wall Plates with Keyswitch Override. See "Accessories".

Communication Jack
An optional 3.5mm phono-style Communication Jack is available.

Color & Finish Options
Standard Wall Plates are available in aluminum or stainless steel with a metallic finish; however, many other color and finish options are available. (See the following pages for color & finish options.)

Additional Styles
Special Order Wall Plates are available. Call BAPI for details.



Low Profile Override with LED Indicator

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section

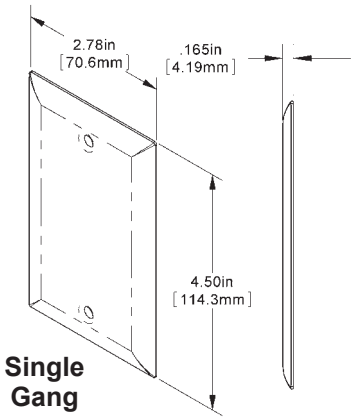
Specifications

Material:
Aluminum or Stainless Steel

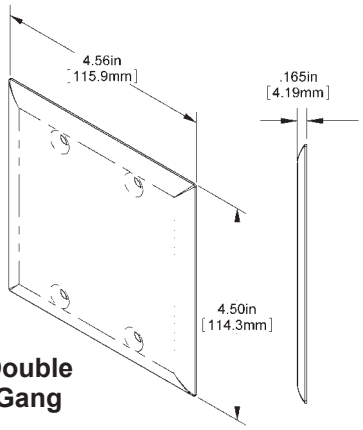
Environ. Operation Range:
Temperature:
-40 °C to 100 °C
-20 °C to 70 °C with transmitter

Humidity:
0 to 95%, non-condensing

*All Passive Thermistors 10KΩ and smaller are CE compliant.



Single Gang



Double Gang

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Note: Special Order wall plates are available. Call BAPI for details.

Ordering Information **Wall Plate Units - Temperature**								List Price	Your Order
BA/									
Sensor Type **Must select one** **Use the designator number (shown to the left in bold) to indicate the sensor**									
##		**THERMISTORS**		**RTDs**				**Thermistors**	
	1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.				**$18 Each**	$_____
	3K	3K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.					
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.				**RTD's**	
	3.3K	3.3K Ω @ 25 °C	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.				**$25 Each**	
	10K-2	10K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.				**or**	$_____
	10K-3	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.				**$35 for 1K[NI]**	
	10K-3[11K]	5,238 Ω @ 25 °C							
	20K	20K Ω @ 25 °C		**SEMICONDUCTORS**				**Semi-conductors**	
	50K	50K Ω @ 25 °C	**334**	LM334 Semiconductor				**$25 Each**	$_____
	100K	100K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C					
			592-10K	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C					
		TEMPERATURE TRANSMITTERS (not available with Louvered Plates)						**Temperature Transmitters**	
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output						**$100 for T100, T1K & T10K**	$_____
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED* 4 to 20 mA Output							
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output							
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED* 4 to 20 mA Output							
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output							
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0 to 5 VDC Output							
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0 to 10 VDC Output							
		TEMPERATURE TRANSMITTER RANGES							
		Custom temperature transmitter ranges are available. Common ranges are listed below						**$280 for T100M & T1KM**	$_____
		65 TO 80F	**18 TO 27C**	**40 TO 90F**	**4 TO 32C**				
		60 TO 80F	**15 TO 27C**	**45 TO 96F**	**7 TO 35C**				
		55 TO 85F	**13 TO 30C**	**0 TO 100F**	**-18 TO 38C**				
		50 TO 90F	**10 TO 32C**						
	Finish / Material Designation **Must select one**								
	-SP**	Stainless Steel, Type 302/304, Satin Finish, Single Gang (standard)						**$0**	
	-SP-152**	Stainless Steel, Type 302/304, Satin Finish, Double Gang Call BAPI if you would like three or more gang Wall Plate Units						**$20**	$_____
	-AP	Aluminum, Clear Anodized, Single Gang (standard)						**$0**	
	-SP-631*	Stainless Steel, Type 302/304, Satin Finish, Louvered Plate, Box Mount - vertical mount, single gang						**$10**	$_____
		Override Switch Options **Not available on louvered plates.**							
		-O	Standard Pushbutton Override Switch					**$10**	$_____
		-O1	Durable Style Pushbutton Override					**$24**	$_____
		-O2	Low Profile Style Pushbutton Override					**$57**	$_____
		-O2G5	Low Profile Pushbutton Override, Green LED, 5 VDC[1]					**$100**	$_____
		-O2G24	Low Profile Pushbutton Override, Green LED, 24 VDC or VAC[1]					**$100**	$_____
		-O2R5	Low Profile Pushbutton Override, RED LED, 5 VDC[1]					**$100**	$_____
		-O2R24	Low Profile Pushbutton Override, RED LED, 24 VDC or VAC[1]					**$100**	$_____
		-K	Keyswitch Override: momentary, normally open					**$45**	$_____
		-OWD	Washdown Keyswitch, NO & NC					**$230**	$_____
			Optional Comm. Jack **Not available on louvered plates.**						
			-C35	Communication Jack: phono-style (3.5 mm)				**$10**	$_____
				Optional Spanner Security Screws					
				-SEC1	Spanner Security Screws[2]			**$2**	$_____
EXAMPLE									
BA/	**10K-2**	**-AP-152**	**-O**	**-C35**	**-SEC1**			**Total =**	$_____
Example Part Number: BA/10K-2-AP-152-O-C35-SEC1									
Your Part Number:									

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
Three or more gang Wall Plate Units are available. Call BAPI for details.
[1]Voltage to power LED indicator (5 VDC or 24 VDC or VAC) must come from the controller or other external source.
[2]Security Screws are stainless steel and may not match the color of the aluminum wall plate
*Louvered Plates are not available with Temperature Transmitters, Override or Comm. Jack
**Double gang is required when used with Temp. Transmitter and Override or Comm. Jack. (See "-SP-152" option above)

Wall Plate Color & Finish Options CE*

Temperature Sensors

Rev. 10/16/12

BAPI Wall Plates come standard in aluminum or stainless steel with a metallic finish; however, many other color and finish options are available for the single gang, non-louvered units. The color and finish options are available with all three styles of pushbutton override and with the keyswitch override.

Color and finish options are Special Orders. Minimum order and lead time may apply. Please call BAPI for pricing and availability.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Wall Plate Color & Finish Options
(Description below, BAPI part number above)

PAINTED STEEL





BRASS & BRONZE



STAINLESS STEEL





Plain



Keyswitch Override



Standard Pushbutton (-O)



Durable Pushbutton (-O1)



Low Profile Pushbutton (-O2) with or without LED

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Color and finish options are Special Orders. Minimum order and lead time may apply. Please call BAPI for pricing and availability.

Ordering Information — Wall Plate Units with Color & Finish Options

BA/

Sensor Type — Required selection — Use the designator number (shown to the left in bold) to indicate the sensor

##

THERMISTORS

1.8K	1.8K Ω @ 25 °C
3K	3K Ω @ 25 °C
3.25K	3.25K Ω @ 25 °C (T30 type)
3.3K	3.3K Ω @ 25 °C
10K-2	10K Ω @ 25 °C
10K-3	10K Ω @ 25 °C
10K-3[11K]	5,238 Ω @ 25 °C
20K	20K Ω @ 25 °C
50K	50K Ω @ 25 °C
100K	100K Ω @ 25 °C

RTDs

100	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.
100[3W]	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.
1K[375]	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.
1K[NI]	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.
1K	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.
2K	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.

SEMICONDUCTORS

334	LM334 Semiconductor
592	AD592 Semiconductor, 273 µA @ 0 °C
592-10K	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C

TEMPERATURE TRANSMITTERS (not available with switches O1, O2 [all] & K)

T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output
T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED* 4 to 20 mA Output
T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output
T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED* 4 to 20 mA Output
T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output
T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0 to 5 VDC Output
T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0 to 10 VDC Output

TEMPERATURE TRANSMITTER RANGES

Custom temperature transmitter ranges are available. Common ranges are listed below

65 TO 80F	**18 TO 27C**	**40 TO 90F**	**4 TO 32C**
60 TO 80F	**15 TO 27C**	**45 TO 96F**	**7 TO 35C**
55 TO 85F	**13 TO 30C**	**0 TO 100F**	**-18 TO 38C**
50 TO 90F	**10 TO 32C**		

Finish / Material Designation — Required selection

–#

Painted Steel

- **44** Almond
- **51** Red
- **58** Gray
- **81** Sprayed Brass
- **82** Smooth Brown
- **83** Chrome Plate
- **84** Smooth Ivory
- **85** Wrinkle White

Painted Steel

- **86** Smooth White
- **87** Matte Black
- **88** Aluminum Paint
- **98** Wrinkle Brown
- **99** Wrinkle Ivory

Stainless Steel

- **68** Polished Type 302

Brass & Bronze

- **64** Polished Brass
- **65** Bank Bronze Medium
- **66** Satin Bronze
- **69** Statuary Bronze Dark
- **94** Solid Satin Brass

Note: Finish and Material Options are Special Orders so please call BAPI for price and availability. Minimum orders and lead times may apply.

Optional Override Switch — Not available with a Temperature Transmitter

-O	Standard Pushbutton Override Switch
-O1	Durable Style Pushbutton Override
-O2	Low Profile Style Pushbutton Override
-O2G5	Low Profile Pushbutton Override, Green LED, 5 VDC[1]
-O2G24	Low Profile Pushbutton Override, Green LED, 24 VDC or VAC[1]
-O2R5	Low Profile Pushbutton Override, RED LED, 5 VDC[1]
-O2R24	Low Profile Pushbutton Override, RED LED, 24 VDC or VAC[1]
-K	Keyswitch Override: momentary, normally open
-OWD	Washdown Keyswitch, NO & NC

Optional Communication Jack — Not available with a Temp. Transmitter

-C35	Communication Jack: phono-style (3.5 mm)

Optional Spanner Security Screws

-SEC1	Spanner Security Screws[2]

EXAMPLE

BA/	10K-2	51	-O	-C35	-SEC1	

Example Part Number: BA/10K-2-51-O-C35-SEC1

Your Part Number:

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
Other color and finish options may be available. Contact BAPI for more information.
[1]Voltage to power LED indicator (5 VDC or 24 VDC or VAC) must come from the controller or other external source.
[2]Security Screws are stainless steel and may not match the color of the aluminum wall plate

Wall Plate with Rotary Setpoint

Temperature Sensors

CE*

Rev. 10/16/12

Features & Options

- Stainless Steel Wall Plate
- Rotary Setpoint Adjustment
- Occupant Override Pushbutton (optional)
- 3.5 mm Communication Jack (optional)
- Pressure Pickup Port (optional)
- Wide Selection of Temperature Sensing Elements
- Limited Lifetime Warranty

100% Compatible with your System GUARANTEED!

Rotary Setpoint & Legend

The Rotary Setpoint is a linear adjustment that comes in various ranges, and is available as reverse or direct acting. A Setpoint Legend can be imprinted on the face of the Wall Plate. Standard Legends are “50 to 90 °F” or “- to +”. Custom legends are also available, please call BAPI for details.

Override Pushbutton

The optional Override is a discreet momentary signal that can be configured to be compatible with any controller. It is available in three styles — Standard, Durable or Low Profile (with or without an LED override indicator). All Low Profile pushbuttons are water resistant for washdown/wipedown cleaning.

Communication Jack

An optional 3.5 mm phono plug style comm. jack is also available.

Pressure Pickup Port

An optional Pressure Pickup Port is also available.The brass fitting on the back accommodates 1/8” to 5/32” tubing.

Note: *Choosing two or more options in addition to the Rotary Setpoint requires a doublegang enclosure.*

*All Passive Thermistors 10K Ω and smaller are CE compliant.



Wall Plate with Rotary Setpoint 50° to 90° Legend (left) and “-” to “+” legend (below)



Rotary Setpoint and Override (-O2) (left)

Doublegang Unit with Rotary Setpoint, Override with LED, Comm. Jack and Pressure Pickup Port

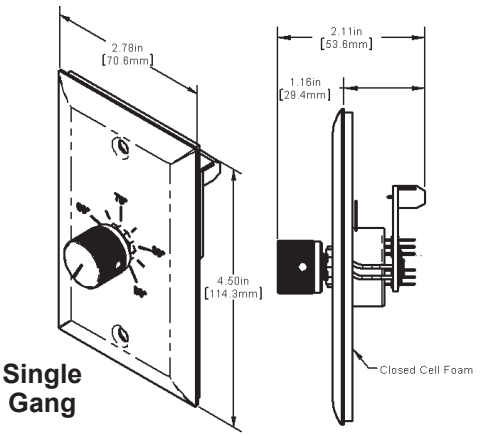
Specifications

Material: Stainless Steel

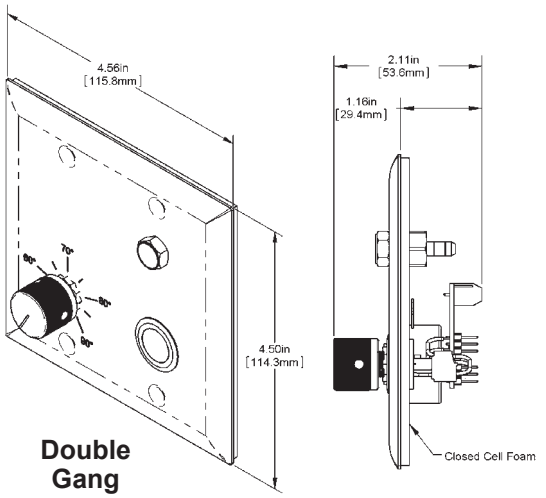
Environmental Operation Range:

Temp: -20 to 60 °C

Humidity: 0 to 95%, non-condensing



Single Gang



Double Gang

Building Automation Products, Inc. • 750 North Royal Avenue, Gays Mills, WI 54631 USA
Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • Email: sales@bapihvac.com • Web: www.bapihvac.com

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	*Wall Plate with Rotary Setpoint*										List Price	Your Order
BA/												
	Sensor Type Required selection Use the designator number (shown to the left in bold) to indicate the sensor											
	#	**THERMISTORS**		**RTDs**							**Thermistors** $18 Each	
		1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.							
		3K	3K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.						**RTD's** $25 Each or $35 for 1K[NI]	
		3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.							
		3.3K	3.3K Ω @ 25 °C	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.							
		10K-2	10K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.							
		10K-3	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.							
		10K-3[11K]	5,238 Ω @ 25 °C									
		20K	20K Ω @ 25 °C	**SEMICONDUCTORS**								
		50K	50K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C						**Semi-conductors** $25 Each	
		100K	100K Ω @ 25 °C									
	Enclosure Configuration Required selection											
	-SP	Stainless Steel Wall Plate										
	Setpoint Required selection Must select Legend and Range											
	SETPOINT LEGEND (insert Designator #)										$50	
	Legend Range / **Designator**: +/- → **Z**; **##** 50 to 90 °F → **C**											
	Other Setpoint Legends are Available, call BAPI for details.											
	SETPOINT OUTPUT VALUE RANGE (insert Designator #)											
	Desired Range / **Designator**: 0 to 5 Volts* → **00**; 1 to 5 Volts* → **01**; 3.7 to .85 Volts* → **02**; 5 to 0 Volts* → **03**; 4.2 to 1.2 Volts* → **04**; 2.75 to 3.34 V* → **05**; 0 to 10 Volts* → **10**; 674 to 274 Ω → **23**; 800 to 1200 Ω → **25**; 909 to 1309 Ω → **26**; 1800 to 2200 Ω → **27**; 0 to 1 kΩ → **40**											
	Desired Range / **Designator**: 2 to 3 kΩ → **42**; 10 to 11 kΩ → **44**; 12.5k to 11.5 kΩ → **45**; 1k to 0 Ω → **46**; 0 to 10 kΩ → **60**; 15 to 5 kΩ → **61**; 1 to 11 kΩ → **63**; 0 to 20 kΩ → **80**; 4.75 to 24.75 kΩ → **81**; 6.19 to 26.19 kΩ → **82**; 7.87 to 27.87 kΩ → **83**; 10 to 30 kΩ → **84**											
	Optional Override Pushbutton Style Skip if not required											
	-O	Standard Pushbutton Override Switch									$10	
	-O1	Durable Style Pushbutton Override									$24	
	-O2	Low Profile Style Pushbutton Override									$57	
	-O2G5	Low Profile Pushbutton Override, Green LED, 5 VDC**									$100	
	-O2G24	Low Profile Pushbutton Override, Green LED, 24 VDC or VAC**									$100	
	-O2R5	Low Profile Pushbutton Override, RED LED, 5 VDC**									$100	
	-O2R24	Low Profile Pushbutton Override, RED LED, 24 VDC or VAC**									$100	
	-OWD	Washdown Keyswitch, NO & NC									$230	
		Override Configuration Must Select One										
		-J	Override as a Separate Input									
		-N	Override in Parallel (//) with Sensor									
		-P	Override in Parallel (//) with Setpoint									
		-Z	No Override									
			Optional Communication Jack Skip if not required									
			-C35	3.5 mm Phono Style Jack							$10	
				Optional Pressure Pickup Skip if not required								
				-P01	Pressure Pickup Port						$5	
					Doublegang Enclosure (Required if two or more options are selected in addition to the rotary setpoint)							
					-DBG	Doublegang Enclosure					$15	
						Connection Configuration (Must select one)						
						-CG	Common Ground					
						-DF	Differential Inputs					
							Optional Security Screws					
							-SEC1	Spanner Security Screws				
EXAMPLE												
BA/	**10K-2**	**-SP**	**C25**	**-O2**	**-J**	**-C35**			**-CG**		**Total =**	**$_____**
Example Part Number: BA/10K-2-SPC25-O2-J-C35-CG												
Your Part Number:												

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

*For voltage output options: 5 VDC must be supplied for outputs of 5 VDC and below and 10 VDC must be supplied for the 0 to 10 VDC output.

**Voltage to power LED indicator (5 VDC or 24 VDC or VAC) must come from the controller or other external source.

Duct Units

Temperature Sensors

Rev. 06/06/13

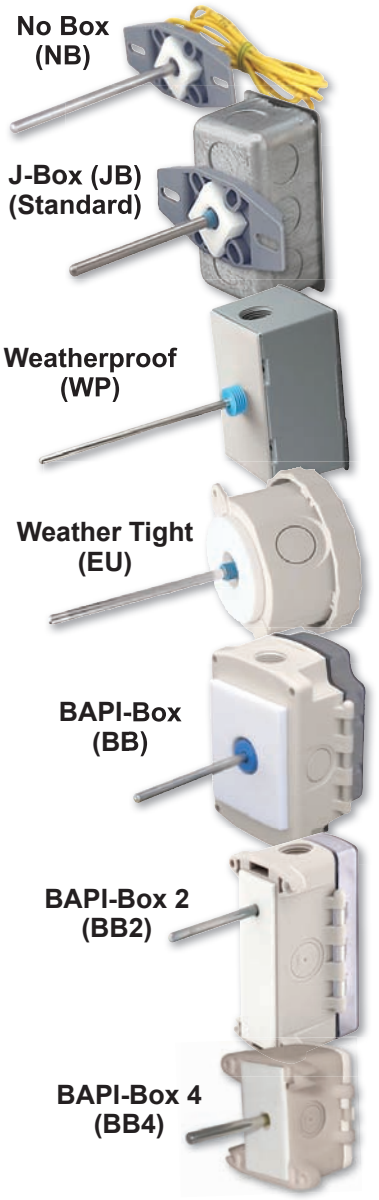
Features & Options

- Series 304 Stainless Steel Probes: 2”, 4”, 8”, 12” and 18”
- Several Enclosure Styles
- Double Encapsulated Sensors & Etched Teflon Leadwires
- Limited Lifetime Warranty
- Wide Selection of Temperature Sensing Elements

Single Point Duct Units feature closed cell foam to seal the probe insertion hole and to absorb vibration. Mounting tabs allow for easy installation directly to the wall of the duct.

All Duct Units have etched Teflon leadwires and double encapsulated sensors to create a watertight package that can withstand high humidity and condensation and perform under real world conditions. Duct Units have probe lengths from 2” to 18” to accommodate most duct shapes and sizes. Custom probe lengths are also available.

Duct Units come standard with a 2”x4” steel J-Box but are also available with no box **(NB)** or five styles of enclosure: the metal Weatherproof (**WP**), ABS plastic Weather Tight (**EU**), the UV-resistant polycarbonate BAPI-Box (**BB**) and BAPI-Box 2 **(BB2)** or nylon & ABS plastic BAPI-Box 4 **(BB4)**.



Blü-Test

Bluetooth Wireless Temperature & Humidity Measurement Probe



Commissioning just got easier with BAPI’s temp and humidity probe. There’s no need to carry an extra meter because the Blü-Test communicates directly to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.

For more information, see the Wireless section.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Enclosure Material:
J-Box Model: Galv. Steel
WP Model: Cast Aluminum
EU Model: ABS Plastic, UL94, V-0
BB & BB2: Polycarbonate, UL94, V-0
BB4 Model: Nylon & Plastic, UL94, V-0

Enclosure Rating:
J-Box Model: IP20, NEMA 1
BB4 Model: IP44
WP Model: NEMA 3R
EU, BB & BB2 Models: IP66, NEMA 4

Environmental Operation Range:
Temp. Sensor: -40 °C to 100 °C
Temp. Transmitter: -20 °C to 70 °C
Humidity: 0 to 100%, non-condensing

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5” (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35” (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06” (72 x 71.4 x 52.3mm)
J-Box (JB)	4.2 x 3.9 x 1.94” (106 x 98.4 x 49mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2” (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1” (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the “Sensors” section.

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Duct Units - Temperature				List Price	Your Order
BA/						
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**				
		THERMISTORS		**RTDs**	**Thermistors**	
#	**1.8K**	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
	2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
	3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.		
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.		
	3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**RTD's**	
	10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20°C, 8 Ω/°C temp. coeff.	**$25 Each**	
	10K-3	10K Ω @ 25 °C			**or**	$_____
	10K-3[11K]	5,238 Ω @ 25 °C		**SEMICONDUCTORS**	**$35 for 1K[NI]**	
	20K	20K Ω @ 25 °C	**334**	LM334 Semiconductor		
	47K	47K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0C	**Semi-**	
	50K	50K Ω @ 25 °C	**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0C	**conductors**	
	100K	100K Ω @ 25 °C			**$25 Each**	$_____
		TEMPERATURE TRANSMITTERS *Must include a "range" figure. Requires an enclosure.*				
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**Temperature**	
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			**Transmitters**	
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output			**$125 for**	$_____
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			**T100, T1K**	
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**			**& T10K**	
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**				
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**				
		TEMPERATURE TRANSMITTER RANGES				
		Custom temperature transmitter ranges are available. Common ranges are listed below			**$280 for**	
		40 TO 90F **4 TO 32C** **-30 TO 130F** **-34 TO 54C**			**T100M**	
		0 TO 100F **-18 TO 38C** **32 TO 212F** **0 TO 100C**			**& T1KM**	$_____
		20 TO 120F **-7 TO 49C** **30 TO 234F** **-1 TO 112C**				
		32 TO 134F **0 TO 57C**				
	Probe Length	**Required selection**				
	-D-2"	2" length of ¼" Diameter, Stainless Steel Probe			**$7**	$_____
	-D-4"	4" length of ¼" Diameter, Stainless Steel Probe			**$7**	$_____
	-D-8"	8" length of ¼" Diameter, Stainless Steel Probe			**$7**	$_____
	-D-12"	12" length of ¼" Diameter, Stainless Steel Probe			**$7**	$_____
	-D-18"	18" length of ¼" Diameter, Stainless Steel Probe			**$7**	$_____
	-D-XX"	Custom lengths of ¼" Dia, Stainless Steel Probe are available. **Call for details.**			**Call**	
		Optional Enclosure Type **2"x4" Steel J-Box comes standard**				
		-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)		**$0**	
		-WP	Weatherproof Enclosure - NEMA 3R rated, metal		**$12**	$_____
		-EU	Weather Tight Enclosure - IP66 rated, ABS polymer		**$12**	$_____
		-EUO	Weather Tight Enclosure - IP66 rated, UV-resistant enclosure		**$12**	$_____
		-NB-18"	No Junction Box, 18" Lead Length, Plenum Rated Cable		**$0**	
		-NB-5'	No Junction Box, 5' Lead Length, Plenum Rated Cable		**$2**	$_____
		-NB-10'	No Junction Box, 10' Lead Length, Plenum Rated Cable		**$4**	$_____
		-NB-15'	No Junction Box, 15' Lead Length, Plenum Rated Cable		**$6**	$_____
		-NB-XX	Custom lead lengths (Plenum Rated cable) are available. **Call for details.**		**Call**	
			Options **An enclosure is required**			
			-TB	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)	**$7.50**	$_____
			-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***	**$0**	
EXAMPLE						
BA/	**10K-2**	**-D-8"**	**-NB-5'**		**Total =**	$_____
Example Part Number: BA/10K-2-D-8"-NB-5						
Your Part Number						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
*MATCHED Transmitter use Class A RTD's & are matched at 25%, 50% & 75% of calibrated scale limited to within -25ºC to 150ºC.
**Range is limited to -40 to 185°F (-40 to 85°C)
***TS option is not available with the 592-10K Semiconductor sensor or the T10K transmitters.

Duct Averaging Units

Temperature Sensors

Rev. 06/06/13

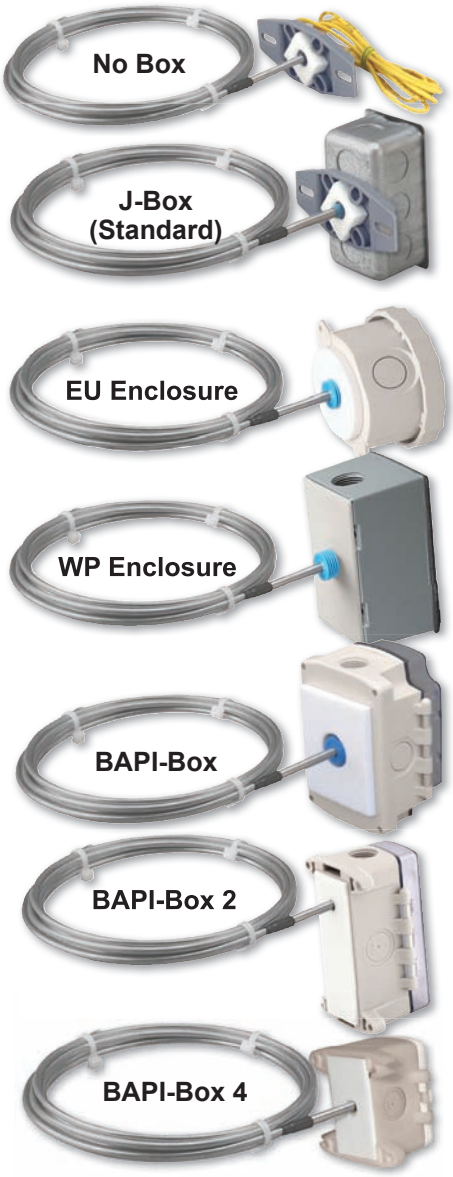
Features & Options

- Averaging Lengths: 8', 12' and 24'
- Several Enclosure Styles
- Limited Lifetime Warranty
- Wide Selection of Temperature Sensing Elements

BAPI Duct Averaging Units feature closed cell foam to seal the probe insertion hole and absorb vibration. Mounting tabs allow for easy installation directly to the wall of the duct. All units have etched Teflon leadwires and encapsulated sensors to create a watertight package that can perform under real world conditions.

Averaging probes should be used wherever there is a chance for stratified layers of hot and cold air. Averaging probes are made of bendable aluminum tubing and measure temperature along their entire length. Nylon tie straps are provided for mounting.

Duct Averaging Units come standard with a 2"x4" steel J-Box but are also available with No Box **(NB)**, a BAPI-Box 4 **(BB4)** or four watertight enclosures: Weatherproof **(WP)**, Weather Tight **(EU)**, BAPI-Box **(BB)** or BAPI-Box 2 **(BB2)**. BAPI also offers optional liquid-tight fittings.



Blü-Test Bluetooth Wireless Temp & Humidity Measurement Probe



Commissioning just got easier with BAPI's temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.

For more info, see the Wireless section.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Environmental Operation Range:
Temperature Sensor:
EU, BB, BB2 & BB4 Encl.: -40 to 85 °C
J-Box, WP, NB: -40 to 100 °C
Temperature Transmitter: -20 to 70 °C
Humidity: 0 to 95%, non-condensing

Enclosure Material:
J-Box Model: Galv. Steel
WP Model: Cast Aluminum
EU Model: ABS Plastic, UL94, V-0
BB & BB2: UV-resist. polycarb., UL94, V-0
BB4 Model: Nylon & Plastic, UL94, V-0

Enclosure Rating:
J-Box Models: IP20, NEMA 1
BB4 Models: IP44
WP Model: NEMA 3R
EU, BB & BB2 Models: IP66, NEMA 4

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5" (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35" (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06" (72 x 71.4 x 52.3mm)
J-Box (JB)	4.2 x 3.9 x 1.94" (106 x 98.4 x 49mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2" (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1" (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the "Sensors" section.

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Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • Email: sales@bapihvac.com • Web: www.bapihvac.com

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Duct Averaging Units - Temperature			List Price	Your Order
BA/					
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**			
#	**THERMISTORS**		**RTDs**		
1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**Thermistors**	
2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.		
3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**RTD's**	
3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**$25 Each**	
10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20°C, 8 Ω/°C temp. coeff.	**or**	$_____
10K-3	10K Ω @ 25 °C			**$35 for 1K[NI]**	
10K-3[11K]	5,238 Ω @ 25 °C				
20K	20K Ω @ 25 °C				
47K	47K Ω @ 25 °C				
50K	50K Ω @ 25 °C				
100K	100K Ω @ 25 °C				
	TEMPERATURE TRANSMITTERS *Must include a "range" figure. Requires an enclosure.*			**Temperature Transmitters**	
T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**$125 for T100, T1K & T10K**	$_____
T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*				
T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output				
T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*				
T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**				
T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**				
T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**				
	TEMPERATURE TRANSMITTER RANGES				
	Custom temperature transmitter ranges are available. Common ranges are listed below			**$280 for T100M & T1KM**	$_____
	40 TO 90F	**4 TO 32C**	**-30 TO 130F**	**-34 TO 54C**	
	0 TO 100F	**-18 TO 38C**	**32 TO 212F**	**0 TO 100C**	
	20 TO 120F	**-7 TO 49C**	**30 TO 234F**	**-1 TO 112C**	
	32 TO 134F	**0 TO 57C**			
Configuration	**Required selection**				
-A-8'	8' Duct Averaging - 3/16" Diameter, Bendable Aluminum			**$87**	$_____
-A-12'	12' Duct Averaging - 3/16" Diameter, Bendable Aluminum			**$92**	$_____
-A-24'	24' Duct Averaging - 3/16" Diameter, Bendable Aluminum			**$116**	$_____
-A-XX'	Custom Length Duct Averaging - 3/16" Diameter, Bendable Aluminum, Call for Details			**Call**	
	Optional Enclosure **2"x4" J-Box comes standard**				
	-NB	No Junction Box, 6" Etched Teflon Leadwires		**$0**	
	-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
	-BB2	BAPI-Box 2 Enclosure- IP66 rated, UV-resistant polycarbonate		**$12**	$_____
	-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)		**0**	
	-EU	Weather Tight Enclosure - IP66 rated, ABS polymer		**$12**	$_____
	-EUO	Weather Tight Enclosure - IP66 rated UV-resistant enclosure		**$12**	$_____
	-WP	Weatherproof Enclosure - NEMA 3R rated, cast aluminum		**$12**	$_____
		Options **An enclosure is required**			
		-TB	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)	**$7.50**	$_____
		-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***	**$0**	
EXAMPLE					
BA/	**10K-2**	**-A-8'**	**-NB**		
Example Part Number: BA/10K-2-A-8'-NB				**Total =**	$_____
Your Part Number:					

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
*MATCHED Transmitter use Class A RTD's & are matched at 25%, 50% & 75% of calibrated scale limited to within -25ºC to 150ºC.
**Range is limited to -40 to 185°F (-40 to 85°C)
***TS option is not available with the T10K transmitters.

Gray shaded items follow the Buy and Resale Multiplier.

Rigid Averaging Units

Temperature Sensors

CE*

Rev. 06/06/13

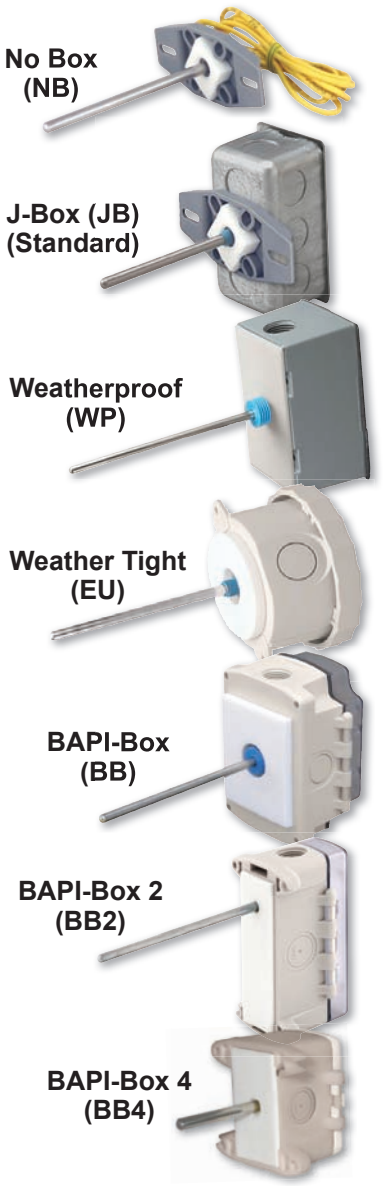
Features & Options

- Averaging Lengths: 12”, 2’ and 4’
- Several Enclosure Styles
- Wide Selection of Temperature Sensing Elements

BAPI Rigid Averaging Units feature closed cell foam to seal the probe insertion hole and absorb vibration. Mounting tabs allow for easy installation directly to the wall of the duct. All units have etched Teflon leadwires and encapsulated sensors to create a watertight package that can perform under real world conditions.

Averaging probes should be used wherever there is a chance for stratified layers of hot and cold air. Averaging probes are made of 1/4” diameter stainless steel tubing.

Rigid Averaging Units come standard with a 2”x4” steel J-Box but are also available with No Box **(NB)**, an ABS plastic BAPI-Box 4 **(BB4)** or four watertight enclosures: the metal Weatherproof **(WP)**, ABS plastic Weather Tight **(EU)**, and the UV-resistant polycarbonate BAPI-Box **(BB)** and BAPI-Box 2 **(BB2)**. BAPI also offers optional liquid-tight fittings.



Blü-Test

Bluetooth Wireless Temperature & Humidity Measurement Probe



Commissioning just got easier with BAPI’s temp and humidity probe. There’s no need to carry an extra meter because the Blü-Test communicates directly to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.

For more information, see the Wireless section.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Environmental Operation Range:
Temperature Sensor:
EU, BB & BB2: -40 °C to 85 °C
J-Box, WP, NB: -40 °C to 100 °C
Temp. Transmitter: -20 °C to 70 °C
Humidity: 0 to 95%, non-condensing

Enclosure Material:
WP Model: Cast Aluminum
BB & BB2: Polycarbonate, UL94, V-0
EU Model: ABS Plastic, UL94, V-0
J-Box Model: Galv. Steel
BB4 Model: Nylon & Plastic, UL94, V-0

Enclosure Rating:
J-Box: IP20, NEMA 1
BB4 Models: IP44
WP Model: NEMA 3R
EU, BB & BB2 Models: IP66, NEMA 4

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5” (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35” (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06” (72 x 71.4 x 52.3mm)
J-Box (JB)	4.2 x 3.9 x 1.94” (106 x 98.4 x 49mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2” (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1” (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the “Sensors” section.

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Rigid Averaging Units - Temperature			List Price	Your Order
BA/					
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**			
#	**THERMISTORS**		**RTDs**		
1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**Thermistors**	
2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.		
3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**RTD's**	
3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**$25 Each**	
10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20°C, 8 Ω/°C temp. coeff.	**or**	$_____
10K-3	10K Ω @ 25 °C			**$35 for 1K[NI]**	
10K-3[11K]	5,238 Ω @ 25 °C				
20K	20K Ω @ 25 °C				
47K	47K Ω @ 25 °C				
50K	50K Ω @ 25 °C				
100K	100K Ω @ 25 °C				
	TEMPERATURE TRANSMITTERS *Must include a "range" figure. Requires an enclosure.*			**Temperature Transmitters**	
T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**$125 for T100, T1K & T10K**	$_____
T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*				
T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output				
T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*				
T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**				
T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**				
T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**				
	TEMPERATURE TRANSMITTER RANGES				
	Custom temperature transmitter ranges are available. Common ranges are listed below			**$280 for T100M & T1KM**	$_____
	40 TO 90F	**4 TO 32C**	**-30 TO 130F**	**-34 TO 54C**	
	0 TO 100F	**-18 TO 38C**	**32 TO 212F**	**0 TO 100C**	
	20 TO 120F	**-7 TO 49C**	**30 TO 234F**	**-1 TO 112C**	
	32 TO 134F	**0 TO 57C**			
Configuration	**Required selection**				
-RA-12"	12" Rigid Averaging - ¼" Diameter, Stainless Steel			**$68**	$_____
-RA-2'	2' Rigid Averaging - ¼" Diameter, Stainless Steel			**$68**	$_____
-RA-3'	3' Rigid Averaging - ¼" Diameter, Stainless Steel			**$102**	$_____
-RA-4'	4' Rigid Averaging - ¼" Diameter, Stainless Steel			**$136**	$_____
-RA-XX	Custom Length Rigid Averaging - ¼" Diameter, Stainless Steel, Call for details.[1]			**Call**	
	Optional Enclosure 2"x4" J-Box comes standard				
	-NB	No Junction Box, 6" Etched Teflon Leadwires		**$0**	
	-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
	-BB2	BAPI-Box 2 Enclosure- IP66 rated, UV-resistant polycarbonate		**$12**	$_____
	-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)		**$0**	
	-EU	Weather Tight Enclosure - IP66 rated, ABS polymer		**$12**	$_____
	-EUO	Weather Tight Enclosure - IP66 rated UV-resistant enclosure		**$12**	$_____
	-WP	Weatherproof Enclosure - NEMA 3R rated, cast aluminum		**$12**	$_____
		Options	**An enclosure is required**		
		-TB	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)	**$7.50**	$_____
		-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***	**$0**	
EXAMPLE					
BA/	**10K-2**	**-RA-12"**	**-NB**	**Total =**	$_____
Example Part Number: BA/10K-2-RA-12"-NB					
Your Part Number:					

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

*MATCHED Transmitter use Class A RTD's & are matched at 25%, 50% & 75% of calibrated scale limited to within -25ºC to 150ºC.

**Range is limited to -40 to 185°F (-40 to 85°C)

***TS option is not available with the T10K transmitters.

[1]As a rule the in-between lengths will be priced at the next higher standard length list. The length is specified in whole inches (XX") and 48 inches is max. and 12 inches is the minimum.

Submersible Duct Units

Temperature Sensors

Rev. 06/06/13

Features & Options

- 304 Stainless Steel Probes: 12”, 18”, 24”, 36” & 48” lengths
- Very Thin Probe to Fit Between Coil Fins
- Six Enclosure Styles

Submersible Duct Units feature closed cell foam to seal the probe insertion hole and absorb vibration and mounting tabs for easy installation. All units have etched Teflon leadwires and encapsulated sensors to create a watertight package that can perform under real world conditions.

Submersible Duct Units are available in proble lengths of 12”, 18”, 24”, 36” and 48”. Custom probe lengths are also available.

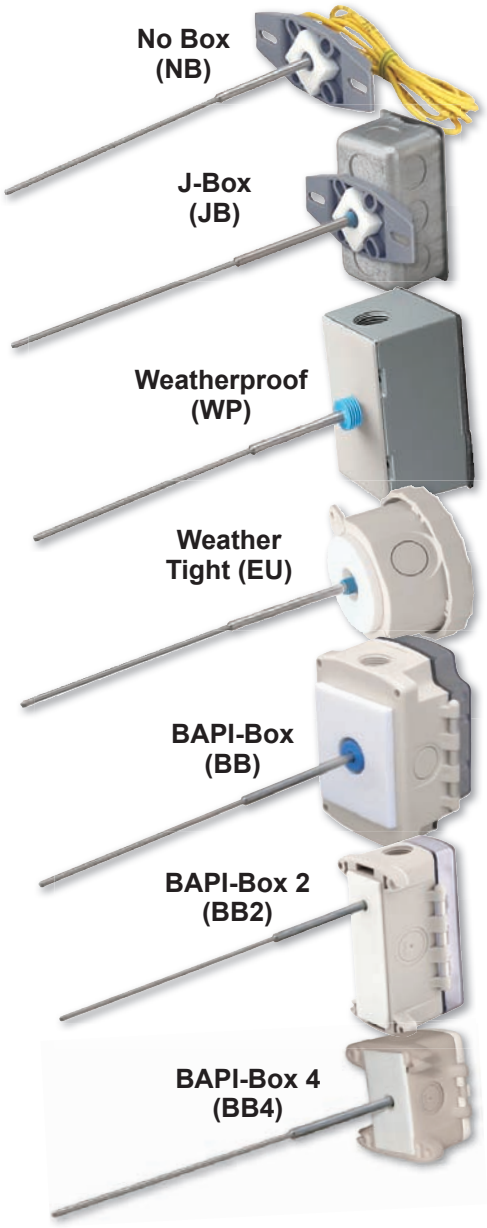
Submersible Duct Units come standard with a 2”x4” steel J-Box but are also available with No Box **(NB)** a BAPI-Box 4 **(BB4)** or four watertight enclosures: Weatherproof **(WP)**, Weather Tight **(EU)**, BAPI-Box **(BB)** or BAPI-Box 2 **(BB2)**. BAPI also offers optional liquid-tight fittings.

Blü-Test Bluetooth Wireless Temp & Humidity Measurement Probe



Commissioning just got easier with BAPI’s Bluetooth temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.

For more info, see the Wireless section.



*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Environmental Operation Range:
Temperature Sensor:
EU, BB, BB2 & BB4: -40 °C to 85 °C
J-Box, WP & NB: -40 °C to 100 °C
Temp. Transmitter: -20 °C to 70 °C
Humidity: 0 to 100%, non-condensing

Enclosure Material:
J-Box Model: Galv. Steel
WP Model: Cast Aluminum
EU Model: ABS Plastic, UL94, V-0
BB & BB2: UV-resist. polycarb., UL94, V-0
BB4 Model: Nylon & Plastic, UL94, V-0

Encl. Rating:
J-Box Model: IP20, NEMA 1
BB4 Model: IP44
WP Model: NEMA 3R
EU, BB & BB2 Models: IP66, NEMA 4

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5” (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35” (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06” (72 x 71.4 x 52.3mm)
J-Box (JB)	4.2 x 3.9 x 1.94” (106 x 98.4 x 49mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2” (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1” (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the “Sensors” section.

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Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Submersible Duct Units - Temperature				List Price	Your Order
BA/						
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**				
		THERMISTORS		**RTDs**	**Thermistors**	
#	**1.8K**	1.8K Ω @ 25 °C			**$18 Each**	$_____
	2.2K	2.2K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.		
	3K	3K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.	**RTD's**	
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**$25 Each**	
	3.3K	3.3K Ω @ 25 °C	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**or**	$_____
	10K-2	10K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
	10K-3	10K Ω @ 25 °C				
	10K-3[11K]	5,238 Ω @ 25 °C				
	20K	20K Ω @ 25 °C				
	47K	47K Ω @ 25 °C				
	50K	50K Ω @ 25 °C				
	100K	100K Ω @ 25 °C				
		TEMPERATURE TRANSMITTERS *Must include a "range" figure. Requires an enclosure.*			**Temperature**	
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**Transmitters**	
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			**$125 for**	$_____
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output			**T100, T1K**	
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			**& T10K**	
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**				
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**				
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**				
		TEMPERATURE TRANSMITTER RANGES				
		Custom temperature transmitter ranges are available. Common ranges are listed below			**$280 for**	$_____
		40 TO 90F **4 TO 32C** **-30 TO 130F** **-34 TO 54C**			**T100M**	
		0 TO 100F **-18 TO 38C** **32 TO 212F** **0 TO 100C**			**& T1KM**	
		20 TO 120F **-7 TO 49C** **30 TO 234F** **-1 TO 112C**				
		32 TO 134F **0 TO 57C**				
	Probe Length (Required selection)					
	-SD-12"	12" length of 1/8" Diameter, Stainless Steel Probe, plus 4" sleeve (0.25" diameter)			**$117**	$_____
	-SD-18"	18" length of 1/8" Diameter, Stainless Steel Probe, plus 4" sleeve (0.25" diameter)			**$120**	$_____
	-SD-24"	24" length of 1/8" Diameter, Stainless Steel Probe, plus 4" sleeve (0.25" diameter)			**$138**	$_____
	-SD-36"	36" length of 1/8" Diameter, Stainless Steel Probe, plus 4" sleeve (0.25" diameter)			**$142**	$_____
	-SD-48"	48" length of 1/8" Diameter, Stainless Steel Probe, plus 4" sleeve (0.25" diameter)			**$150**	$_____
	-SD-XX"	Custom lengths of 1/8" Dia, Stainless Steel Probe are available. **Call for details.**			**Call**	$_____
		Optional Enclosure Type *2"x4" Steel J-Box comes standard*				
		-WP	Weatherproof Enclosure - NEMA 3R rated metal enclosure		**$12**	$_____
		-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)		**$0**	
		-EU	Weather Tight Enclosure - IP66 rated, ABS polymer		**$12**	$_____
		-EUO	Weather Tight Enclosure - IP66 rated UV-resistant enclosure		**$12**	$_____
		-NB	No Junction Box or Enclosure - Comes w/ 6" Etched Teflon Leadwire (Not available w/transmitter option)		**$0**	
			Options	**An enclosure is required**		
			-TB	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)	**$7.50**	$_____
			-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***	**$0**	
EXAMPLE						
BA/	**10K-2**	**-SD-48"**	**-BB2**		**Total =**	$_____
Example Part Number: BA/10K-2-SD-48"-BB2						

Your Part Number:

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
*Transmitters with matched outputs require a Class A sensor.
**Range is limited to -40 to 185°F (-40 to 85°C)
***TS option is not available with the T10K transmitters.

Gray shaded items follow the Buy and Resale Multiplier.

Submersible Averaging

Temperature Sensors

Rev. 06/06/13

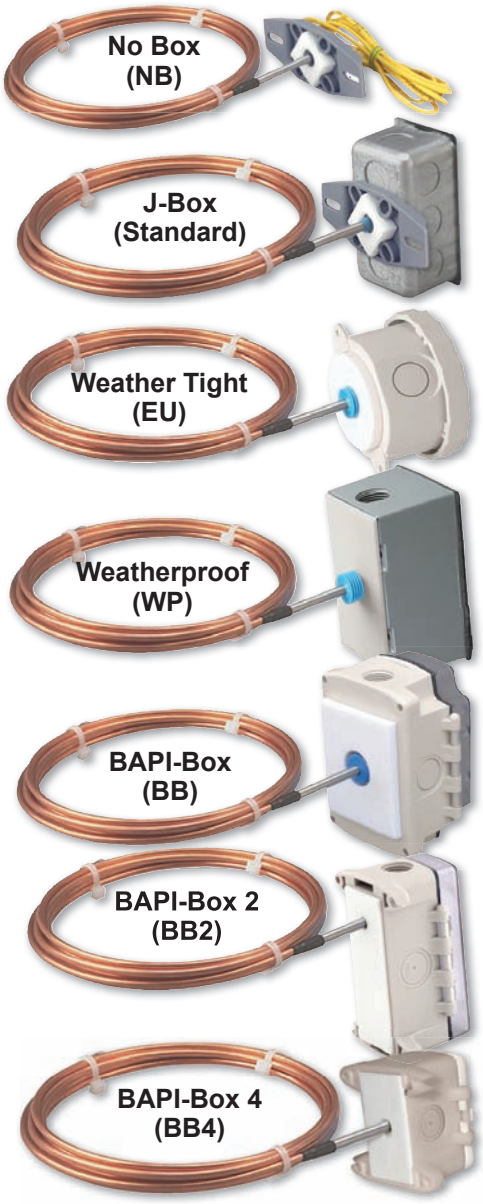
Features & Options

- Waterproof, Copper-Cased Element
- Continuous Averaging (RTD models only)
- Averaging Lengths: 2', 4' and 8'
- Wide Selection of Temperature Sensing Elements

Submersible Averaging Units feature closed cell foam to seal the probe insertion hole and absorb vibration and mounting tabs allow for easy installation. All Units have etched Teflon leadwires and encapsulated sensors to create a watertight package that can withstand high humidity and perform under real world conditions.

Averaging probes should be used wherever there is a chance for stratified layers of hot and cold water. Averaging probes are made of bendable copper tubing and are able to measure temperature along their entire length.

These units come standard with a 2"x4" steel Junction Box but are also available with No Box **(NB)** a BAPI-Box 4 **(BB4)** or four watertight enclosures: Weatherproof **(WP)**, Weather Tight **(EU)**, BAPI-Box **(BB)** or BAPI-Box 2 **(BB2)**. BAPI also offers optional liquid-tight fittings.



Blü-Test

Bluetooth Wireless Temp & Humidity Measurement Probe



Commissioning just got easier with BAPI's Bluetooth temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.

For more info, see the Wireless section.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Environmental Operation Range:
Temperature Sensor:
EU, BB, BB2 & BB4: -40 to 85 °C
J-Box, WP, NB: -40 to 100 °C
Temperature Transmitter: -20 to 70 °C
Humidity: 0 to 100%, non-condensing

Enclosure Material:
J-Box Model: Galv. Steel
WP Model: Cast Aluminum
EU Model: ABS Plastic, UL94, V-0
BB & BB2: UV-resist. polycarb., UL94, V-0
BB4 Model: Nylon & Plastic, UL94, V-0

Enclosure Rating:
J-Box Model: IP20, NEMA 1
BB4 Model: IP44
WP Model: NEMA 3R
EU, BB & BB2 Models: IP66, NEMA 4

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5" (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35" (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06" (72 x 71.4 x 52.3mm)
J-Box (JB)	4.2 x 3.9 x 1.94" (106 x 98.4 x 49mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2" (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1" (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the "Sensors" section.

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Ordering Information	*Submersible* Averaging Units - Temperature			List Price	Your Order
BA/					
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**			
	THERMISTORS		**RTDs**	**Thermistors**	
	1.8K 1.8K Ω @ 25 °C			**$18 Each**	$_____
	2.2K 2.2K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.		
	3K 3K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.	**RTD's**	
	3.25K 3.25K Ω @ 25 °C (T30 type)	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**$25 Each**	
	3.3K 3.3K Ω @ 25 °C	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**or**	$_____
	10K-2 10K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
	10K-3 10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.		
	10K-3[11K] 5,238 Ω @ 25 °C				
	20K 20K Ω @ 25 °C				
	47K 47K Ω @ 25 °C				
	50K 50K Ω @ 25 °C				
	100K 100K Ω @ 25 °C				
	TEMPERATURE TRANSMITTERS *Must include a "range" figure. Requires an enclosure.*			**Temperature Transmitters**	
	T100[range] 100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**$125 for T100, T1K & T10K**	$_____
	T100M[range] 100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*				
	T1K[range] 1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output				
	T1KM[range] 1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*				
	T10K[range] 10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**				
	T10K5[range] 10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**				
	T10K10[range] 10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**				
	TEMPERATURE TRANSMITTER RANGES				
	Custom temperature transmitter ranges are available. Common ranges are listed below			**$280 for T100M & T1KM**	$_____
	40 TO 90F **4 TO 32C** **-30 TO 130F** **-34 TO 54C**				
	0 TO 100F **-18 TO 38C** **32 TO 212F** **0 TO 100C**				
	20 TO 120F **-7 TO 49C** **30 TO 234F** **-1 TO 112C**				
	32 TO 134F **0 TO 57C**				
Configuration	**Required selection**				
-SA-2'	2' Submersible Averaging - 3/16" Diameter, Bendable Copper, plus 4" sleeve			**$120**	$_____
-SA-4'	4' Submersible Averaging - 3/16" Diameter, Bendable Copper, plus 4" sleeve			**$120**	$_____
-SA-8'	8' Submersible Averaging - 3/16" Diameter, Bendable Copper, plus 4" sleeve			**$135**	$_____
-SA-XX	Custom Length Submersible Averaging - 3/16" Dia., Bendable Copper, Call for details			**Call**	
	Enclosure Options **2"x4" Steel J-Box comes standard**				
	-NB	No Junction Box or Enclosure - Comes w/ 6" Etched Teflon Leadwire (Not available w/transmitter option) (Not available with transmitter option)		**$0**	
	-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
	-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
	-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)		**$0**	
	-EU	Weather Tight Enclosure - IP66 rated, ABS polymer		**$12**	$_____
	-EUO	Weather Tight Enclosure - IP66 rated UV-resistant enclosure		**$12**	$_____
	-WP	Weatherproof Enclosure - NEMA 3R rated, cast aluminum		**$12**	$_____
		Options **An enclosure is required**			
		-TB	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)	**$7.50**	$_____
		-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***	**$0**	
EXAMPLE					
BA/	**10K-2**	**-SA-2'**	**-BB**		
Example Part Number: BA/10K-2-SA-2'-BB				**Total =**	$_____
Your Part Number:					

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
*Transmitters with matched outputs require a Class A sensor.
**Range is limited to -40 to 185°F (-40 to 85°C)
***TS option is not available with the T10K transmitters.

Gray shaded items follow the Buy and Resale Multiplier.

Immersion Probes w/ nylon fitting

Temperature Sensors

CE *

Rev. 06/06/13

Features & Options

- Probe Lengths: 2”, 4” & 8” (fit standard BAPI Thermowell lengths)
- Series 304 Stainless Steel Probes and Six Enclosure Styles
- Double Encapsulated Sensors & Etched Teflon Leadwires

Immersion Units are available in 2”, 4” and 8” probe lengths. The sensor is potted inside a 1/4” stainless steel probe with thermally conductive compound. All Immersion Units have etched Teflon leadwires and double encapsulated sensors to create a watertight package that can withstand high humidity and condensation.

Immersion Units come standard with a 2”x4” steel J-Box **(JB)** but are also available with a BAPI-Box 4 **(BB4)** or four styles of watertight enclosure: Weatherproof **(WP)**, Weather Tight **(EU)**, BAPI-Box **(BB)** or BAPI-Box 2 **(BB2)**. BAPI also offers optional liquid-tight fittings.



BAPI Thermowells

Immersion Unit Probes are designed to be inserted into a Thermowell. For more info on Thermowells, see page A60.

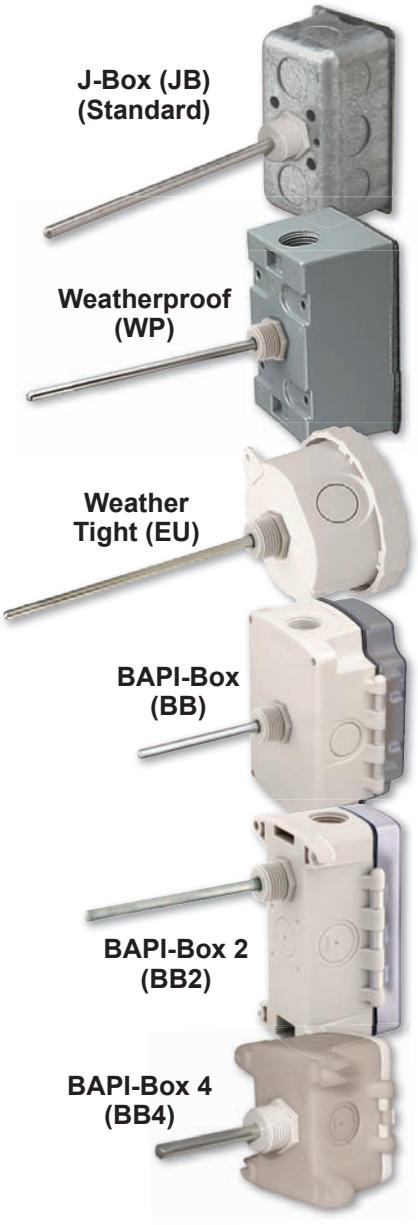
Blü-Test

Bluetooth Wireless Temp & Humidity Measurement Probe



Commissioning just got easier with BAPI’s temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.

For more info, see the Wireless section.



*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Environmental Operation Range:
Temperature Sensor: -40 to 85 °C
Temperature Transmitter: -20 to 70 °C
Humidity: 0 to 100%, non-condensing

Enclosure Material:
J-Box Model: Galv. Steel
WP Model: Cast Aluminum
EU Model: ABS Plastic, UL94, V-0
BB & BB2: UV-resist. polycarb., UL94, V-0
BB4 Model: Nylon & Plastic, UL94, V-0

Enclosure Rating:
J-Box Model: IP20, NEMA 1
BB4 Model: IP44
WP Model: NEMA 3R
EU, BB & BB2 Models: IP66, NEMA 4

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5” (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35” (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06” (72 x 71.4 x 52.3mm)
J-Box (JB)	4.2 x 3.9 x 1.94” (106 x 98.4 x 49mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2” (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1” (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the “Sensors” section.

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Ordering Information	Immersion Units - Temperature				List Price	Your Order
BA/						
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**				
		THERMISTORS		**RTDs**	**Thermistors**	
#	**1.8K**	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
	2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
	3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
	3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
	10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
	10K-3	10K Ω @ 25 °C				
	10K-3[11K]	5,238 Ω @ 25 °C		**SEMICONDUCTORS**	**Semi-**	
	20K	20K Ω @ 25 °C	**334**	LM334 Semiconductor	**conductors**	
	47K	47K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
	50K	50K Ω @ 25 °C	**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
	100K	100K Ω @ 25 °C				
		TEMPERATURE TRANSMITTERS *Must include a "range" figure. Requires an enclosure.*			**Temperature**	
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**Transmitters**	
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED* 4 to 20 mA Output			**$125 for**	$_____
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output			**T100, T1K**	
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED* 4 to 20 mA Output			**& T10K**	
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**				
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**				
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**				
		TEMPERATURE TRANSMITTER RANGES				
		Custom temperature transmitter ranges are available. Common ranges are listed below			**$280 for**	$_____
		30 TO 81F **-1 TO 27C** **32 TO 212F** **0 TO 100C**			**T100M**	
		0 TO 100F **-18 TO 38C** **40 TO 240F** **4 TO 116C**			**& T1KM**	
		20 TO 120F **-7 TO 49C** **50 TO 250F** **10 TO 121C**				
		32 TO 134F **0 TO 57C**				
	Configuration	**Required selection**				
	-I-2"	2" length of ¼" Diameter, Stainless Steel Probe (Use 2" BAPI Well)			**$7**	$_____
	-I-4"	4" length of ¼" Diameter, Stainless Steel Probe (Use 4" BAPI Well)			**$7**	$_____
	-I-8"	8" length of ¼" Diameter, Stainless Steel Probe (Use 8" BAPI Well)			**$7**	$_____
	-I-XX	Custom lengths of ¼" Diameter, Stainless Steel Probe are available. Call for Details (Custom well required)			**Call**	
		Enclosure Options *2"x4" J-Box comes standard*				
		-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)		**$0**	
		-EU	Weather Tight Enclosure - IP66 rated, ABS polymer		**$12**	$_____
		-EUO	Weather Tight Enclosure - IP66 rated UV-resistant enclosure		**$12**	$_____
		-WP	Weatherproof Enclosure - NEMA 3R rated, cast aluminum		**$12**	$_____
			Optional Terminal Block **An enclosure is required**			
			-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***	**$0**	
EXAMPLE						
BA/	**10K-2**	**-I-8"**	**-EU**		**Total =**	$_____
Part Number: BA/10K-2-I-8"-EU						
Your Part Number:						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
*Transmitters with matched outputs require a Class A sensor.
**Range is limited to -40 to 185°F (-40 to 85°C)
***TS option is not available with the 592-10K Semiconductor sensor or the T10K transmitters.

Immersion Probes w/ stainless steel fitting

Temperature Sensors

Rev. 06/06/13

Features & Options

- Probe Lengths: 2”, 4” and 8” (fit standard BAPI Thermowell lengths)
- Series 304 Stainless Steel Probes
- Double Encapsulated Sensors
- 3 Optional Watertight Enclosures
- Wide Selection of Temperature Sensing Elements

Immersion Units are available in 2”, 4” and 8” probe lengths. This unit is provided with a 1/4” stainless steel probe and a 1/2” NPT double-ended stainless steel fitting.

The sensors are potted inside the probe with a thermally conductive compound. All units have etched Teflon leadwires and double encapsulated sensors to create a watertight package that can withstand high humidity and condensation. Immersion Probes are available with a watertight BAPI-Box **(BB)**, BAPI-Box 2 **(BB2)** or a Weatherproof (**WP**) enclosure.

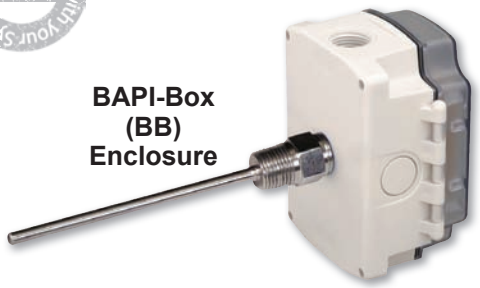
CE*

100% Compatible with your System GUARANTEED

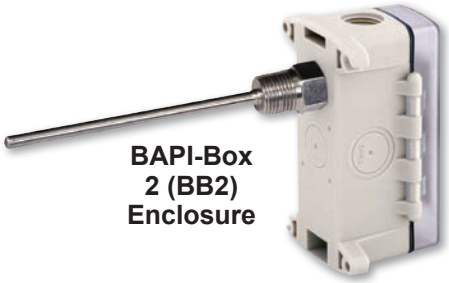
No Box (NB) (Standard)



BAPI-Box (BB) Enclosure



BAPI-Box 2 (BB2) Enclosure



Weatherproof (WP) Enclosure



Blü-Test

Bluetooth Wireless Temp & Humidity Measurement Probe

Commissioning just got easier with BAPI’s Bluetooth temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.



For more info on the Blü-Test, see the Wireless section.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Environmental Operation Range:
Temperature Sensor: -40 to 100 °C
Temperature Transmitter: -20 to 70 °C
Humidity: 0 to 100%, non-condensing

Enclosure Material:
WP Model: Cast Aluminum
BB & BB2: UV-resist. polycarb., UL94, V-0

Enclosure Rating:
WP Model: NEMA 3R
BB & BB2: IP66, NEMA 4

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5” (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35” (125 x 71.6 x 60mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2” (114 x 70 x 55mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the “Sensors” section.

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Ordering Information	Immersion Probes, Double Threaded - Temperature				List Price	Your Order
BA/						
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**				
		THERMISTORS		**RTDs**	**Thermistors**	
#	**1.8K**	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
	2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
	3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
	3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
	10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K(NI)**	
	10K-3	10K Ω @ 25 °C				
	10K-3[11K]	5,238 Ω @ 25 °C		**SEMICONDUCTORS**	**Semi-**	
	20K	20K Ω @ 25 °C	**334**	LM334 Semiconductor	**conductors**	
	47K	47K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
	50K	50K Ω @ 25 °C	**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
	100K	100K Ω @ 25 °C				
		TEMPERATURE TRANSMITTERS	***Must include a "range" figure. Requires an enclosure.***		**Temperature**	
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**Transmitters**	
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED* 4 to 20 mA Output			**$125 for**	$_____
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output			**T100, T1K**	
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED* 4 to 20 mA Output			**& T10K**	
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**				
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**				
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**				
		TEMPERATURE TRANSMITTER RANGES				
		Custom temperature transmitter ranges are available. Common ranges are listed below			**$280 for**	$_____
		30 TO 81F	**-1 TO 27C**	**32 TO 212F**	**0 TO 100C**	**T100M**	
		0 TO 100F	**-18 TO 38C**	**40 TO 240F**	**4 TO 116C**	**& T1KM**	
		20 TO 120F	**-7 TO 49C**	**50 TO 250F**	**10 TO 121C**		
		32 TO 134F	**0 TO 57C**				
	Note: Temperature Transmitter Units require a WP, BB or BB2 enclosure					
	Configuration	**Required selection**				
	-I-2"-SS	2" Immersion length of ¼" Diameter, Stainless Steel Probe, 3.5" probe (use 2" BAPI Well)			**$42**	$_____
	-I-4"-SS	4" Immersion length of ¼" Diameter, Stainless Steel Probe, 5.5" probe (use 4" BAPI Well)			**$42**	$_____
	-I-8"-SS	8" Immersion length of ¼" Diameter, Stainless Steel Probe, 8.5" probe (use 8" BAPI Well)			**$42**	$_____
		Optional Enclosure	**Enclosure required for transmitters**			
		-WP	Weatherproof Enclosure - NEMA 3R rated metal enclosure		**$12**	$_____
		-WPO	Weatherproof Encl. - NEMA 3R rated, Outside Mount (probe out the bottom)		**$12**	$_____
		-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-BBO	BAPI-Box Encl. - IP66 rated, Outside Mount (prove out the bottom)		**$12**	$_____
		-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-BB2O	BAPI-Box 2 Encl. - IP66 rated, Outside Mount (probe out the bottom)		**$12**	$_____
			Optional Terminal Block	**An enclosure is required**		
			-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***		
EXAMPLE						
BA/	**10K-2**	**-I-2"-SS**	**-WP**		**Total =**	$_____
Example Part Number: BA/10K-2-I-8"-SS-WP						
Your Part Number:						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

*Transmitters with matched outputs require a Class A sensor.

**Range is limited to -40 to 185°F (-40 to 85°C)

***TS option is not available with the 592-10K Semiconductor sensor or the T10K transmitters.

Thermowells

Temperature Sensors

Rev. 1/22/13

Features & Options

- Three Lengths: 2”, 4” and 8”
  (Fit standard Immersion Unit lengths)
- Stainless Steel (304 or 316) or Brass
- Two Part (Welded) or Machined Construction
- Other Lengths Available Upon Request
- Limited Lifetime Warranty



Machined Thermowell

Standard Thermowells available from BAPI include 304 stainless steel (machined), 316 stainless steel (machined), brass (machined), and two part* (welded) 304 stainless steel. These wells are offered in 2”, 4” and 8” lengths with 1/2” NPT external and 1/2” NPSM internal. Other lengths and thread diameters are available upon request.



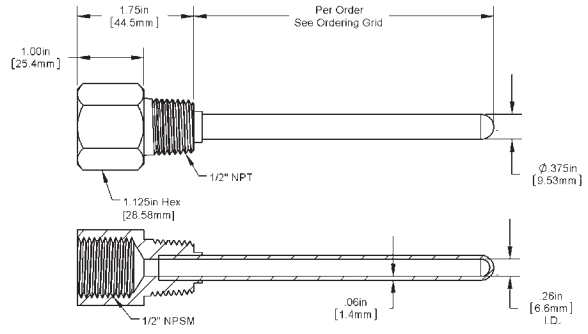
Two Part (welded) Thermowell

The Thermowell chosen for an installation is governed mainly by the corrosion conditions the well will face. The machined stainless steel wells all come with a mirror polish to provide maximum corrosion resistance.

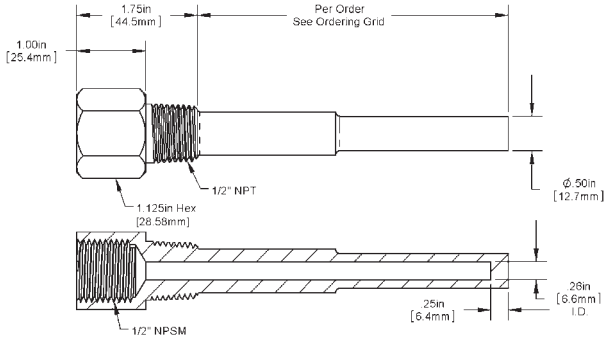
Occasionally, the material consideration is one of strength rather than corrosion. For example, a machined stainless steel well may be required for high pressure water service where otherwise a brass or two part stainless steel well would be satisfactory from a corrosion standpoint.

Note: The two part welded stainless steel thermowells are not intended for service in moving water. They may be used in catch basins, sumps or large storage tanks with small inlet and outlet pipes. Do not mount the two part welded stainless steel thermowells close to the inlet or outlet pipe of the tank.

Specifications



Two Part (Welded) Thermowell
304 Stainless Steel



Machined Thermowell
304 or 316 Stainless Steel or Brass

NPT= National Pipe Taper
NPSM=National Pipe Straight Mechanical (not tapered)

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Ordering Information	Thermowells		List Price	Your Order
BA/				
	Unit Type			
	2"	Two Part (Welded) 304 Stainless Steel - 2"	**$22**	**$_____**
	4"	Two Part (Welded) 304 Stainless Steel - 4"	**$24**	**$_____**
	8"	Two Part (Welded) 304 Stainless Steel - 8"	**$28**	**$_____**
	2"M304	Machined 304 Stainless Steel - 2"	**$32**	**$_____**
	4"M304	Machined 304 Stainless Steel - 4"	**$44**	**$_____**
	8"M304	Machined 304 Stainless Steel - 8"	**$65**	**$_____**
	2"M316	Machined 316 Stainless Steel - 2"	**$44**	**$_____**
	4"M316	Machined 316 Stainless Steel - 4"	**$50**	**$_____**
	8"M316	Machined 316 Stainless Steel - 8"	**$80**	**$_____**
	2"MB	Machined Brass - 2"	**$23**	**$_____**
	4"MB	Machined Brass - 4"	**$26**	**$_____**
	8"MB	Machined Brass - 8"	**$45**	**$_____**
EXAMPLE				
BA/	**4"M304**		**Total =**	**$_____**
Example Part Number: BA/4"M304 4" Machined 304 Stainless Steel Thermowell				
Your Part Number:				

Note: Standard thread size is ½" NPT external, and ½" NPSM internal.
2" wells have an insertion length of 2.5" (11.43 cm).
4" wells have an insertion length of 4.5" (11.43 cm).
8" wells have an insertion length of 7.5" (19.05 cm).

Gray shaded items follow the Buy and Resale Multiplier.

Comparing the Wake Frequency and the Resonant Frequency

Well failures, in most cases, are not due to the effects of pressure or temperature on the well. The calculations necessary to provide adequate strength, under given conditions, are familiar enough to permit proper choice of wall thickness and material. The values shown in Table 1 are conservative, and intended primarily as a guide. Less familiar, and more dangerous, are the **vibration effects** to which wells are subjected. Fluid, flowing by the well, forms a turbulent wake (called the Von Karman Trail) which has a definite frequency, based on the diameter of the well and the velocity of the fluid. It is important that the well have sufficient stiffness so that the wake frequency will never equal the resonant (natural) frequency of the well itself. If the resonant frequency of the well coincided with the wake frequency, the well would vibrate to destruction and break off in the piping. Wells are also safe if the resonant frequency is well **below** the wake frequency or if the fluid velocity is constantly fluctuating through the critical velocity point. Nevertheless, if the installation is not hampered by the use of a sufficiently stiff well, we recommend the values given in Table 2 not be exceeded.

Table 1: Pressure Rating versus Temperature

Thermowell Material	Temperature in Degrees Fahrenheit						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
	Pressure Rating (Pounds per Square Inch)						
Brass	5000	4200	1000	-	-	-	-
Welded 304 S.S.	982	820	675	604	550	510	299
304 S.S.	7000	6200	5600	5400	5200	4500	1650
316 S.S.	7000	7000	6400	6200	6100	5100	2500

Table 2:
Maximum Fluid Velocity versus Insertion Length

Thermowell Material	Fluid Type	Insertion Length (inches)		
		I-2"	I-4"	I-8"
		Maximum Fluid Velocity (Feet per Second)		
Brass	Air/Steam	207	75.5	27.3
	Water	59.3	32.2	19.7
Welded 304 S.S.	Air/Steam	169	61	20
	Water	88	20	10
304 S.S. 316 S.S.	Air/Steam	300	109	39.5
	Water	148	82.2	-

The values shown in Table TTwo are based on operating temperatures of 350°F for brass and 1,000°F for stainless steel (S.S.). Slightly higher velocities are possible at lower temperatures.

Extreme Temp. Platinum RTD - Immersion

Temperature Sensors

Rev. 10/16/12

Boiler, Stack or Cryogenic Applications

Features & Options

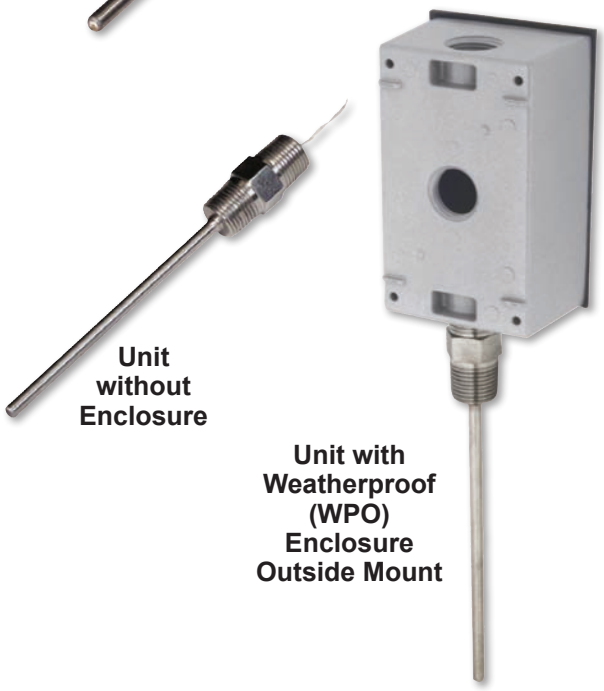
- Stainless Steel Probe & Industrial Construction
- Double-ended 1/2” NPT Stainless Steel Fitting
- Optional Weatherproof Enclosure
- Standard or Outside Mount Configurations

This immersion element has been designed for use in applications from -200°C to 600°C . This unit is provided with a stainless steel probe and a 1/2” NPT double-ended stainless steel fitting.

These units are packaged to handle vibration, moisture, and wide temperature ranges.



Unit with Weatherproof (WP) Enclosure Standard Mount



Unit without Enclosure

Unit with Weatherproof (WPO) Enclosure Outside Mount

Optional Temperature Transmitter

The Extreme Temperature RTD Units can be used with the remote mounted **BAPI** ruggedized temperature transmitter to provide a linear proportional 4 to 20 mA output. For more info, see page A72.

**Note: Please select a desired range which falls within the operating range of the RTD Sensor you specified.*



Specifications

Sensor Type: Platinum 1KΩ or 100Ω RTD
Reference Resistance: 1KΩ or 100Ω at 0°C
Operating Range: -328 to 1,112°F (-200 to 600°C)
Humidity: 0 to 100%, non-condensing
Standard Accuracy: 0.1% at 0°C
Temp. Coefficient: 3.85 Ω/°C
Output: Resistive
Leadwire: PTFE or Fiberglass, 36” long
[1] PTFE, -328 to 32°F (-200 to 0°C)
[2] PTFE, 212 to 410°F (100 to 210°C)
[3] Fiberglass, 482 to 900°F (250 to 482°C)
Enclosure Material: Cast Aluminum
Enclosure Rating: NEMA 3R
Enclosure Dimensions: H x W x D
Weatherproof (WP): 4.5 x 2.75 x 2.2” (114 x 70 x 55mm)
(For enclosure dimension drawings, see the end of the section.)

RTD Output Table

Temperature		Resistance (Ω)	
°F	°C	1K RTD	100Ω RTD
-328	-200	195	
-148	-100	603	
32	**0**	**1,000**	**100**
122	50	1,194	119
212	100	1,385	139
392	200	1,758	176
572	300	2,120	212
752	400	2,470	247
932	500	2,809	281
1,112	600	3,136	314

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Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Extreme Temperature RTD with Immersion Probe					List Price	Your Order
BA/							
	Platinum RTD Sensor Type	**Must select one**	**36" Wire Lead Length**				
	100[2]	100Ω Platinum RTD for operating range 212 to 410 °F (100 to 210 °C), PTFE Insulation Leads					
	100[2][3W]	3 Wire 100Ω Platinum RTD for operating range 212 to 410 °F (100 to 210 °C), PTFE Insulation Leads					
	100[3]	100Ω Platinum RTD for Operating Range 392 to 1,112 °F (200 to 600 °C), Fiberglass Insulation Leads					
	100[3][3W]	3 Wire 100Ω Platinum RTD for Operating Range 392 to 1,112 °F (200 to 600 °C), Fiberglass Insulation Leads					
	1K[1]	1K Platinum RTD for Operating Range -328 to 32 °F (-200 to 0 °C), PTFE Insulation Leads				**$145 RTD**	$_____
	1K[2]	1K Platinum RTD for Operating Range 212 to 410 °F (100 to 210 °C), PTFE Insulation Leads					
	1K[3]	1K Platinum RTD for Operating Range 392 to 1,112 °F (200 to 600 °C), Fiberglass Insulation Leads					
		Probe Selection	**Must select one**				
		-I-2"	2" length of ¼" Diameter, Stainless Steel Probe, double-ended 1/2" NPT				
		-I-4"	4" length of ¼" Diameter, Stainless Steel Probe, double-ended 1/2" NPT			**$17.50**	$_____
		-I-8"	8" length of ¼" Diameter, Stainless Steel Probe, double-ended 1/2" NPT			**$17.50**	$_____
			Optional Weatherproof Enclosure				
			-WP	NEMA 3R rated metal Weatherproof Enclosure		**$12**	$_____
			-WPO	NEMA 3R rated metal Weatherproof Enclosure, Outside Air Mount		**$12**	$_____
EXAMPLE							
BA/	**1K[1]**	**-I-2"**	**-WP**			**Total =**	$_____
Part Number: BA/1K[1]-I-2"-WP							
Your Part Number:							

Call BAPI if you have questions about the above ordering grid.
Note: Order temperature transmitters separately as needed.

Gray shaded items follow the Buy and Resale Multiplier.

Extreme Temp. Platinum RTDs - Remote

Temperature Sensors

Rev. 06/06/13

Features & Options

- Stainless Steel Probe & Industrial Construction

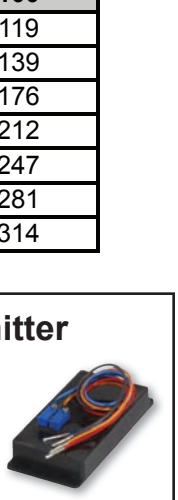
The Remote Temperature Sensor has been designed for use in applications from -200 °C to 600 °C. The unit is provided with a stainless steel probe and packaged to handle vibration, moisture, and wide temperature ranges. It can be used with the standard BAPI ruggedized temperature transmitter to provide a linear proportional 4 to 20 mA output.

RTD Output Table

Temperature		Resistance (Ω)	
°F	°C	1K RTD	100Ω RTD
-328	-200	195	
-148	-100	603	
32	**0**	**1,000**	**100**
122	50	1,194	119
212	100	1,385	139
392	200	1,758	176
572	300	2,120	212
752	400	2,470	247
932	500	2,809	281
1,112	600	3,136	314

Optional Temperature Transmitter

The Extreme Temperature RTD Units can be used with the remote mounted **BAPI** ruggedized temp transmitter to provide a linear proportional 4 to 20 mA output. For more info, see page A72.





Specifications

Sensor Type:
Platinum 1KΩ RTD (3.85 Ω/°C)
Platinum 100Ω RTD (.385 Ω/°C

Reference Resistance: 1KΩ or 100Ω at 0°C

Probe Operating Range: -200 to 600°C

Humidity: 0 to 100%, non-condensing

Standard Accuracy: 0.1% at 0 °C

Enclosure Material:
WP Model: Cast Aluminum
EU Model: ABS Plastic, UL94, V-0
BB & BB2: UV-resistant polycarb., UL94, V-0
BB4: Nylon & Plastic, UL94, V-0

Enclosure Operating Range:
WP Model: -100 to 1,000 °F (-73 to 538 °C)
EU, BB, BB2 & BB4: -40 to 185 °F (-40 to 85 °C)

Enclosure Rating:
WP Model: NEMA 3R
EU, BB & BB2: IP66, NEMA 4
BB4: IP44

Wiring to Probe:
PTFE Jacketed Cable or Fiberglass Insulated Leadwire
[1] PTFE Jacketed, -328 to 32°F (-200 to 0°C)
[2] PTFE Jacketed, 212 to 410°F (100 to 210°C)
[3] Fiberglass Ins., 482 to 900°F (250 to 482°C)

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5” (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35” (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06” (72 x 71.4 x 52.3mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2” (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1” (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information				Extreme Temp. RTDs with Remote Sensor	List Price	Your Order
BA/						
	Platinum RTD Sensor Type Must select one					
	100[2]			100Ω Platinum RTD for operating range 212 to 410°F (100 to 210°C), PTFE Jacketed Cable		
	100[2][3W]			3 Wire 100Ω Plat. RTD for operating range 212 to 410°F (100 to 210°C), PTFE Jacketed Cable		
	100[3]			100Ω Plat. RTD for Operating Range 392 to 1,112°F (200 to 600°C), Fiberglass Insulated Leads		
	100[3][3W]			3 Wire 100Ω Plat. RTD for Operating Range 392 to 1,112°F (200 to 600°C), Fiberglass Insulated Leads		
	1K[1]			1K Platinum RTD for Operating Range -328 to 32°F (-200 to 0°C), PTFE Jacketed Cable	**$145 RTD**	**$_____**
	1K[2]			1K Platinum RTD for Operating Range 212 to 410°F (100 to 210°C), PTFE Jacketed Cable		
	1K[3]			1K Platinum RTD for Operating Range 392 to 1,112 °F (200 to 600 °C), Fiberglass Insulated Leads		
		Probe Wire Length Must select one				
		-RP-5'		Sensor with 5' Wire Length* - PTFE Jacketed Cable or Fiberglass Insulated Leads ^	**$5**	**$_____**
		-RP-10'		Sensor with 10' Wire Length* - PTFE Jacketed Cable or Fiberglass Insulated Leads ^	**$10**	**$_____**
		-RP-15'		Sensor with 15' Wire Length* - PTFE Jacketed Cable or Fiberglass Insulated Leads ^	**$15**	**$_____**
			Optional Enclosure (comes with liquid tight fittings)			
			-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate	**$12**	**$_____**
			-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate	**$12**	**$_____**
			-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)	**$0**	
			-EU	Weather Tight Enclosure - IP66 rated, ABS polymer enclosure	**$12**	**$_____**
			-WP	Weatherproof Enclosure - NEMA 3R rated, cast aluminum	**$12**	**$_____**
				Optional Terminal Block BB or BB2 enclosure required		
				-TS Terminal Strip Connection (BB or BB2 required)**	**$0**	
EXAMPLE						
BA/	**1K[1]**	**-RP-5'**	**-BB**			
Part Number: BA/1K[1]-RP-5'-BB					**Total =**	**$_____**
Your Part Number:						

Call BAPI if you have questions about the above ordering grid.
*Custom wire lengths are available. Call BAPI for details.
^The high temperature units [3] have fiberglass insulated leadwires, the other units have PTFE jacketed cable.
Note: Order temperature transmitters separately as needed.

Gray shaded items follow the Buy and Resale Multiplier.

Strap Units and Remote Probe Units

Temperature Sensors

Rev. 06/06/13

Features & Options

- Clamp-On, Strap On or Remote Probe Options
- Double Encapsulated Sensors
- Wide Selection of Temperature Sensing Elements

These units are designed to monitor water temperature in retrofit or filled pipe applications. The strap units fit around the outside of a pipe, greatly reducing installation cost, while the remote probes are strapped directly onto the pipe.

All three units measure the water temperature by sensing the surface temperature of the pipe. The Strap Units have etched Teflon leadwires and double encapsulated sensors and come standard with a Junction Box enclosure. The Clamp-On Unit and the Remote Probes are available with an optional BAPI-Box 4 or a watertight BAPI-Box or BAPI-Box 2 enclosure. The Spring Loaded Unit is available with an optional BAPI-Box 4 or BAPI-Box 2 enclosure.

Clamp-On Strap – This unit has a bendable copper sensing plate which forms to the curvature of the pipe. An adjustable hose clamp holds the unit in place around the pipes up to 4.5".

Spring-Loaded Strap – Instead of removing the pipe insulation, the spring loaded sensing pad is held against the pipe through a hole cut in the insulation. It can be used with pipes up to 14.5" with up to 2" of insulation.

Remote Probes - These units have a 1.75" long stainless steel probe with either Plenum-Rated Cable or FEP-Jacketed Cable with a lead length of 18" (Other lengths are available by calling BAPI). Remote Probes are ideal for strap-on applications on any size pipe, or hard-to-access areas.

(See pg A70 for more Remote Probe Options.)

*All Passive Thermistors 10KΩ and smaller are CE compliant.



Clamp-On Straps with BAPI-Box 4, J-Box, BAPI-Box 2 & BAPI-Box (from left)



Spring Loaded Strap Units with BAPI-Box 4, J-Box & BAPI-Box 2 (from left)



Remote Probes with BAPI-Box 4, BAPI-Box 2 & BAPI-Box (from left)

Specifications

Enclosure Material:
BB or BB2 Models: Polycarbonate
J-Box: Galvanized Steel (J-Box)
BB4: Nylon & Plastic, UL94, V-0

Environmental Operation Range:
Temperature Sensor:
Clamp On: -65 to 100 °C,
Spring Loaded: -40 to 85 °C
Remote Probe: -40 to 105 °C
Temperature Transmitter: -20 to 70 °C
Humidity: 0 to 95%, non-condensing

Enclosure Rating:
J-Box: NEMA 1
BB & BB2 Models: IP66, NEMA 4
BB4: IP44

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5" (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35" (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06" (72 x 71.4 x 52.3mm)
J-Box (JB)	4.2 x 3.9 x 1.94" (106 x 98.4 x 49mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the "Sensors" section.

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Ordering Information — Clamp-On Strap, Spring-Loaded Strap and Remote Probe Units

BA/

Sensor Type — Use the designator number (shown to the left in bold) to indicate the sensor

#					List Price	Your Order
		THERMISTORS		**RTDs**	**Thermistors**	
	1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
	2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
	3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
	3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
	10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
	10K-3	10K Ω @ 25 °C				
	10K-3[11K]	5,238 Ω @ 25 °C		**SEMICONDUCTORS**	**Semi-**	
	20K	20K Ω @ 25 °C	**334**	LM334 Semiconductor	**conductors**	
	47K	47K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
	50K	50K Ω @ 25 °C[1]	**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
	100K	100K Ω @ 25 °C				

TEMPERATURE TRANSMITTERS *Must include a "range" figure. Requires an enclosure.*

T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output	**Temperature Transmitters**
T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*	**$125 for T100, T1K & T10K** $_____
T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output	
T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*	
T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**	
T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**	
T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**	**$280 for T100M & T1KM** $_____

TEMPERATURE TRANSMITTER RANGES

Custom temperature transmitter ranges are available. Common ranges listed below

30 TO 81F	-1 TO 27C	32 TO 134F	0 TO 57C
0 TO 100F	-18 TO 38C	32 TO 212F	0 TO 100C
20 TO 120F	-7 TO 49C		

Configuration			
-S	Clamp-On Strap - Fits 2" to 4.5" (5.08 to 11.4 cm) pipe with adjustable SS hose clamp.	**$10**	$_____
-STP	Spring-Loaded Strap - Fits 5" to 14.5" (12.7 to 36.8 cm) pipe with adjustable nylon straps.	**$25**	$_____
-RPP-18"	Remote Probe with Plenum Rated Cable - 18" Leads	**$0**	$_____
-RPFEP-18"	Remote Probe with FEP Jacketed Cable - 18" Leads	**$3**	$_____
-RPFEP2-18"	Remote Probe w/ FEP Jacketed Cable (suitable for extended submersion) - 18" Leads	**$10**	$_____
Optional BAPI-Box Enclosure J-Box comes standard on Strap Units			
-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate (Not available on the Spring-Loaded Strap Units)	**$12**	$_____
-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate	**$12**	$_____
-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)	**$0**	
Optional Terminal Block BB or BB2 enclosure required			
-TS	Terminal Strip Connection (BB or BB2 required)***		

EXAMPLE

BA/	10K-2	-S

Example Part Number: BA/10K-2-S

Total = $_____

Your Part Number:

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

*Transmitters with matched outputs require a Class A sensor.

**Range is limited to -40 to 185°F (-40 to 85°C)

***TS option is not available with the 592-10K Semiconductor sensor or the T10K transmitters.

[1]The 50KΩ Thermistor is not available in the Clamp-On Strap (-S) and the Spring-Loaded Strap (-STP) units.

Outside Air Units

Temperature Sensors

Rev. 06/06/13

Features & Options

- Quick-Response Sensor
- Well-Vented, Light-Colored Sensor Guard
- Four Watertight Enclosure Styles
- Wide Selection of Temperature Sensing Elements

Outside Air Units are designed to be mounted outdoors. The UV-resistant plastic shield keeps the sensor out of the sunlight and allows for excellent air circulation. The units are available in a Weather Tight (**EU**) UV-resistant enclosure with an IP66 rating. They are also available in a cast aluminum Weatherproof **(WP)** enclosure which carries a NEMA 3R rating or a BAPI-Box **(BB)** or BAPI-Box 2 **(BB2)** which are made of UV-resistant polycarbonate and carry an IP66 rating. BAPI also offers optional liquid-tight fittings. For a comparison of the enclosure styles, please see the App. Notes section.

All Outside Air Units have etched Teflon leadwires and can withstand high humidity and condensation and perform under real world conditions. This is especially important in an outside air application which can be exposed to rain, snow and large temperature swings.



BAPI-Box (BB)



BAPI-Box 2 (BB2)



Weatherproof (WP)



Weather Tight (EU)

Blü-Test Bluetooth Wireless Temp & Humidity Measurement Probe

Commissioning just got easier with BAPI's temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.



For more info, see the Wireless section.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Enclosure Material:
EU Model: ABS Plastic, UL94, V-0
BB & BB2 Models: UV-resistant polycarbonate, UL94, V-0
WP Model: Cast Aluminum

Enclosure Rating:
WP Model: NEMA 3R
EU, BB & BB2 Models: IP66, NEMA 4

Environmental Operation Range:
Temperature Sensor: -40 to 85 °C
Temperature Transmitter: -20 to 70 °C
Humidity: 0 to 100%, non-condensing

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5" (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35" (125 x 71.6 x 60mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2" (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1" (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the "Sensors" section.

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Ordering Information Outside Air Units - Temperature					List Price	Your Order
BA/						
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**				
#		**THERMISTORS**	**RTDs**		**Thermistors**	
	1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
	2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
	3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
	3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
	10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
	10K-3	10K Ω @ 25 °C				
	10K-3[11K]	5,238 Ω @ 25 °C	**SEMICONDUCTORS**		**Semi-**	
	20K	20K Ω @ 25 °C	**334**	LM334 Semiconductor	**conductors**	
	47K	47K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
	50K	50K Ω @ 25 °C	**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
	100K	100K Ω @ 25 °C				
		TEMPERATURE TRANSMITTERS ***Must include a "range" figure. Requires an enclosure.***			**Temperature**	
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output			**Transmitters**	
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			**$125 for**	$_____
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output			**T100, T1K**	
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			**& T10K**	
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**				
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**				
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**				
		TEMPERATURE TRANSMITTER RANGES				
		Custom temperature transmitter ranges are available. Common ranges are listed below			**$280 for**	$_____
		32 TO 122F **0 TO 50C** **-30 TO 140F** **-34 TO 60C**			**T100M**	
		20 TO 120F **-7 TO 49C** **-22 TO 158F** **-30 TO 70C**			**& T1KM**	
		-20 TO 120F **-29 TO 49C** **-52 TO 152F** **-47 TO 67C**				
		0 TO 150F **-18 TO 66C**				
	Configuration	**Required selection**				
	-O-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate			**$12**	$_____
	-O-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate			**$12**	$_____
	-O-EU	Weather Tight Enclosure - IP 66 UV-resistant enclosure			**$12**	$_____
	-O-EUD	Weather Tight Enclosure - IP66 rated UV-resistant enclosure (Probe is attached to the base of the enclosure, similar to a duct sensor)			**$12**	$_____
	-O-WP	Weather Proof Enclosure - NEMA 3R rated cast aluminum enclosure			**$12**	$_____
		Options **An enclosure is required**				
		-TB	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)		**$7.50**	$_____
		-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***			
EXAMPLE						
BA/	**10K-2**	**-O-EU**			**Total =**	$_____
Example Part Number: BA/10K-2-O-EU Outside Air Unit with Weathertight Enclosure and 10K-2 Thermistor						
Your Part Number						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
*MATCHED Transmitter use Class A RTD's & are matched at 25%, 50% & 75% of calibrated scale limited to within -25ºC to 150ºC.
**Range is limited to -40 to 185°F (-40 to 85°C)
***TS option is not available with the 592-10K Semiconductor sensor or the T10K transmitters.

Remote Sensors & Probes

Temperature Sensors

CE*

Rev. 06/06/13

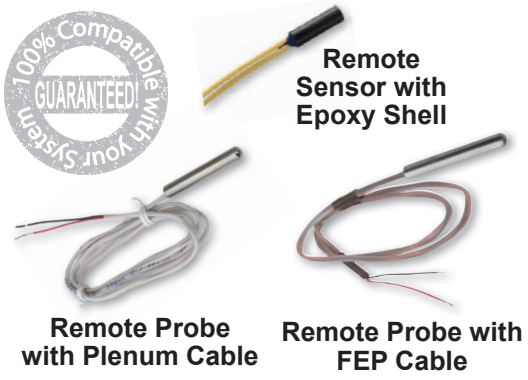
Features & Options

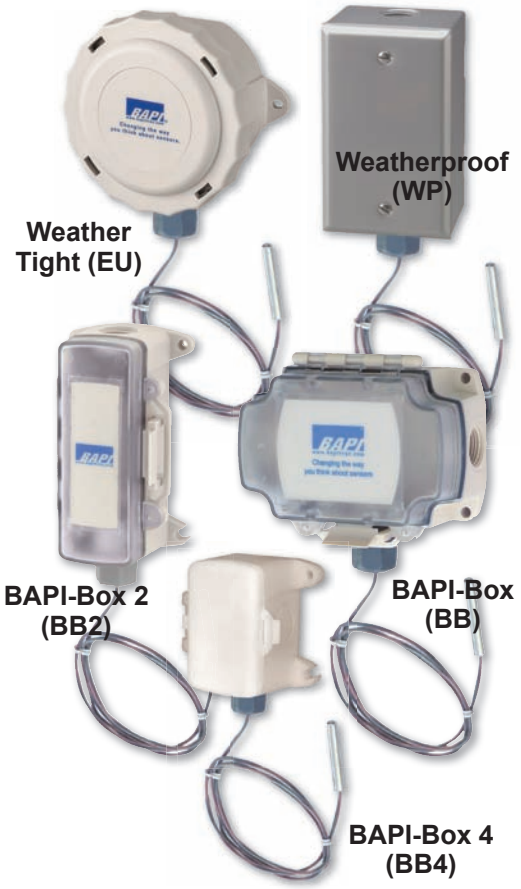
- Etched Teflons Leads on the Remote Sensors
- Plenum Cable or FEP Cable on the Remote Probes
- Double Encapsulated Sensors on the Remote Probes

BAPI Remote Sensors feature a .75” long encapsulation shell and etched Teflon leads in lengths of 6”, 18”, 5’, 10’, 15’, 20’, and 25’. Remote Sensors are perfect for tight locations. Additional cable options, lead lengths and probe styles are available.

Remote Probes feature a 1.75” long stainless steel probe with either Plenum-Rated Cable or FEP-Jacketed Cable. Lead lengths are 18”, 5’, 10’, 15’, 20’, and 25’. Remote Probes are commonly used in refrigerated case or strap-on applications. They are ideal for hard-to-access areas or spaces where the usual Immersion or Duct Sensors do not fit well. Additional cable options, lead lengths and probe styles are available upon request.

Remote Sensors and Probes are available with a Weatherproof **(WP)**, Weather Tight **(EU)**, BAPI-Box **(BB)**, BAPI-Box 2 **(BB2)** or BAPI-Box 4 **(BB4)** Enclosure.





Blü-Test

Bluetooth Wireless Temp & Humidity Measurement Probe

Commissioning just got easier with BAPI’s temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet. The free App even lets you log the data.



For more info on the Blü-Test, see the Wireless section.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Environmental Operation Range:
Temperature Sensor: -40 to 105 ºC
Temperature Transmitter: -20 to 70 ºC
Humidity: 0 to 100%, non-condensing

Enclosure Material:
WP: Cast Aluminum
EU: ABS Plastic, UL94, V-0
BB & BB2: UV-resist. polycarb., UL94, V-0
BB4: Nylon & Plastic, UL94, V-0

Enclosure Rating:
WP Model: NEMA 3R
EU, BB & BB2 Models: IP66, NEMA 4
BB4 Models: IP44

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5” (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35” (125 x 71.6 x 60mm)
BAPI-Box 4 (BB4)	2.8 x 2.8 x 2.06” (72 x 71.4 x 52.3mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2” (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1” (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

For detailed specifications on the Sensors & Transmitters, see the “Sensors” section.

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Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Remote Sensors & Probes		List Price	Your Order
BA/				
Sensor Type	***Required selection*** **Use the designator number (shown to the left in bold) to indicate the sensor**			
	THERMISTORS	**RTDs**	**Thermistors**	
#			**$18 Each**	
1.8K	1.8K Ω @ 25 °C	**100** 100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.		
2.2K	2.2K Ω @ 25 °C	**100[3W]** 3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
3K	3K Ω @ 25 °C	**1K[375]** 1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[NI]** 1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
3.3K	3.3K Ω @ 25 °C	**1K** 1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	
10K-2	10K Ω @ 25 °C	**2K** 2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
10K-3	10K Ω @ 25 °C			
10K-3[11K]	5,238 Ω @ 25 °C	**SEMICONDUCTORS**	**Semi-conductors**	
20K	20K Ω @ 25 °C	**334** LM334 Semiconductor	**$25 Each**	
47K	47K Ω @ 25 °C	**592** AD592 Semiconductor, 273 µA @ 0 °C		
50K²	50K Ω @ 25 °C	**592-10K** AD592 Semicond. w/10 kΩ shunt resistor, 2.73V @ 0 °C		
100K	100K Ω @ 25 °C			
	TEMPERATURE TRANSMITTERS*		**Temperature Transmitters**	
T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output		**$125 for T100, T1K & T10K**	
T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			
T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output			
T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			
T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**			
T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**			
T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**			
	TEMPERATURE TRANSMITTER RANGES			
	Custom temperature transmitter ranges are available. Common ranges listed below		**$280 for T100M & T1KM**	
	0 TO 100F **-18 TO 38C** **-4 TO 176F** **-20 TO 80C**			
	-50 TO 100F **-46 TO 38C** **40 TO 240F** **4 TO 116C**			
	-52 TO 152F **-47 TO 67C**			
Probe Type and Lead Length	**Required selection**			
-PP-6"	Remote Sensor - 6" Leads (Etched Teflon Leadwires)		**$0**	
-PP-18"	Remote Sensor - 18" Leads (Plenum Rated Cable)		**$0**	
-PP-5'	Remote Sensor - 5' Leads (Plenum Rated Cable)		**$2**	
-PP-10'	Remote Sensor - 10' Leads (Plenum Rated Cable)		**$4**	
-PP-15'	Remote Sensor - 15' Leads (Plenum Rated Cable)		**$6**	
-PP-20'	Remote Sensor - 20' Leads (Plenum Rated Cable)		**$8**	
-PP-25'	Remote Sensor - 25' Leads (Plenum Rated Cable)		**$10**	
-RPP-6"	Remote Probe with Plenum Rated Cable - 6" Leads		**$0**	
-RPP-18"	Remote Probe with Plenum Rated Cable - 18" Leads		**$0**	
-RPP-5'	Remote Probe with Plenum Rated Cable - 5' Leads		**$2**	
-RPP-10'	Remote Probe with Plenum Rated Cable - 10' Leads		**$4**	
-RPP-15'	Remote Probe with Plenum Rated Cable - 15' Leads		**$6**	
-RPP-20'	Remote Probe with Plenum Rated Cable - 20' Leads		**$8**	
-RPP-25'	Remote Probe with Plenum Rated Cable - 25' Leads		**$10**	
-RPFEP-6"	Remote Probe with FEP Jacketed Cable - 6" Leads		**$3**	
-RPFEP-18"	Remote Probe with FEP Jacketed Cable - 18" Leads		**$3**	
-RPFEP-5'	Remote Probe with FEP Jacketed Cable - 5' Leads		**$5**	
-RPFEP-10'	Remote Probe with FEP Jacketed Cable - 10' Leads		**$10**	
-RPFEP-15'	Remote Probe with FEP Jacketed Cable - 15' Leads		**$15**	
-RPFEP-20'	Remote Probe with FEP Jacketed Cable - 20' Leads		**$20**	
-RPFEP-25'	Remote Probe with FEP Jacketed Cable - 25' Leads		**$25**	
-RPFEP2-6"	Remote Probe with FEP Jacketed Cable (suitable for extended submersion) - 6" Leads		**$10**	
-RPFEP2-18"	Remote Probe with FEP Jacketed Cable (suitable for extended submersion) - 18" Leads		**$10**	
-RPFEP2-5'	Remote Probe with FEP Jacketed Cable (suitable for extended submersion) - 5' Leads		**$15**	
-RPFEP2-10'	Remote Probe with FEP Jacketed Cable (suitable for extended submersion) - 10' Leads		**$20**	
-RPFEP2-15'	Remote Probe with FEP Jacketed Cable (suitable for extended submersion) - 15' Leads		**$25**	
-RPFEP2-20'	Remote Probe with FEP Jacketed Cable (suitable for extended submersion) - 20' Leads		**$30**	
-RPFEP2-25'	Remote Probe with FEP Jacketed Cable (suitable for extended submersion) - 25' Leads		**$35**	
	Enclosure Type¹ **Required for Temp. Transmitter units, optional for other units**			
	-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate	**$12**	
	-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate	**$12**	
	-BB4	BAPI-Box 4 Enclosure - IP44 rated, nylon & plastic (Not for Transmitters)	**$0**	
	-WP	Weatherproof Enclosure - NEMA 3R rated metal enclosure	**$12**	
	-EU	Weather Tight Enclosure - IP66 rated ABS polymer enclosure	**$12**	
	-EUO	Weather Tight Enclosure - IP66 rated UV-resistant enclosure	**$12**	
	Options **An enclosure is required**			
	-TB	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)	**$7.50**	
	-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***	**$0**	

EXAMPLE

BA/	10K-2	-PP-18"

Example Part Number: BA/10K-2-PP-18"

Total = $_____

Your Part Number:

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

¹Temperature Transmitters require an enclosure. The enclosure is optional for Thermistors, RTDs and Semiconductors.

²The 50K Ω Thermistor is not available for the Remote Sensor (-PP) configuration.

*MATCHED Transmitter use Class A RTD's & are matched at 25%, 50% & 75% of calibrated scale limited to within -25ºC to 150ºC.

**Range is limited to -40 to 185°F (-40 to 85°C)

***TS option is not available with the 592-10K Semiconductor sensor or the T10K transmitters.

4 to 20 mA Temperature Transmitters

Temperature Sensors

Rev. 06/04/13

Features & Options

- Almost 500 Ranges Predefined and Custom Ranges Available
- Calibration Range from -148ºF to 900ºF
- Fully Encapsulated with Multiple Mounting Configurations
- Terminal or Flying Lead

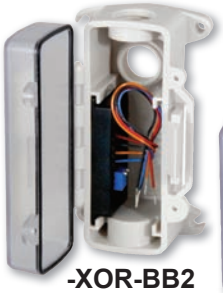
BAPI's loop powered 4 to 20mA temperature transmitters are designed for both 100Ω & 1,000Ω Platinum RTD's (385) and are available in a wide selection of temperature ranges or custom ranges.

They mount in a variety of enclosures to accommodate any application and terminate with flying leads or terminal screws. The unit is fully encapsulated (ruggedized) with a high thermal conductivity material to prevent circuit overheating and is water resistant.

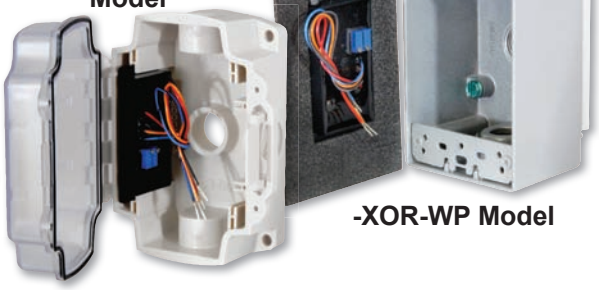




-XOR-EU and -XOR-EUO Models
EUO model is made of UV-Resistant Plastic, EU model is made of ABS Polymer



-XOR-BB2 Model



Specifications

Power Required: 7 to 40VDC

Transmitter Output: 4 to 20mA, 850Ω@24VDC

Output Wiring: 2 Wire Loop
Flying Leads ..... 4 to 22 AWG
Opt. Terminals ..... -TB, 4 Terminal Block, 24 to 12 AWG

Calibration Span: Min. 30ºF (16.6ºC), Max 1000ºF (555ºC)

Calibration Zero: Min. -148ºF (-100ºC), Max 900ºF (482ºC)

Accuracy: ±0.065% of Span

Linearity: ±0.125% of Span

RTD Sensor (2 Wire):
100Ω or 1KΩ, 2 Wire Plat. (PT), 385 Curve

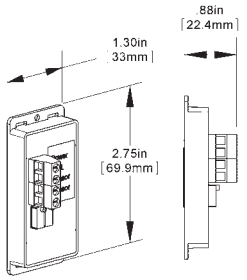
Matched (M): 13 to 302°F (-25 to 150°C) with 3-point certificate (25%, 50% and 75%)

Mounting Shell: ABS shell w/ Waterproof Urethane Fill

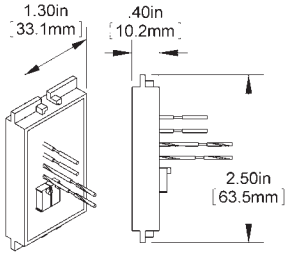
Transmitter Ambient: 0 to 95% RH, Non-condensing
-4 to 158ºF, (-20º to 70ºC)

Enclosure: See ordering grid for ratings
-XOR ..... Galvanized Steel, UL94H-B
-BB & BB2 ... Polycarbonate, UL94V-0, UV Rated
-XOR-EU ..... ABS Plastic, UL94V-0
-XOR-EUO .. ABS Plastic, UL94V-0, UV Rated

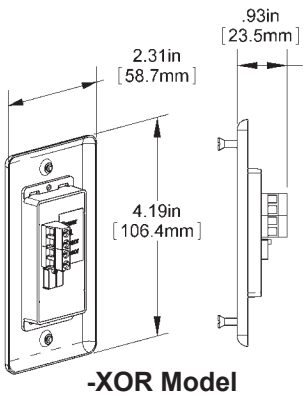
Agency: RoHS



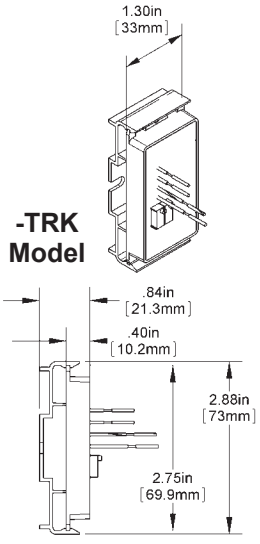
-STM Model
(shown with optional Terminal Block)



-EUM Model



-XOR Model
(shown with optional Term. Block)



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4 to 20 mA Temperature Transmitters

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	*Temperature Transmitters*			List Price	Your Order
BA/					
	Temperature Transmitter Type	**Required selection**	**Must include a "range" figure**		
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output		**$100**	$_____
	T100M[range]	100Ω @ 0°C, Platinum RTD and Transmitter with 4 to 20mA Output and NIST certification		**$280**	$_____
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output		**$100**	$_____
	T1KM[range]	1KΩ @ 0°C, Platinum RTD and Transmitter with 4 to 20mA Output and NIST certification		**$280**	$_____
		Custom temperature transmitter ranges are available. Common ranges are listed below.			
		0 TO 100F (-17.7 TO 37.7C)	32 TO 122F (0 TO 50C)	40 TO 90F (4.4 TO 32.2C)	
		20 TO 120F (6.7 TO 48.9C)	32 TO 134F (0 TO 56.7C)	45 TO 96F (7.2 TO 36.6C)	
		Configuration & Optional Enclosure	**Required selection**		
		-XOR	Temperature Transmitter in snap track mountable shell, w/ metal plate		
		-XOR-EUM	Temperature Transmitter in EU size shell		
		-XOR-STM	Temperature Transmitter in snap track mountable shell, no metal plate		
		-XOR-TRK	Temperature Transmitter with 1.25" inch wide piece of 2-3/4" snap track	**$5**	$_____
		-XOR-BB	Temperature Transmitter in a BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate	**$12**	$_____
		-XOR-BB2	Temperature Transmitter in a BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate	**$12**	$_____
		-XOR-WP	Temperature Transmitter in a Weatherproof Enclosure - NEMA 3R rated metal enclosure	**$12**	$_____
		-XOR-EU	Temperature Transmitter in a Weather Tight Enclosure - IP66 rated ABS polymer enclosure	**$12**	$_____
		-XOR-EUO	Temperature Transmitter in a Weather Tight Enclosure - IP66 rated UV-resistant enclosure	**$12**	$_____
			Screw Terminals **Optional**		
			-TS Screw terminals for RTD, power and signal		
EXAMPLE					
BA/	**T100[0 TO 100F]**	**–XOR**		**Total =**	$_____
Example Part Number: BA/T100[0 TO 100F]-XOR					
Your Part Number:					

A complete list of temperature ranges for the T1K and T100 transmitters is available on the Application Notes section of the BAPI website at www.bapihvac.com.

Thermobuffer

Temperature Sensors

Rev. 06/06/13

Features & Options

- Slows/Buffers Temperature Changes in Coolers & Freezers (Caused by Opening and Closing of Cooler/Freezer Door)
- Fluid-Filled Chamber to Mimic Core Temperatures
- Easy Wall Mount or Wire Shelf Hanger
- Decreases False High Limit Alarms
- Available in Stainless Steel or Aluminum

The BAPI Thermobuffer Temperature Sensor is used to simulate more closely the refrigerator contents rather than the refrigerator air temperature. The fluid-filled chamber allows for slower reaction to abrupt temperature changes, yet still maintains long-term accuracy if the change remains permanent. It eliminates the temperature spikes due to frequent refrigerator or freezer door opening and decreases false alarms.

The Thermobuffer comes in three buffer sizes 1", 2" and 4" and is designed to save valuable shelf space by mounting to the wall or by hanger in a refrigerator or freezer. The buffer chamber is machined in 304 Stainless Steel or aluminum and accommodates a variety of temperature sensors or transmitters to interface with all BAS systems.

Refrigerator (1" Hanging Bracket)
BA/#-TB-M304-1-HB





Walk-in Freezer (BAPI-Box w/ 4" Cylinder)
BA/#-TB-M304-4-BB



Chest Freezer (BAPI-Box 2 with 2" Probe)
BA/#-TB-M304-2-BB2

Blü-Test Bluetooth Wireless Temp & Humidity Probe

Commissioning just got easier with BAPI's Bluetooth temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet.



For more info, see the Wireless section.

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Sensor: Thermistor, RTD or Transmitter
Probe: Stainless steel
Wire: 22 awg stranded, 2 or 3 wires
Insulation:
Etched Teflon, PVC or FEP Jacketed
Buffer Chamber Construction:
M304.....Bar stock 304 Stainless Steel
MAL .....Bar stock Aluminum
Chamber Fluid: Customer supplied
Glycol mix..... Food grade required
1" Chamber..... ~7 ml of fluid
2" Chamber..... ~24 ml of fluid
4" Chamber..... ~32 ml of fluid

Note: Unit requires food grade glycol antifreeze for proper operation.

Enclosure Rating:
BB.....BAPI-Box, NEMA 4, IP66
BB2.....BAPI-Box 2, NEMA 4, IP66
HB.....Open Hanging Bracket
Enclosure Material:
BB & BB2.... Polycarb., UV rated, UL94 V-0
HB..... SS bracket w/steel clip
Environmental Operating Range:
Temp. Sensor..... -40 to 185ºF (-40 to 85ºC)
Temp. Transmitter....-4 to 158ºF (-20 to 70ºC)
Humidity..... 0-100%RH, Condensing

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5" (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35" (125 x 71.6 x 60mm)

(For enclosure dimension drawings, turn to the end of the section.)

Agency: *CE (<10kΩ thermistor's), UL94V-0, RoHS

For detailed specifications on the Sensors & Transmitters, see the "Sensors" section.

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Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Thermobuffer Temperature Sensor							List Price	Your Order
BA/									
Sensor Type	**Must select one**	**Use the designator number (shown to the left in bold) to indicate the sensor or transmitter**							
		THERMISTORS		**RTDs**				**Thermistors**	
#	**1.8K**	1.8K Ω @ 25 °C		**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.			**$18 Each**	$_____
	2.2K	2.2K Ω @ 25 °C		**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.				
	3K	3K Ω @ 25 °C		**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.			**RTD's**	
	3.25K	3.25K Ω @ 25 °C (T30 type)		**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.			**$25 Each**	
	3.3K	3.3K Ω @ 25 °C		**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.			**or**	$_____
	10K-2	10K Ω @ 25 °C		**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.			**$35 for 1K[NI]**	
	10K-3	10K Ω @ 25 °C							
	10K-3[11K]	5,238 Ω @ 25 °C			**SEMICONDUCTORS**			**Semi-**	
	20K	20K Ω @ 25 °C		**334**	LM334 Semiconductor			**conductors**	
	47K	47K Ω @ 25 °C		**592**	AD592 Semiconductor, 273 µA @ 0 °C			**$25 Each**	$_____
	50K	50K Ω @ 25 °C		**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C				
	100K	100K Ω @ 25 °C							
		TEMPERATURE TRANSMITTERS	***Must include a "range" figure. Requires an enclosure.***					**Temperature**	
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output						**Transmitters**	
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*						**$125 for**	$_____
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output						**T100, T1K**	
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*						**& T10K**	
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output**							
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-5 VDC Output**							
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0-10 VDC Output**							
		TEMPERATURE TRANSMITTER RANGES							
		Custom temperature transmitter ranges are available. Common ranges are listed below						**$280 for**	$_____
		30 TO 81F	**-1 TO 27C**	**32 TO 212F**	**0 TO 100C**			**T100M**	
		0 TO 100F	**-18 TO 38C**	**40 TO 240F**	**4 TO 116C**			**& T1KM**	
		20 TO 120F	**-7 TO 49C**	**50 TO 250F**	**10 TO 121C**				
		32 TO 134F	**0 TO 57C**						
	Thermobuffer Probe	**Required selection**							
	-TB	Probe Fitting made of 304 Stainless Steel						**$24**	$_____
		Buffer & Probe Length	**Must Select One**						
		-M304-1	1 Inch Sensor and 304 Stainless Steel Cylinder Buffer (Overall buffer length 1.9")					**$56**	$_____
		-M304-2	2 Inch Sensor and 304 Stainless Steel Cylinder Buffer (Overall buffer length 4.33")					**$168**	$_____
		-M304-4	4 Inch Sensor and 304 Stainless Steel Cylinder Buffer (Overall buffer length 6.3")					**$168**	$_____
		-MAL-2	2 Inch Sensor and Aluminum Cylinder Buffer (Overall buffer length 4.33")					**$108**	$_____
		-MAL-4	4 Inch Sensor and Aluminum Cylinder Buffer (Overall buffer length 6.3")					**$108**	$_____
			Optional Hanging Bracket Probe Mounting						
			-HB	Hanging or Screw Mounted Bracket (30" FEP jacketed cable standard)				**$7**	$_____
				Enclosure Style	**Must Select One**				
				-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate			**$12**	$_____
				-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate			**$12**	$_____
				-NB	No Box -- 1/2" Threaded Buffer with probe only. (¹If using a Temp. Transmitter and the "-NB" option, see note below.)			**$0**	$_____
					Custom Lead Length	**18" Etched Teflon Leads Standard**			
					-5	5 feet of FEP Jacketed Cable		**$5**	$_____
					-10	10 feet of FEP Jacketed Cable		**$10**	$_____
					-25	25 feet of FEP Jacketed Cable		**$25**	$_____
					Options	**BB or BB2 enclosure is required**			
					-TB	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)		**$7.50**	$_____
					-TS	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***			
EXAMPLE									
BA/	**10K-2**	**-TB**	**-M304-2**		**-BB**			**Total =**	$_____
Part Number: BA/10K-2-TB-M304-2-BB									
Your Part Number:									

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.
*MATCHED Transmitter use Class A RTD's & are matched at 25%, 50% & 75% of calibrated scale limited to within -25ºC to 150ºC.
**Range is limited to -40 to 185°F (-40 to 85°C)
***TS option is not available with the 592-10K Semiconductor sensor or the T10K transmitters.

¹If you're using a Temperature Transmitter and the "-NB" option and you would like an enclosure for the transmitter, you must order a BAPI-Box or BAPI-Box 2 enclosure separately. See the Accessories section to order the BB or BB2 enclosure.

Replacement Temperature Probes

Temperature Sensors

Rev. 10/16/12

Features & Options

- Plenum-rated Etched Teflons Leads or Cable
- Probe Lengths from 1.75” to 48”
- ¼” Stainless Steel Probes
- Fits BAPI Duct, Immersion or Remote Sensor Applications
- Double Encapsulated

BAPI’s Duct, Immersion and Remote temperature replacement probes are easy to field swap to save time and money when the old probe becomes damaged or the sensor requirements have changed.

Replacement Probes feature a standard ¼” stainless steel probe, double encapsulated temperature sensor with minimum 6” 22 AWG Etched Teflon lead wires. The probes are available in various lengths from 1.75” to 48”. The leads are available in a variety of lengths including 18”, 5’, 10’, 15’, 20’, and 25’.

Additional cable options, lead lengths, and probe styles are available upon request. See the order grid to select the probe replacement for your application.

For detailed specifications on the individual Sensors & Transmitters, turn to “Sensors” Section.



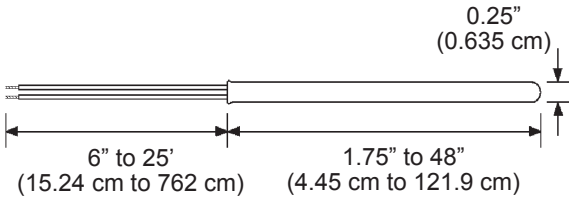
Replacement Probes 1.75”, 4.5”, 6.5” & 8.25” Probes with Etched Teflon Leads (The 1.75” Probe is “No Flare” while the other three are “Flared”)

*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Sensor:
- Thermistor ..... NTC, 2 wire
- RTD ..... PTC, 2 or 3 wire

Thermistor:
- Temp. Output ..... Resistance
- Accuracy ..... (std) ±0.36ºF, (±0.2ºC)
- Accuracy ..... (Hi) ±0.18ºF, (±0.1ºC), [XP] option
- Probe range ..... -40º to 221ºF (-40º to 105ºC)



RTD:
- Platinum (PT) ..... 100Ω or 1KΩ @0ºC, 385 curve,
- Platinum (PT) ..... 1KΩ @0ºC, 375 curve
- PT Accuracy (std).. 0.12% @Ref, or ±0.55ºF, (±0.3ºC)
- PT Accuracy (Hi) .. 0.06% @Ref, or ±0.277ºF, (±0.15ºC), [A]option
- PT Probe range .... -40º to 221ºF, (-40 to 105ºC)
- Nickel (Ni) ..... 1000Ω @70ºF, JCI curve
- Ni Probe range ..... -40º to 221ºF (-40 to 105ºC)

Probe Material: Rigid Stainless Steel, 0.25” OD

Probe Length: 1.75 to 48” or custom per order

Lead Wire: Twin lead 22awg stranded

Wire Insulation: Etched Teflon, PVC or FEP Plenum Rated

Agency: RoHS

Building Automation Products, Inc. • 750 North Royal Avenue, Gays Mills, WI 54631 USA
Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • Email: sales@bapihvac.com • Web: www.bapihvac.com

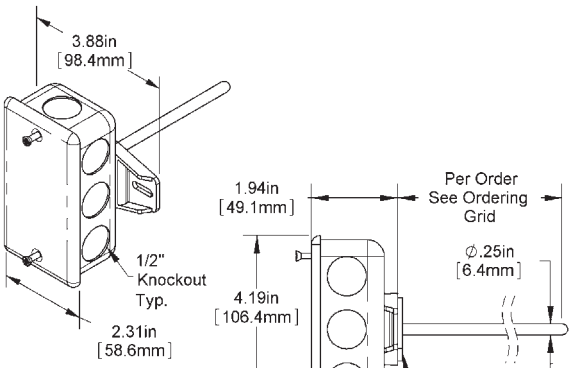
Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Replacement Probes & Transmitters			List Price	Your Order
BA/					
Sensor Type	**Required selection**	**Use the designator number (shown to the left in bold) to indicate the sensor**			
	THERMISTORS		**RTDs**	**Thermistors**	
	1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
	2.2K	2.2K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
	3K	3K Ω @ 25 °C	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
	3.25K	3.25K Ω @ 25 °C (T30 type	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
	3.3K	3.3K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
	10K-2	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
	10K-3	10K Ω @ 25 °C				
	10K-3[11K]	5,238 Ω @ 25 °C		**SEMICONDUCTORS**	**Semi-**	
	20K	20K Ω @ 25 °C	**334**	LM334 Semiconductor	**conductors**	
	47K	47K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
	50K	50K Ω @ 25 °C	**592-10K**	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
	100K	100K Ω @ 25 °C				
	Probe Length	**Required selection**				
	-P-1.75"	"No Flare" Probe, 1.75" probe			**$0**	
	-P-4"	"No Flare" Probe, 4.00" probe			**$0**	
	-P-4.5"	Stock "Flared" Probe, 4.5" probe (for Duct 4" or Immersion 2")			**$0**	
	-P-6.5"	Stock "Flared" Probe, 6.50" probe (for Duct 6" or Immersion 4")			**$0**	
	-P-8.25"	Stock "Flared" Probe, 8.25" probe (for Duct 8")			**$0**	
	-P-9.5"	Stock "Flared" Probe, 9.50" probe (for Immersion 8")			**$0**	
	-P-12.25"	Stock "Flared" Probe, 12.25" probe (for Duct 12" or Immersion 10")			**$0**	
	-P-18.25"	Stock "Flared" Probe, 18.25" probe (for Duct 18")			**$0**	
	-P-24.25"	Non-Stock "Flared" Probe, 24.25" probe (for Duct 24")			**$22**	$_____
	-P-30.25"	Non-Stock "Flared" Probe, 30.25" probe (for Duct 30")			**$22**	$_____
	-P-36.25"	Non-Stock "Flared" Probe, 36.25" probe (for Duct 36")			**$30**	$_____
	-P-48"	Non-Stock "Flared" Probe, 48.00" probe (for Duct 48")			**$30**	$_____
		Etched Teflon or Cable Lead Length	**Must select one**			
		-TFE	6 inch Etched Teflon leads (Plenum Rated)		**$0**	
		-TFE-18"	18 inch Etched Teflon leads (Plenum Rated)		**$0**	
		-TFE-5'	5 feet Etched Teflon leads (Plenum Rated)		**$2**	$_____
		-TFE-10'	10 feet Etched Teflon leads (Plenum Rated)		**$4**	$_____
		-TFE-15'	15 feet Etched Teflon leads (Plenum Rated)		**$6**	$_____
		-TFE-20'	20 feet Etched Teflon leads (Plenum Rated)		**$8**	$_____
		-TFE-25'	25 feet Etched Teflon leads (Plenum Rated)		**$10**	
		-PL	6 inch Plenum Rated Cable (RPP)		**$0**	
		-PL-18"	18 inch Plenum Rated Cable (RPP)		**$0**	
		-PL-5'	5 feet Plenum Rated Cable (RPP)		**$2**	$_____
		-PL-10'	10 feet Plenum Rated Cable (RPP)		**$4**	$_____
		-PL-15'	15 feet Plenum Rated Cable (RPP)		**$6**	$_____
		-PL-20'	20 feet Plenum Rated Cable (RPP)		**$8**	$_____
		-PL-25'	25 feet Plenum Rated Cable (RPP)		**$10**	$_____
		-FEP	6 inch FEP Jacketed Plenum Cable (RPFEP)		**$3**	$_____
		-FEP-18"	18 inch FEP Jacketed Plenum Cable (RPFEP)		**$3**	$_____
		-FEP-5'	5 feet FEP Jacketed Plenum Cable (RPFEP)		**$5**	$_____
		-FEP-10'	10 feet FEP Jacketed Plenum Cable (RPFEP)		**$10**	$_____
		-FEP-15'	15 feet FEP Jacketed Plenum Cable (RPFEP)		**$15**	$_____
		-FEP-20'	20 feet FEP Jacketed Plenum Cable (RPFEP)		**$20**	$_____
		-FEP-25'	25 feet FEP Jacketed Plenum Cable (RPFEP)		**$25**	$_____
EXAMPLE						
BA/	**10K-2**	**-P-18.25"-TFE**			**Total =**	$_____
Example Part Number: BA/10K-2-P-18.25"-TFE						
Your Part Number:						

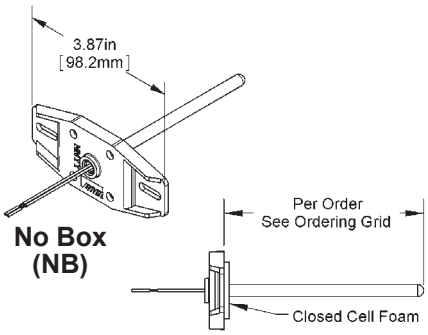
Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Duct Temperature Sensor Enclosures

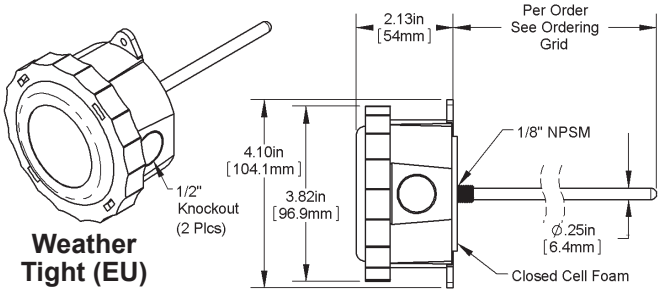
Temperature Sensors



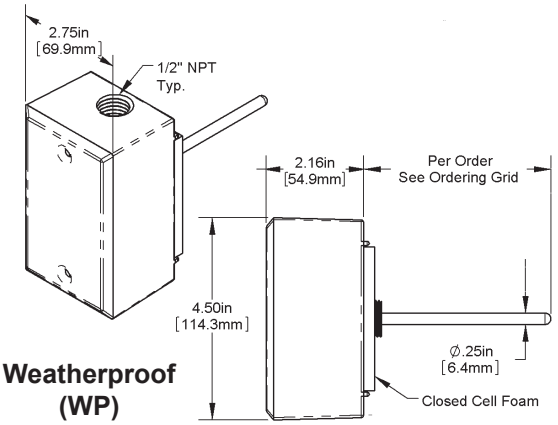
J-Box (Standard)



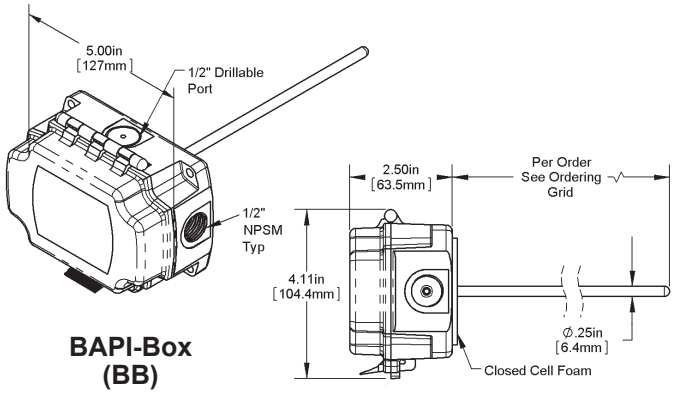
No Box (NB)



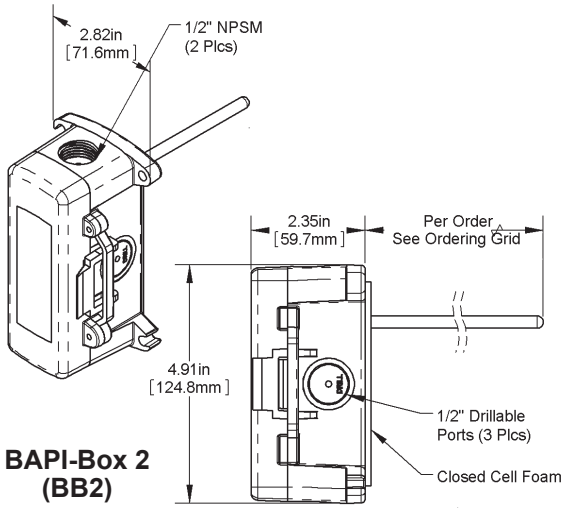
Weather Tight (EU)



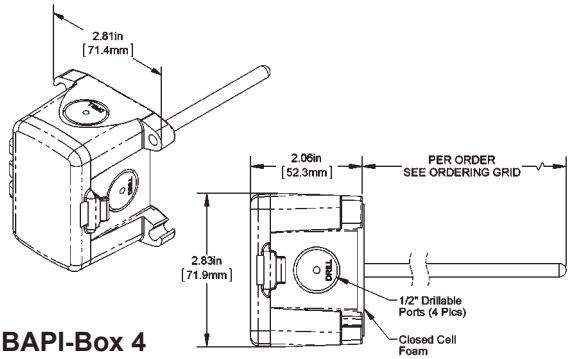
Weatherproof (WP)



BAPI-Box (BB)

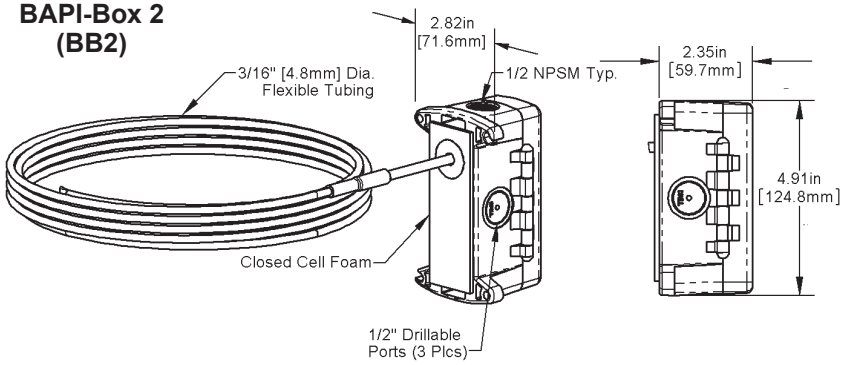


BAPI-Box 2 (BB2)

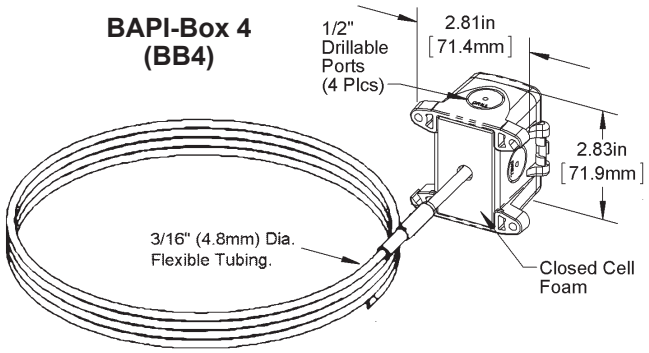


BAPI-Box 4 (BB4)

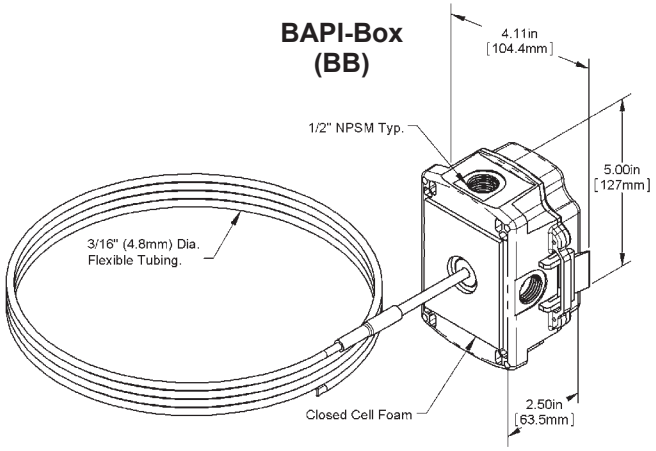
BAPI-Box 2 (BB2)



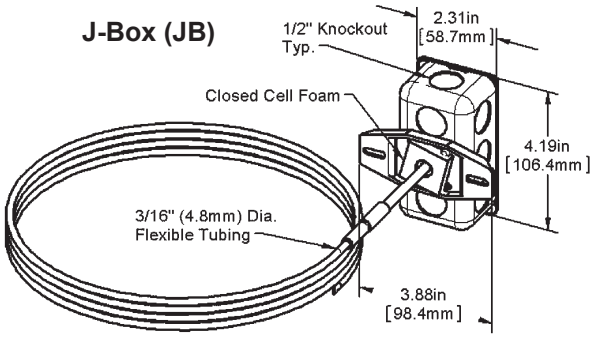
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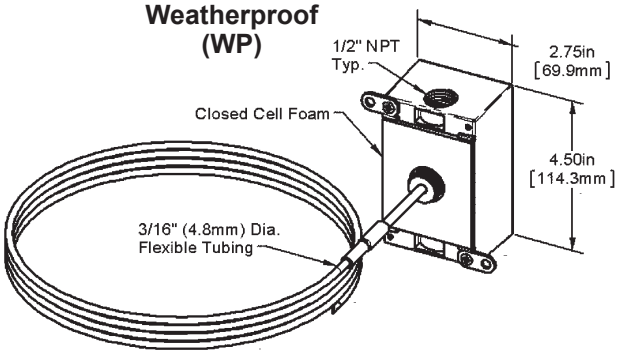
BAPI-Box (BB)



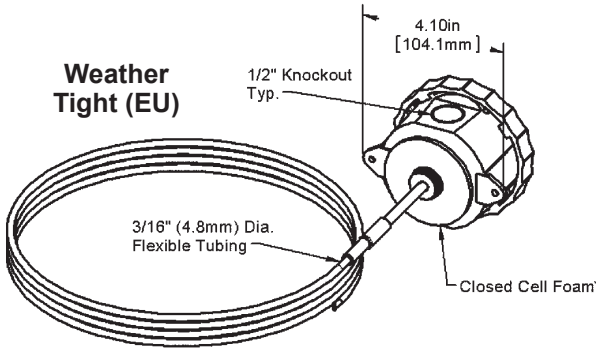
J-Box (JB)



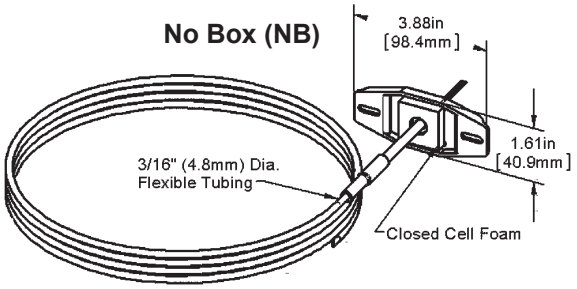
Weatherproof (WP)



Weather Tight (EU)

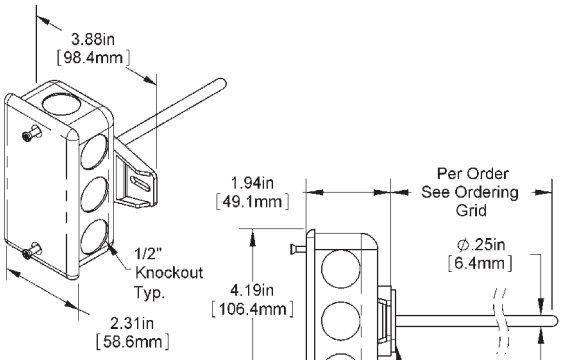


No Box (NB)

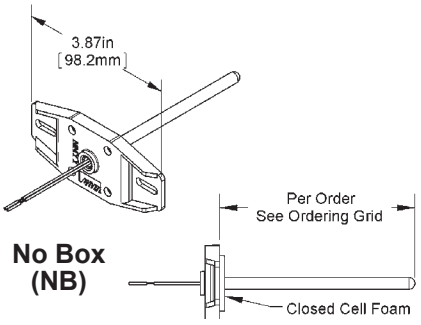


Rigid Averaging Sensor Enclosures

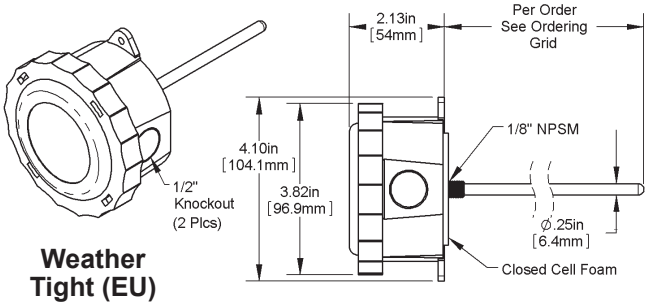
Temperature Sensors



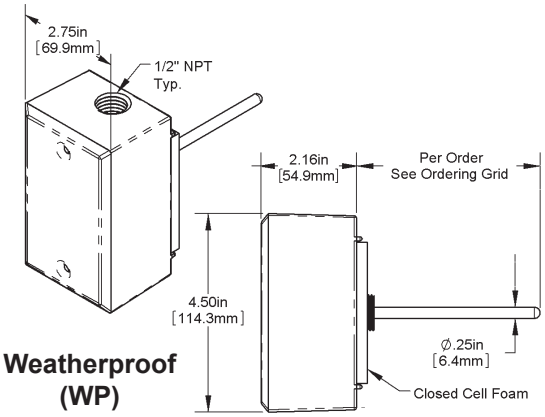
J-Box (Standard)



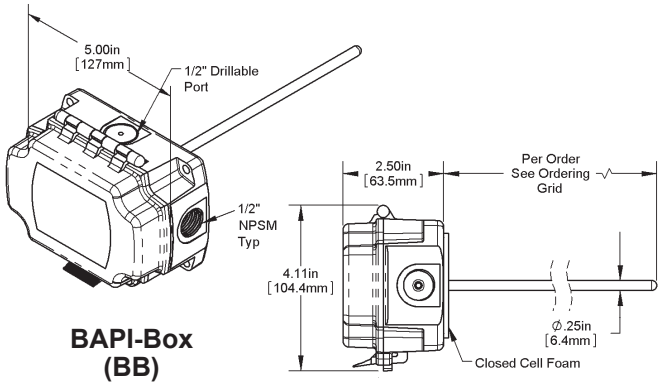
No Box (NB)



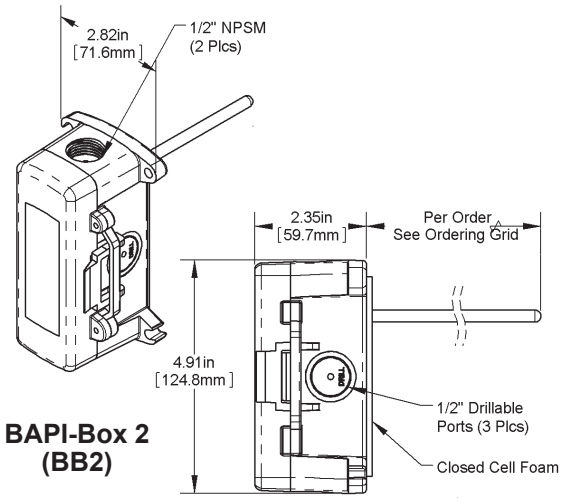
Weather Tight (EU)



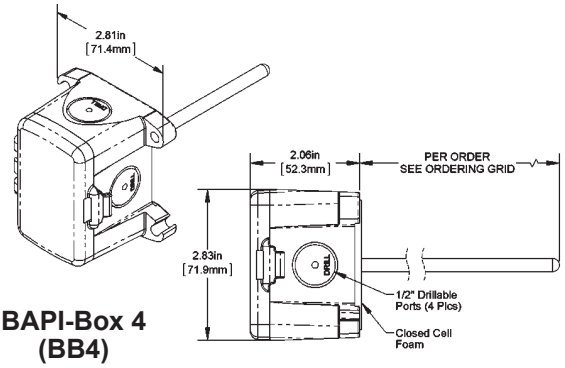
Weatherproof (WP)



BAPI-Box (BB)

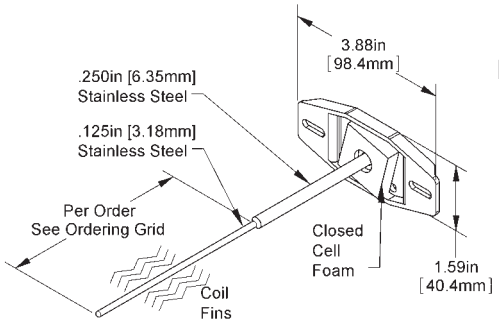


BAPI-Box 2 (BB2)

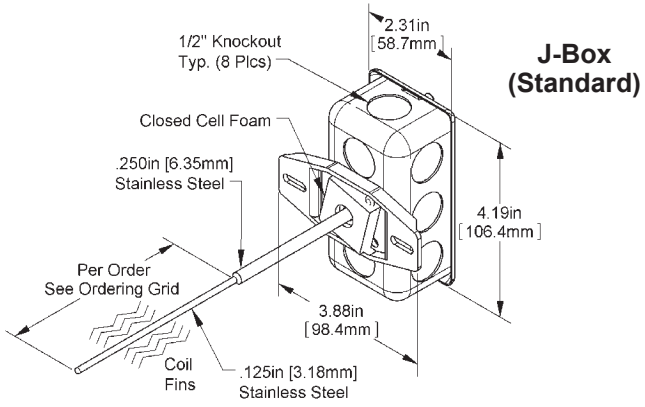


BAPI-Box 4 (BB4)

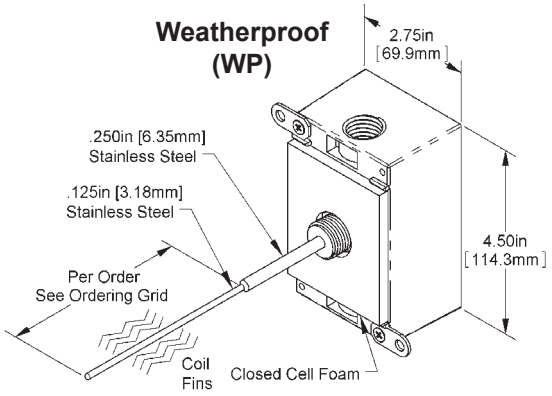
No Box (NB)



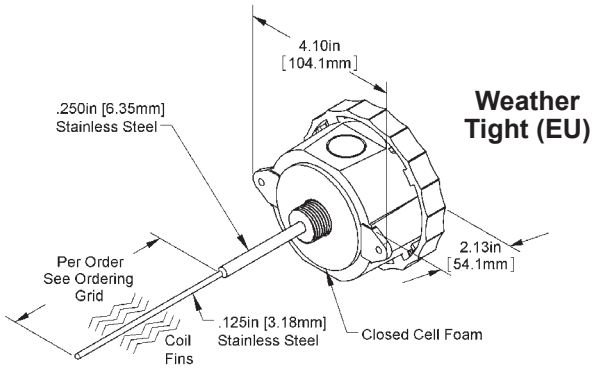
J-Box (Standard)



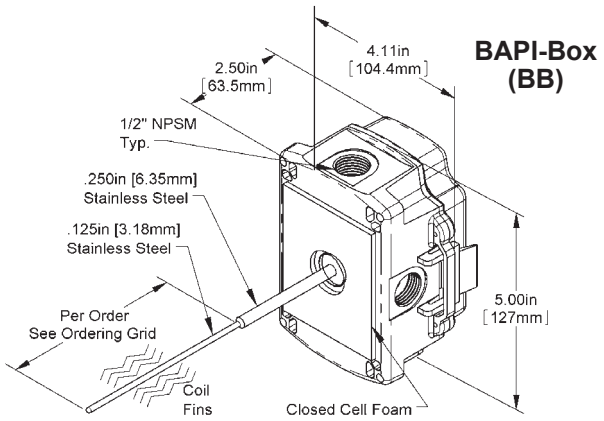
Weatherproof (WP)



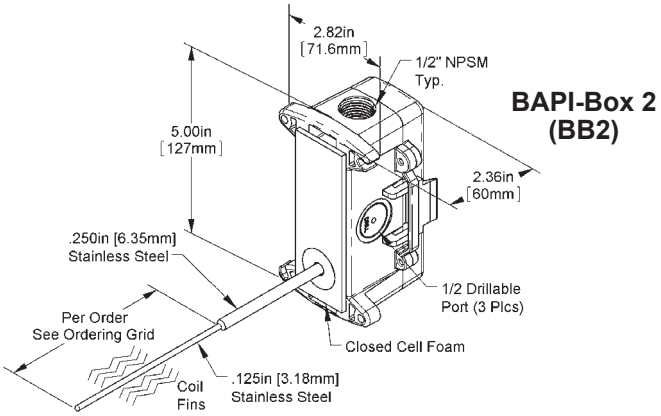
Weather Tight (EU)



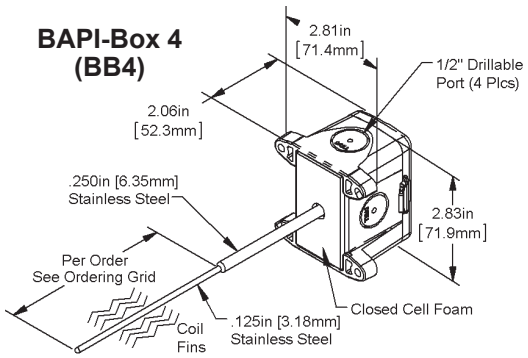
BAPI-Box (BB)



BAPI-Box 2 (BB2)



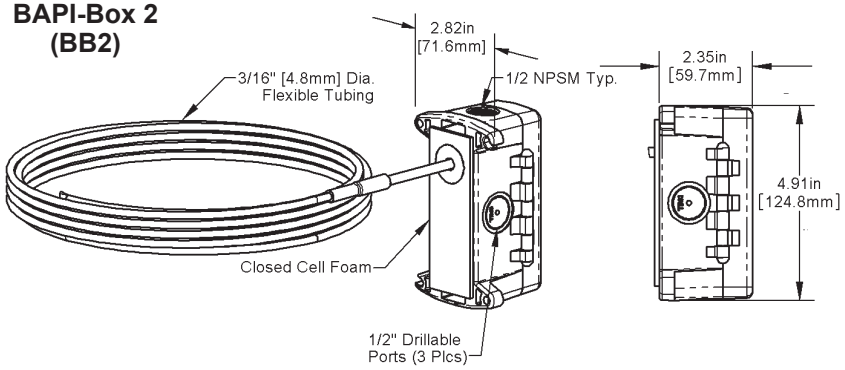
BAPI-Box 4 (BB4)



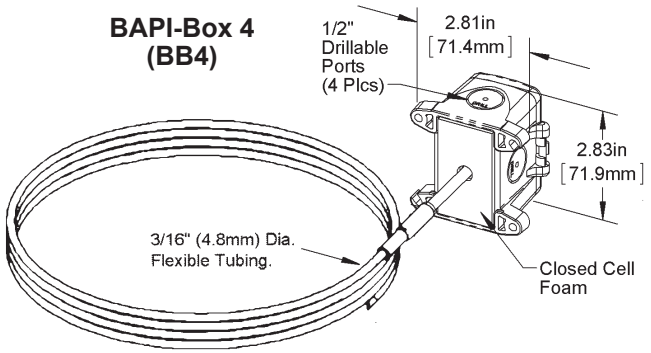
Submersible Averaging Enclosures

Temperature Sensors

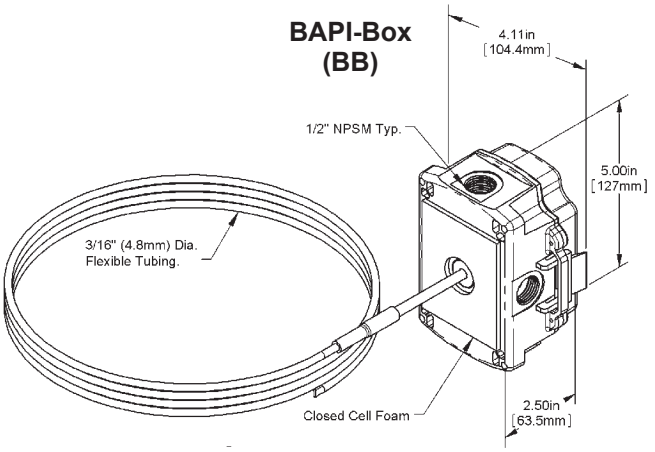
BAPI-Box 2 (BB2)



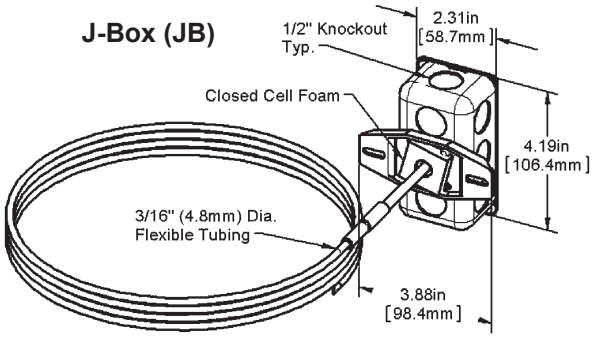
BAPI-Box 4 (BB4)



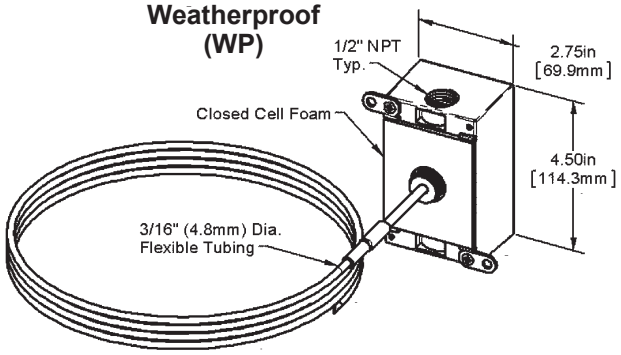
BAPI-Box (BB)



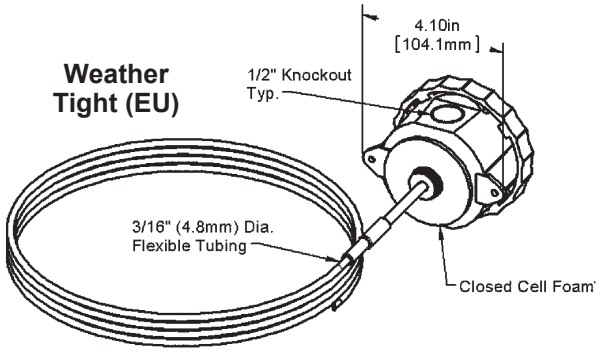
J-Box (JB)



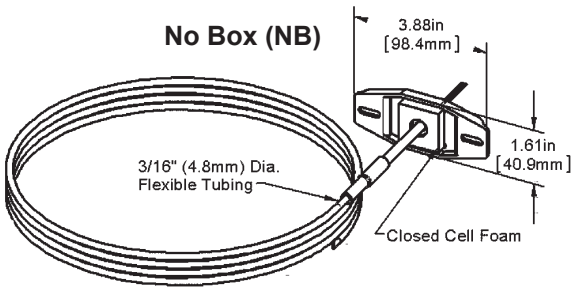
Weatherproof (WP)



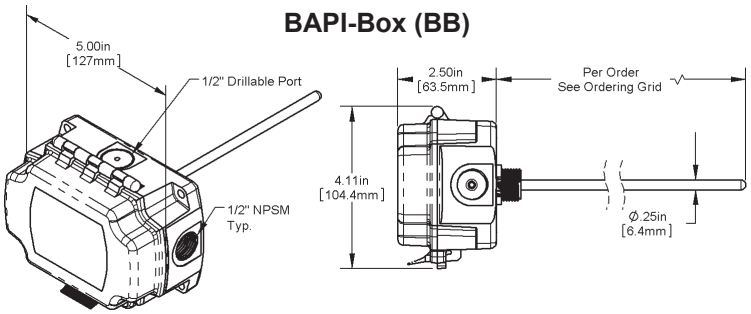
Weather Tight (EU)



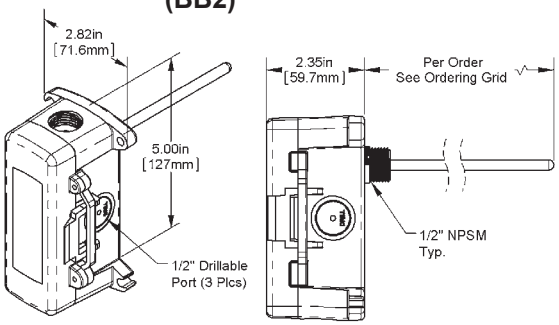
No Box (NB)



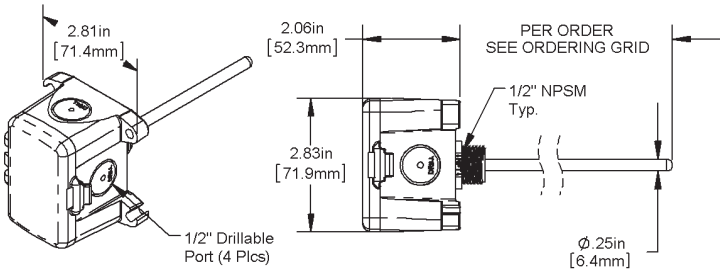
BAPI-Box (BB)



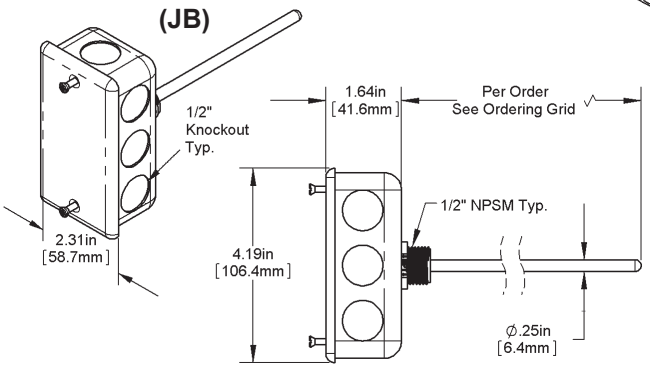
BAPI-Box 2 (BB2)



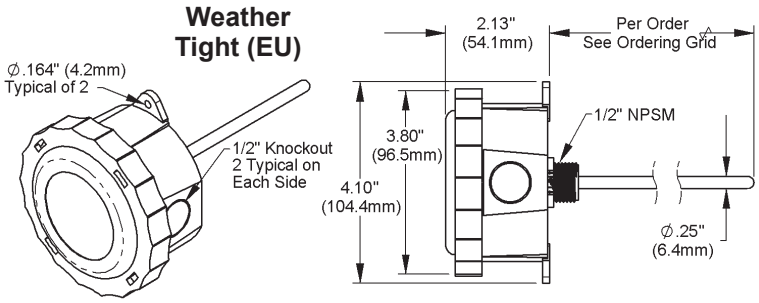
BAPI-Box 4 (BB4)



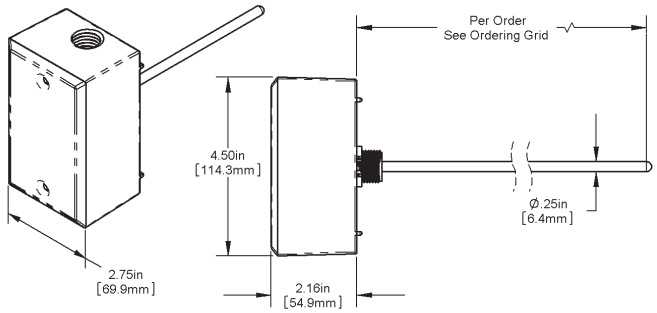
J-Box (JB)



Weather Tight (EU)

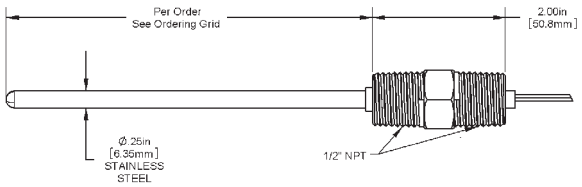


Weatherproof (WP)



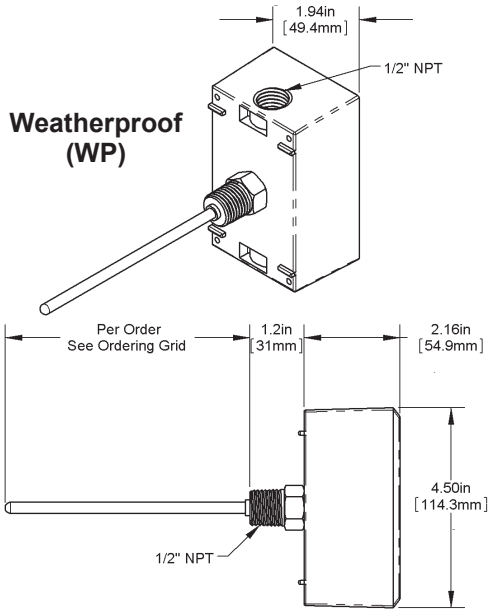
Immersion Probes with Stainless Steel Fittings

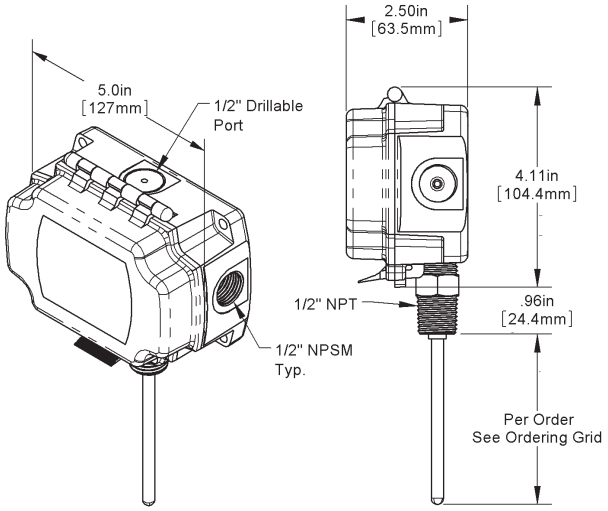
Temperature Sensors



Probe without Enclosure

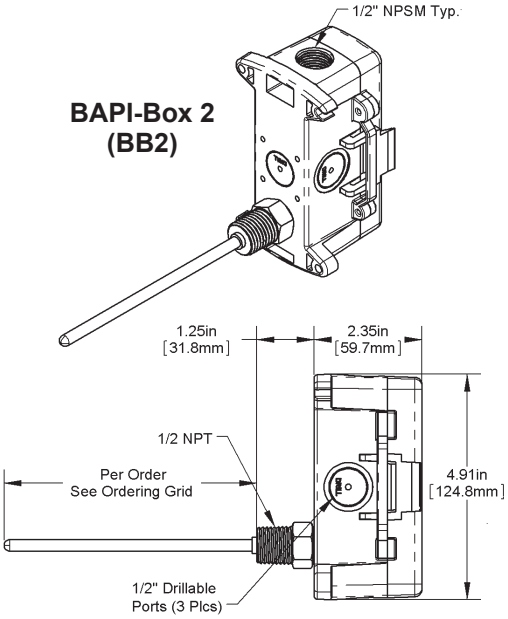
Weatherproof (WP)



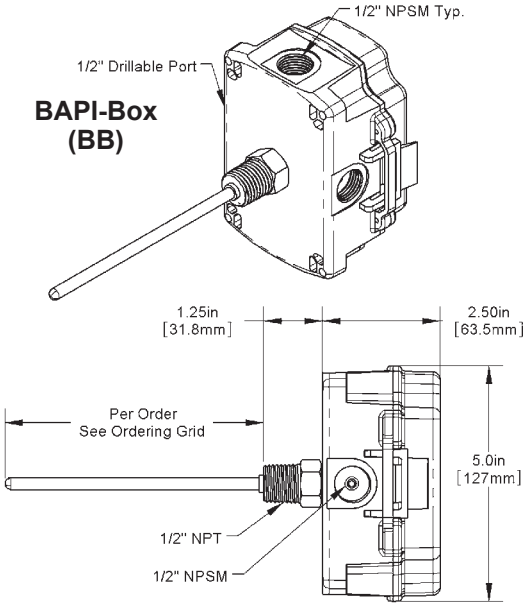


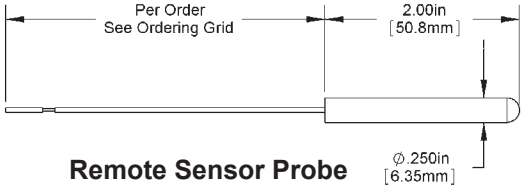
BAPI-Box (BBO) in an "Outside Mount" Configuration

BAPI-Box 2 (BB2)

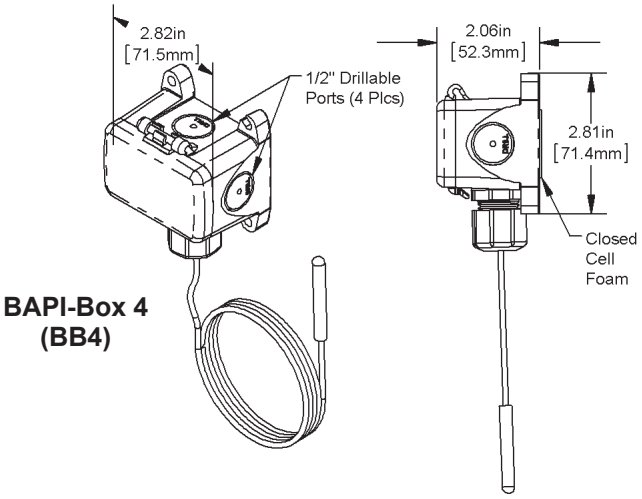


BAPI-Box (BB)

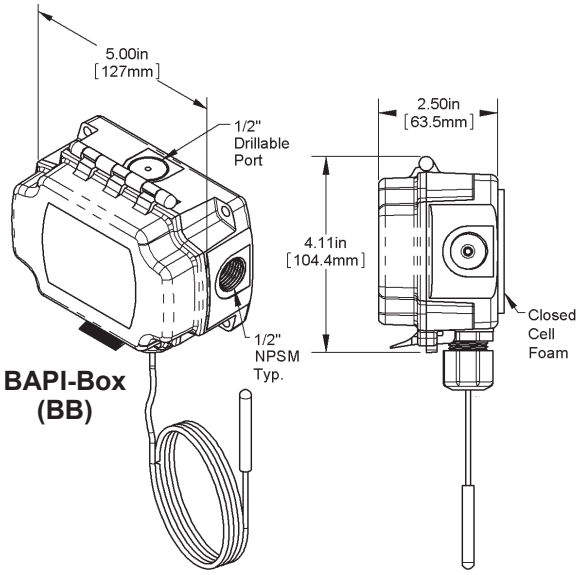




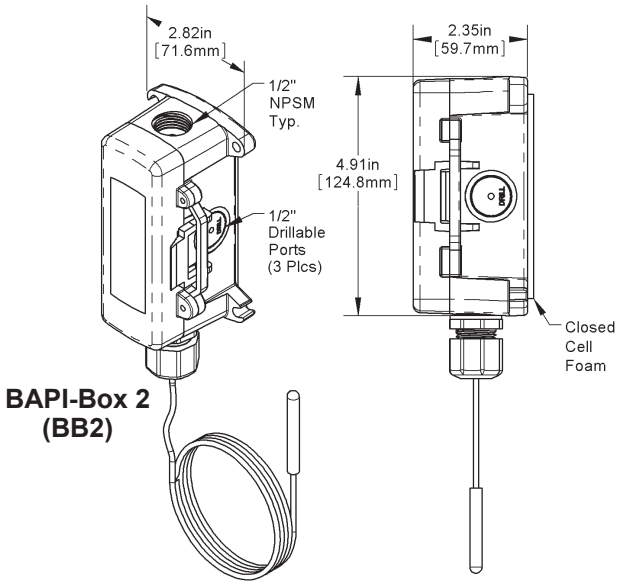
Remote Sensor Probe



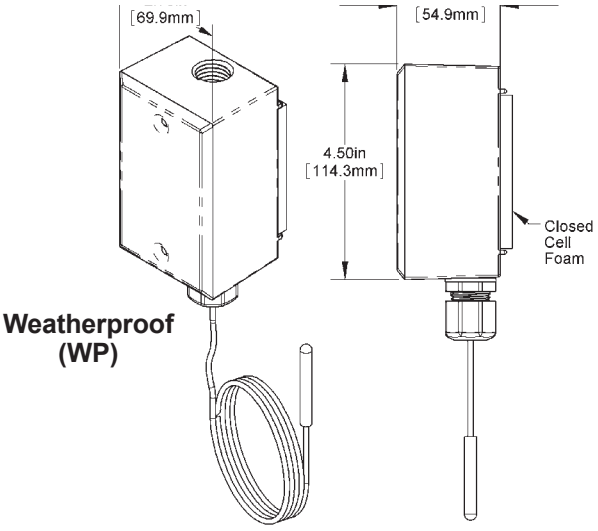
BAPI-Box 4 (BB4)



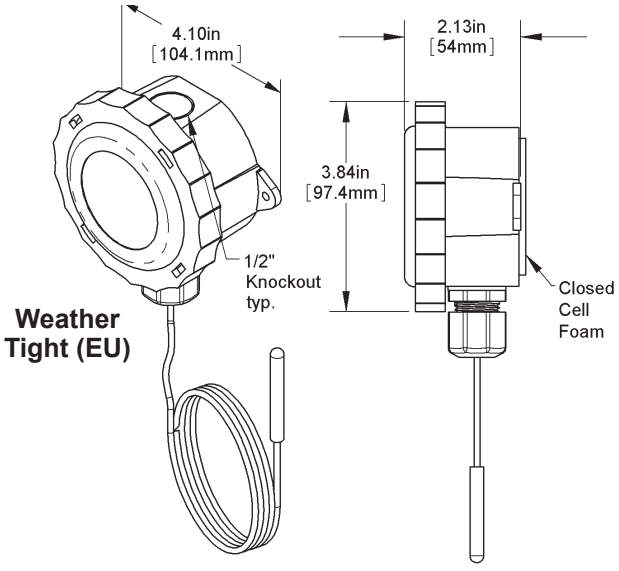
BAPI-Box (BB)



BAPI-Box 2 (BB2)



Weatherproof (WP)

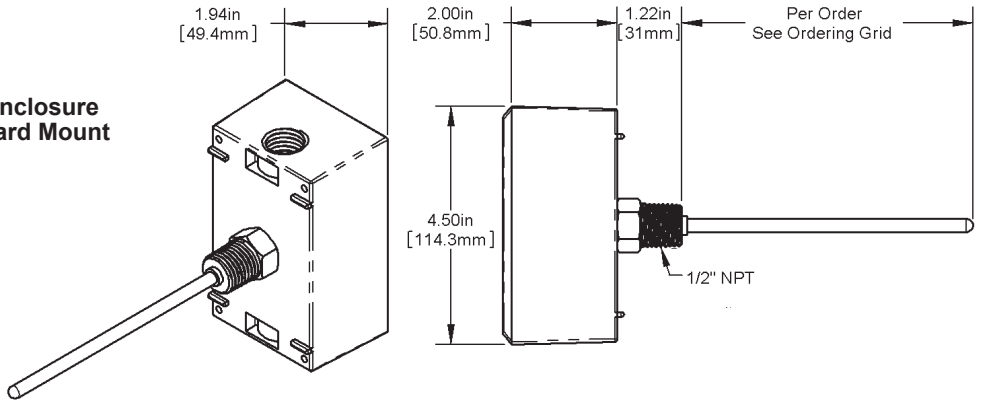


Weather Tight (EU)

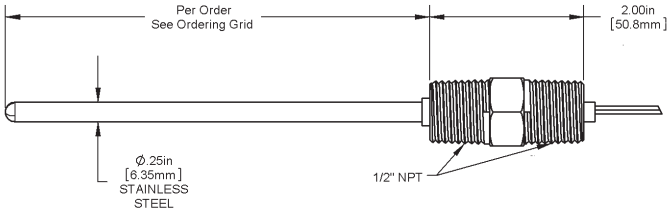
Extreme Temp. Platinum RTDs - Immersion

Temperature Sensors

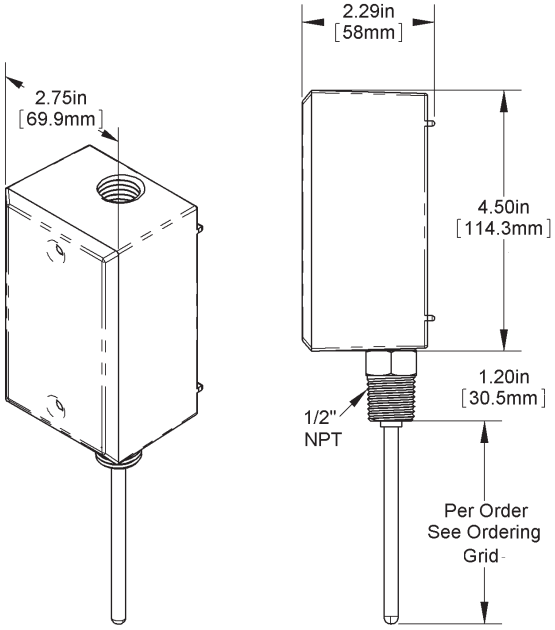
WP Enclosure Standard Mount

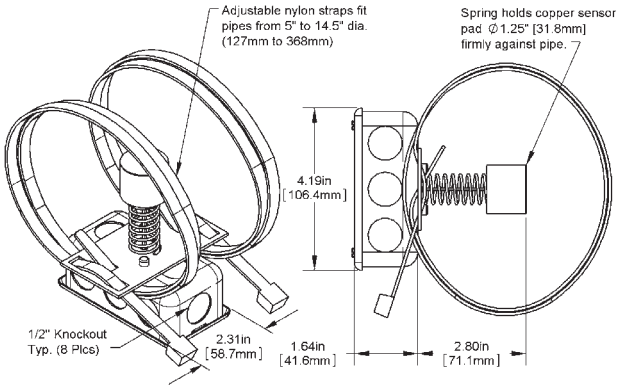


Probe without Enclosure

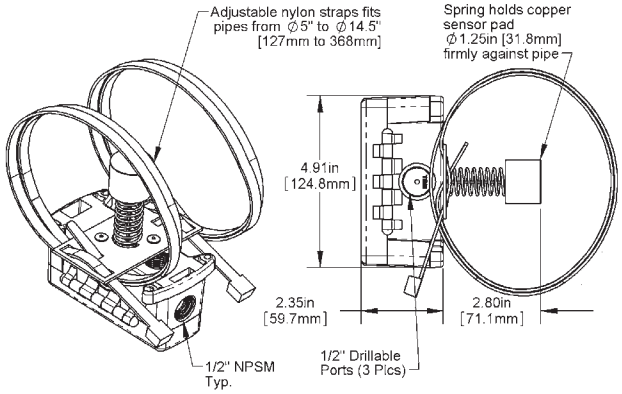


WP Enclosure Outside Mount

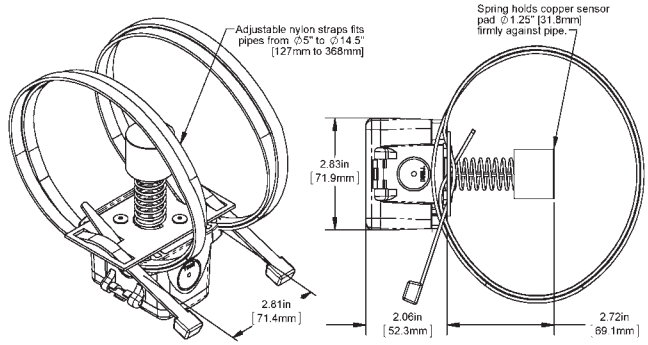




Spring-Loaded Strap J-Box (JB)

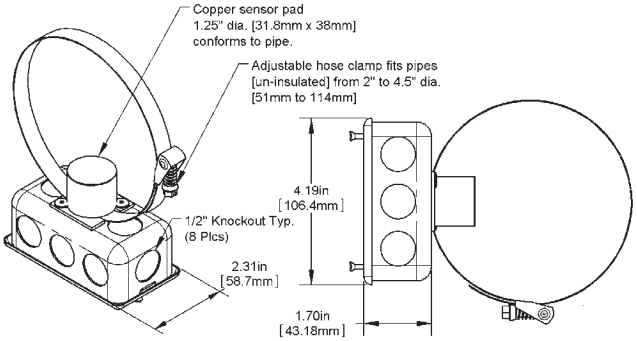


Spring-Loaded Strap BAPI-Box 2 (BB2)

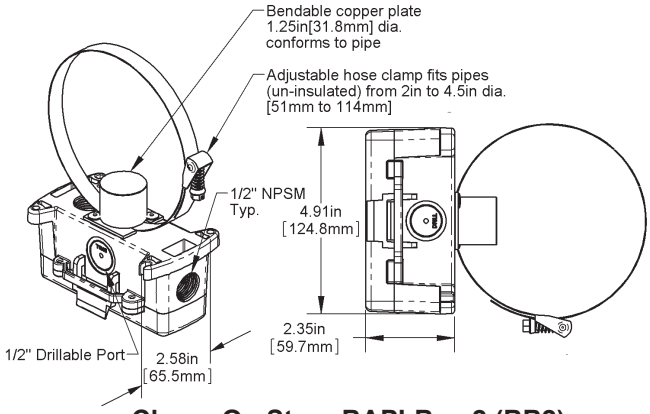


Spring-Loaded Strap BAPI-Box 4 (BB4)

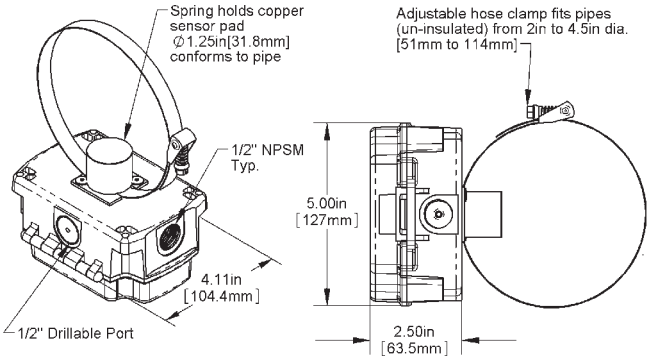
For Remote Probe Dimension Drawings, See Page A89



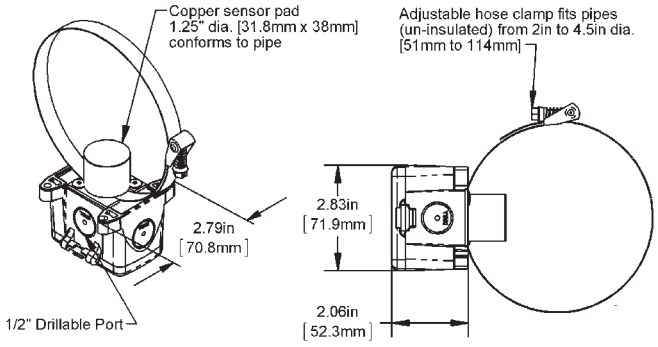
Clamp-On Strap J-Box (JB)



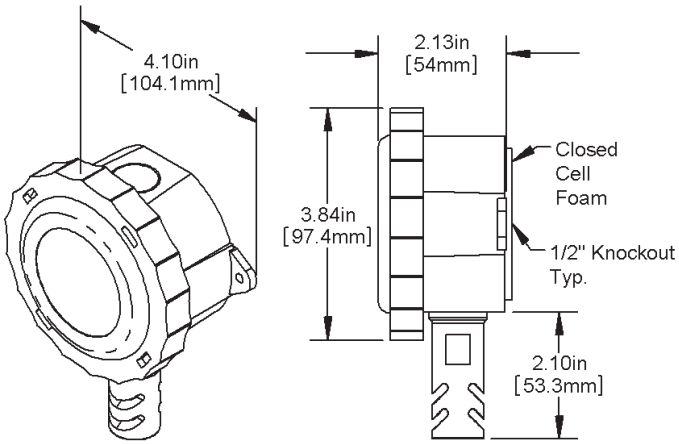
Clamp-On Strap BAPI-Box 2 (BB2)



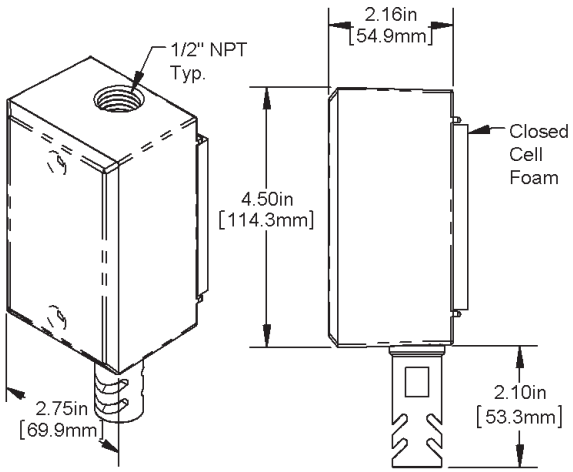
Clamp-On Strap BAPI-Box (BB)



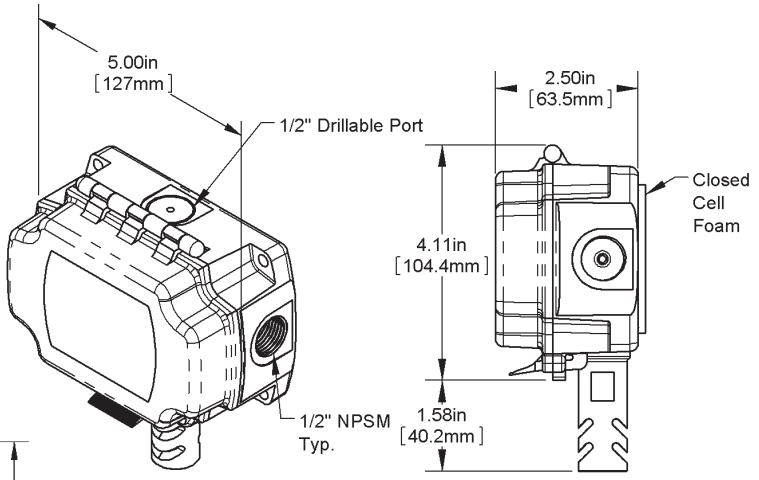
Clamp-On Strap BAPI-Box 4 (BB4)



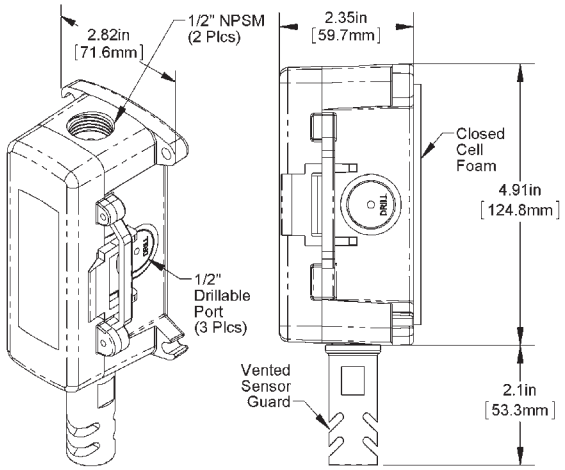
Weather Tight (EU)



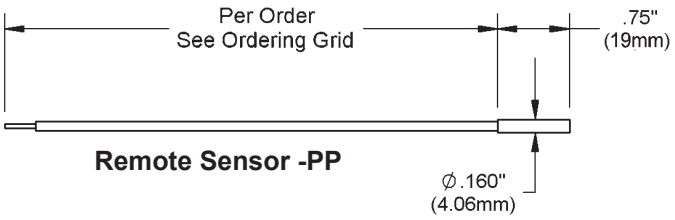
Weatherproof (WP)



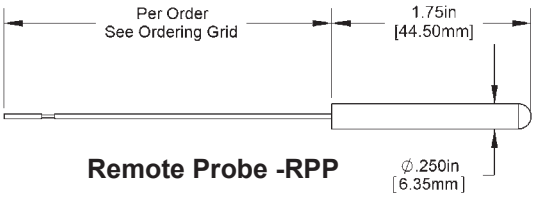
BAPI-Box (BB)



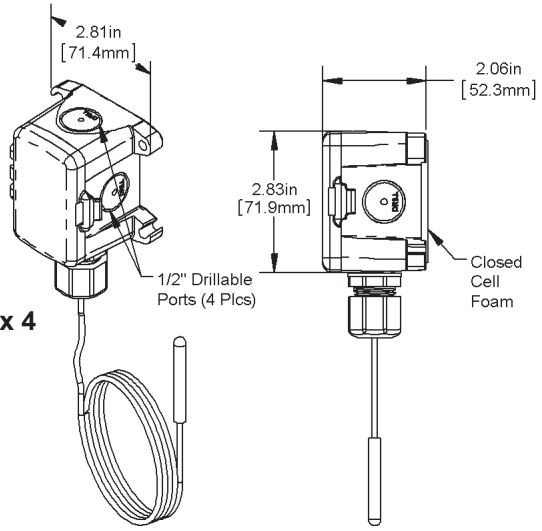
BAPI-Box 2 (BB2)



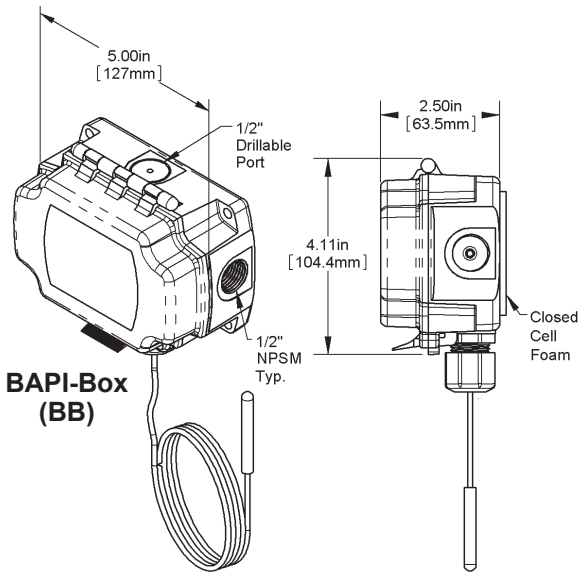
Remote Sensor -PP



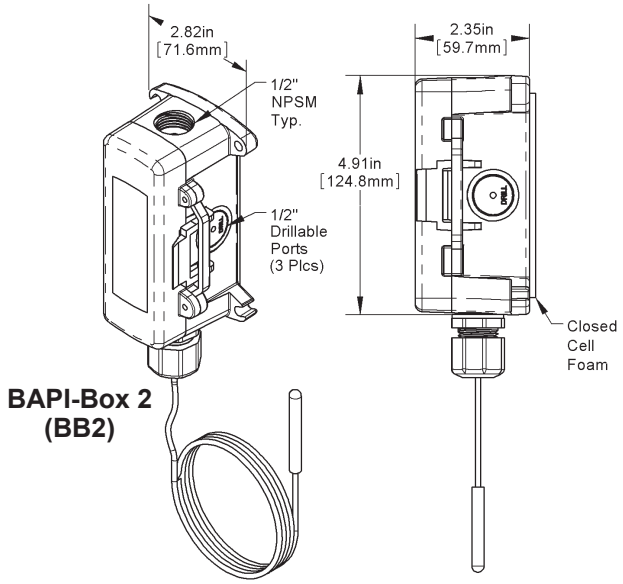
Remote Probe -RPP



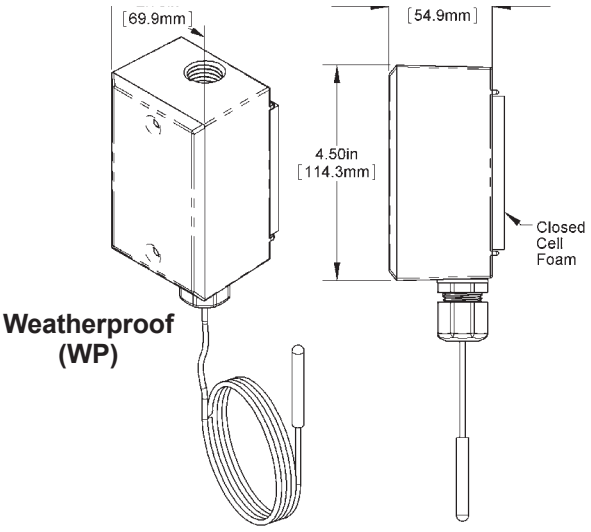
BAPI-Box 4 (BB4)



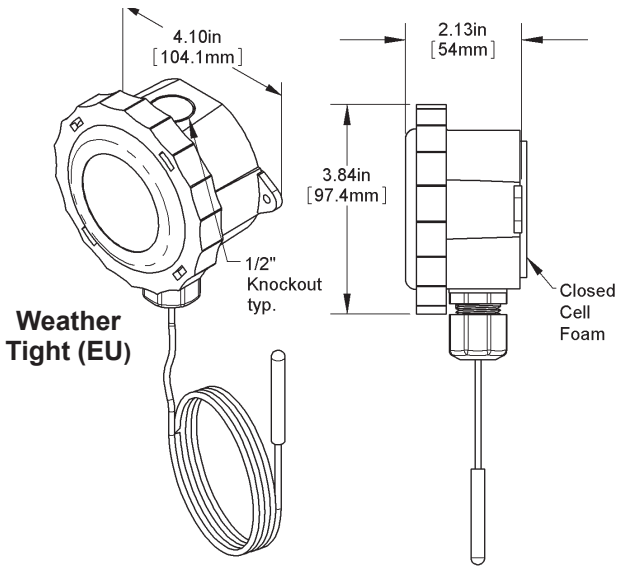
BAPI-Box (BB)



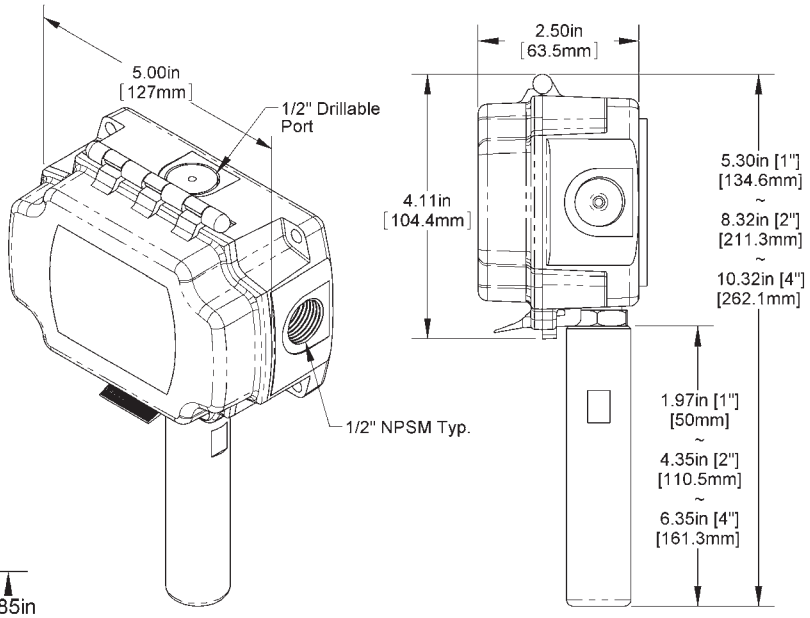
BAPI-Box 2 (BB2)



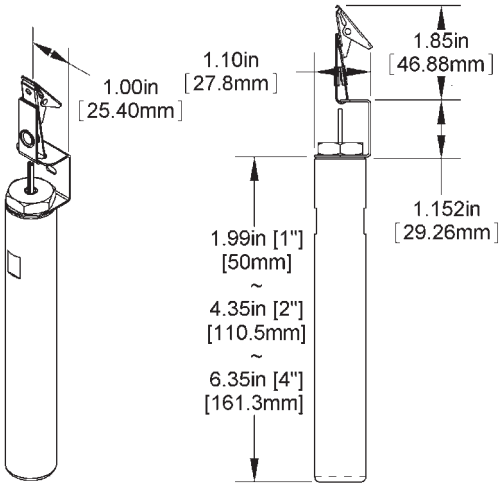
Weatherproof (WP)



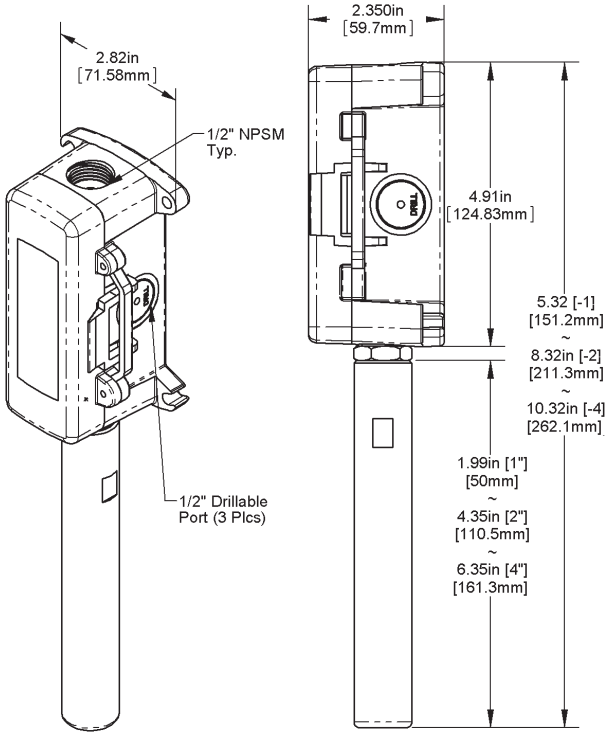
Weather Tight (EU)



BAPI-Box (BB)



Hanging Bracket (HB)



BAPI-Box 2 (BB2)

Monitor Room Vitals ...at a glance



Easily viewable from 25' away!



With temperature and humidity adjustment, large display and wipedown keypad, the **BAPI-Stat 3** is ideal for operating rooms, clean rooms and elder care facilities.



For videos & information on the BAPI-Stat 3, visit **www.bapihvac.com/bs3**!



XCombo™

BAPI-Stat 4

The all new BAPI-Stat 4 X-Combo offers local indication and setpoint for both temperature and humidity, override and a large display—all in a small, sleek enclosure.

For videos & information
on the X-Combo,
visit **www.bapihvac.com/xcombo**!

BAPI-Stat 4 Units - pgs 4-5

- Patented BAPI Enclosure
- Humidity Only or Temp/Humidity Combo
- 2% RH Accuracy
- Temp Setpoint and Override (optional)



BAPI-Stat 2 Units - pgs 6-7

- Patented BAPI Enclosure
- Humidity Only or Temp/Humidity Combo
- Optional LCD Temp Setpoint & Occupant Override



BAPI-Stat 3 Units - pgs 8-9

- Membrane Pushbuttons for Wipedown Cleaning
- Adjustable Temperature and Humidity Setpoints and Override
- Wide Selection of Temperature Sensing Elements



BAPI-Stat Units - pgs 10-11

- Large Easy-to-Read Display
- Perfect for Operating Rooms, Labs & Elder Care Facilities
- Membrane Pushbuttons for Wipedown Cleaning



"X-Combo" Unit - pgs 12-13

- 2% and 3% RH Accuracies
- °C or °F Operation
- Temperature and Humidity Setpoint Adjustment
- Occupancy Override
- Wide Selection of Temperature Sensing Elements



Delta Style Room Units - pgs 14-15

- Humidity Only or Temp/ Humidity Combo
- User Adustable Toggle Rate Between Temp and Humidity



Table of Contents

Humidity & Combination Temp/Humidity Sensors

Rev. 11/26/12

BAPI-Com Two-Wire Communicating Sensor - pgs 16-17

Available with Temperature Sensing, Temperature Setpoint, Occupant Override, Optional Display and Optional %RH Sensing — all on the existing 2 wires!



Echelon® Compatible "L-Combo" Room Unit - pages 18-19

- LonWorks® Compatible
- LCD Readout
- User Adustable Toggle Rate Between Temperature and Humidity
- 2% and 3% RH Accuracies
- °C or °F Operation (User Selectable)
- Full-range Temperature Compensation of RH Signal
- Optional Setpoint Adjustment and Override



BAPI-Stat 3MB Remote Sensor System - pgs 20-21

- Modbus RS485 Communication Protocol
- Designed for Operating Rooms and Clean Rooms
- Humidity Only or Temp/Humidity
- Adjustable Temperature and Humidity Setpoints and Override
- Remote Mounted Duct Temperature and Humidity Sensors



The BAPI-Stat 3MB Remote System is designed for operating rooms, clean rooms and isolation rooms. It includes a master display unit and up to 16 remote duct temperature and humidity sensors. Depending on the options selected, the unit can display room duct temperature, room duct humidity, temperature setpoint, humidity setpoint and occupied status. The unit can also allow local users to set the occupancy state, temperature setpoint and humidity setpoint.

Dew Point Sensor - pgs 22-23

- Accurate Dew Point and Dry Bulb Temperature in One Unit
- ±1.8°F (1°C) Dew Point Accuracy for the Normal Occupied Range



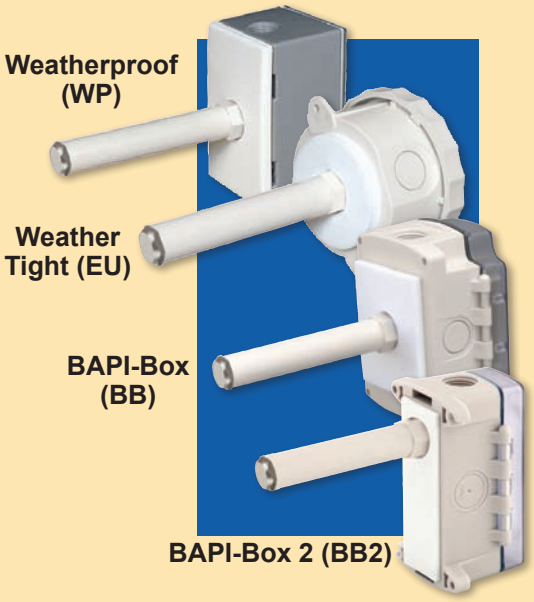
Outside Air Units - pages 24-25

- Mounting Tabs for Easy Installation
- Weather Tight (EU), Weatherproof (WP), BAPI-Box (BB) or BAPI-Box 2 Enclosure
- Humidity Only or Temp./Humidity Combination
- Etched Teflon Leadwires
- 2% and 3% RH Accuracies
- Wide Selection of Temperature Sensing Elements
- Two Year Warranty



Duct Units - pages 26-27

- Weather Tight (EU), Weatherproof (WP), BAPI-Box (BB) or BAPI-Box 2 Enclosure
- Humidity Only or Temp./Humidity Combination
- Etched Teflon Leadwires
- Ruggedized (Encapsulated) Transmitter
- 2% and 3% RH Accuracies
- Plate-Sized Foam Insulator
- Wide Selection of Temp. Sensing Elements
- Two Year Warranty



BAPI-Stat 4™ Style Units

Humidity & Combination Temp/Humidity Sensors

Rev. 10/16/12

Features & Options

- Patented BAPI Enclosure Style
- Humidity Only or Temp./Humidity Combo
- 2% RH Accuracy
- Full Range Temperature Compensated RH Signal
- Optional Display
- Optional Temperature Setpoint & Override
- Optional Communications Jack
- Wide Selection of Temp. Sensing Elements
- Two Year Warranty



BAPI-Stat 4 Units with Warm White and Gray Logo Plates

The BAPI-Stat 4 Style room unit is available as a humidity only sensor or as a combination temperature and humidity sensor with optional display, temperature setpoint adjustment and occupant override. It is available with the entire line of BAPI temperature sensors.

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

The BAPI-Guard

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

(See Accessories for more info.)



Specifications

Power: 10 to 35 VDC for 4 to 20 mA Output
10 to 35 VDC for 0 to 5 VDC Output
15 to 35 VDC for 0 to 10 VDC Output
12 to 24 VAC for 0 to 5 VDC Output (requires a separate pair of shielded wires)
15 to 28 VAC for 0 to 10 VDC Output (requires a separate pair of shielded wires)

Power Consumption:
20 mA max. for 4 to 20 mA Output
4 mA max. for 0 to 5 VDC and 0 to 10 VDC Output
0.1 VA max. for 0 to 5 VDC and 0 to 10 VDC Output

RH/Temp Sensor Construction: Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10% to 90%) @25°C, Fully Compensated
Temperature: Semi-conductor Band Gap, ±0.3°C @ 25°C

Field Calibration Adjustment:
Potentiometer: ±5% in 0.1% increments (Factory Calibrated)

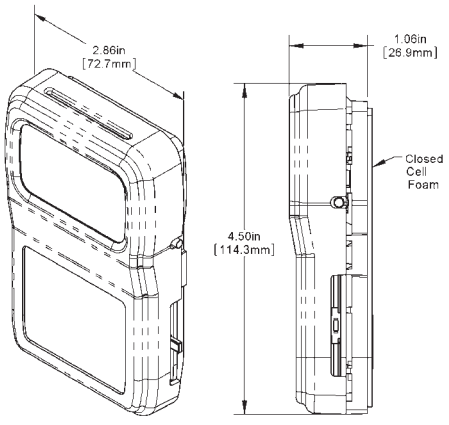
Wiring: 2 to 6 pair of 16 to 22 AWG*

Mounting: Standard 2"x4" J-box or drywall mount - screws provided

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing

Material: ABS Plastic

Material Rating: UL 94, V-0



*__BAPI__ recommends that you do not run wiring for the room units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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Ordering Information BAPI-Stat 4 Style Room Unit, Humidity only or Temp./Humidity Combo													List Price	Your Order
BA/														
Sensor Type Skip if not required Use the designator number (shown to the left in bold) to indicate the sensor														
##–	**THERMISTORS**		**RTDs**										**Thermistors** $18 Each	$_____
	1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.										
	3K	3K Ω @ 25 °C	**1K [375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.									**RTD's**	
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.									$25 Each	$_____
	3.3K	3.3K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.										
	10K-2	10K Ω @ 25 °C												
	10K-3	10KΩ @ 25 °C	**SEMICONDUCTORS**										**Semi-conductors**	
	10K-3[11K]	5,238 Ω @ 25 °C	**334**	LM334 Semiconductor									$25 Each	$_____
	20K	20K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C										
	50K	50K Ω @ 25 °C												
	100K	100K Ω @ 25 °C												
Humidity Transmitter Must select one														
	H220	±2% Humidity Transmitter, 4-20 mA output*											$260	$_____
	H205	±2% Humidity Transmitter, 0 to 5 VDC output											$260	$_____
	H210	±2% Humidity Transmitter, 0 to 10 VDC output											$260	$_____
	H212	±2% Humidity Transmitter, 2 to 10 VDC output											$260	$_____
Enclosure Style Must select one														
	-B4	BAPI-Stat 4 Style Enclosure												
LCD Display Must select one														
	D	LCD Display											$35	$_____
	X	No LCD Display												
°F or °C Display Mode Select one if ordering a unit with LCD Display														
	F	Temperatures Displayed in °F												
	C	Temperatures Displayed in °C												
Setpoint Display Options Skip if not required														
-#	**Desired Range**	**Designator**	**Desired Range**	**Designator**										
	-2 to +2	**P**	60 to 80 °F or 15 to 27 °C	**E**										
	-3 to +3	**A**	65 to 80 °F or 18 to 27 °C	**F**										
	-5 to +5	**B**	70 to 74 °F or 21 to 23 °C	**L**										
	50 to 90 °F or 10 to 32 °C	**C**	45 to 96 °F or 7 to 36 °C	**G**										
	55 to 85 °F or 13 to 30 °C	**D**	*See pg I3 for Additional Setpoint Display Ranges*											
Setpoint Output Value Range Skip if not required														
##	**Desired Range**	**Designator**	**Desired Range**	**Designator**									Any Setpoint $6	$_____
	674 to 274 Ω	**23**	15 to 5 kΩ	**61**										
	800 to 1200 Ω	**25**	0 to 20 kΩ	**80**										
	909 to 1309 Ω	**26**	4.75 to 24.75 kΩ	**81**										
	1800 to 2200 Ω	**27**	6.19 to 26.19 kΩ	**82**										
	0 to 1 kΩ	**40**	7.87 to 27.87 kΩ	**83**										
	500 to 1500 Ω	**41**	10 to 30 kΩ	**84**										
	2 to 3 kΩ	**42**	0 to 100 kΩ	**90**										
	0 to 10 kΩ	**60**	0 to 5 V**	**00**										
	See App. Notes pg I2 for Additional Setpoint Ranges													
SETPOINT LEGEND (insert Designator #)														
	Legend Range	**Designator**	**Legend Range**	**Designator**										
	5-30 C	**L1**	65-80 F	**L4**										
	55-85 F	**L2**	COOL/WARM	**L6**										
	60-85 F	**L3**	WARM/COOL	**L7**										
			No Legend	**L0**										
Override Configuration Must select one														
	-J	Override as a Separate Output. (Dry contact only, not intended to switch a load)											$5	$_____
	-N	Override in Parallel (//) with Sensor											$5	$_____
	-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models											$5	$_____
	-Z	No Override. (Needed if no override is required)											$0	
Optional Communication Jack Mounted in unit's base														
	-C11L	RJ11 (4 pin) Style Jack with Leads											$20	$_____
	-C11LT	RJ11 (4 pin) Style Jack with Leads and Terminal Block											$20	$_____
	-C35L	3.5 mm Phono Jack w/ Leads Attached											$10	$_____
	-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block											$10	$_____
	-C22L	RJ22 (4 pin) Style Jack with Leads Attached											$25	$_____
	-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block											$25	$_____
Optional Test and Balance Switch														
	-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value, **call for details**.											$7.50	$_____
Connection Configuration Must select one, default is common ground														
	-CG	Common Ground												
	-DF	Differential Inputs *(only with resistive setpoint)*												
Logo Plate Color Must select one														
	-WMW	Warm White Logo Plate Color (standard)												
	-GRY	Gray Logo Plate Color												
EXAMPLE														
BA/	**10K-2-**	**H220**	**-B4**	**D**	**F**	**-C**	**80L6**	**-J**	**-C35L**	**-TB**	**-CG**	**-WMW**		
Example Part Number: BA/10K-2-H220-B4DF-C80L6-J-C35L-TB-CG-WMW													**Total =**	$_____
Your Part Number:														

*DC input voltage is required for current output.
**Common Ground Model Only
Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

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BAPI-Stat 2™ Style Units

Humidity & Combination Temp/Humidity Sensors

Rev. 07/24/13

Features & Options

- Patented BAPI Enclosure
- Humidity Only or Temp./Humidity Combo
- Optional Display
- 2% RH Accuracy
- Optional Temp. Setpoint and Override
- Optional Communications Jack
- Wide Selection of Temperature Sensing Elements
- Full-range Temperature Compensation of RH Signal
- Two Year Warranty



BAPI-Stat 2 Style Units (with and without Display)

The BAPI-Stat 2 Style room unit is available as a humidity only sensor or as a combination temperature and humidity sensor with optional display, temperature setpoint adjustment and occupant override. It is available with the entire line of BAPI temperature sensors.

If a temperature transmitter and humidity transmitter are desired, see the "X-Combo" Unit on page B12.

For detailed specs on the individual Temperature Sensors, turn to the "Sensors" section.

The BAPI-Guard

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes



(See Accessories for more info.)

Specifications

Power: 10 to 35 VDC for 4 to 20 mA Output
10 to 35 VDC for 0 to 5 VDC Output
15 to 35 VDC for 0 to 10 VDC Output
12 to 24 VAC for 0 to 5 VDC Output (requires a separate pair of shielded wires)
15 to 28 VAC for 0 to 10 VDC Output (requires a separate pair of shielded wires)

Power Consumption:
20 mA max. for 4 to 20 mA Output
4 mA max. for 0 to 5 VDC and 0 to 10 VDC Output
0.1 VA max. for 0 to 5 VDC and 0 to 10 VDC Output

RH/Temp Sensor Construction: Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10% to 90%) @25°C, Fully Compensated
Temperature: Semi-conductor Band Gap, ±0.3°C @ 25°C

Field Calibration Adjustment:
Potentiometer: ±5% in 0.1% increments (Factory Calibrated)

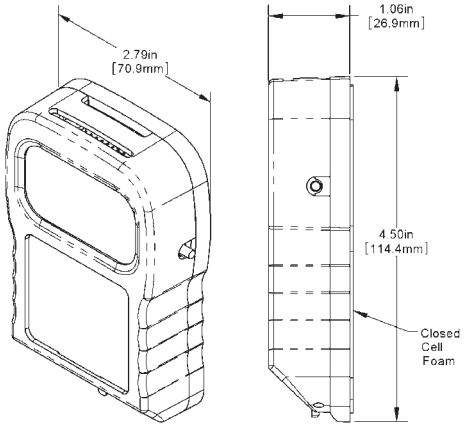
Wiring: 2 to 6 pair of 16 to 22 AWG*

Mounting: Standard 2"x4" J-box or drywall mount, screws provided

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing

Material: ABS Plastic

Material Rating: UL 94, V-0



*__BAPI__ recommends that you do not run wiring for the room units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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Ordering Information **BAPI-Stat 2 Style Room Unit, Humidity only or Temp./Humidity Combo**

BA/

Sensor Type **Skip if not required** **Use the designator number (shown to the left in bold) to indicate the sensor**

##–

	THERMISTORS		RTDs		List Price	Your Order
	1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**Thermistors**	
	3K	3K Ω @ 25 °C	**1K [375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**$18 Each**	$_____
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**RTD's**	
	3.3K	3.3K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$25 Each**	$_____
	10K-2	10K Ω @ 25 °C				
	10K-3	10KΩ @ 25 °C	**SEMICONDUCTORS**		**Semi-conductors**	
	10K-3[11K]	5,238 Ω @ 25 °C	**334**	LM334 Semiconductor		
	20K	20K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
	50K	50K Ω @ 25 °C				
	100K	100K Ω @ 25 °C				

Humidity Transmitter **Must select one**

H220	±2% Humidity Transmitter, 4-20 mA output*	**$260**	$_____
H205	±2% Humidity Transmitter, 0 to 5 VDC output	**$260**	$_____
H210	±2% Humidity Transmitter, 0 to 10 VDC output	**$260**	$_____
H212	±2% Humidity Transmitter, 2 to 10 VDC output	**$260**	$_____

Enclosure Style **Must select one**

-B	BAPI-Stat 2 Style Enclosure		

LCD Display **Must select one**

D	LCD Display	**$35**	$_____
X	No LCD Display		

°F or °C Display Mode **Must select one if ordering a unit with a display**

F	Temperatures Displayed in °F		
C	Temperatures Displayed in °C		

Setpoint Display Options **Skip if not required**

-#

Desired Range	Designator	Desired Range	Designator
-2 to +2	**P**	60 to 80 °F or 15 to 27 °C	**E**
-3 to +3	**A**	65 to 80 °F or 18 to 27 °C	**F**
-5 to +5	**B**	70 to 74 °F or 21 to 23 °C	**L**
50 to 90 °F or 10 to 32 °C	**C**	45 to 96 °F or 7 to 36 °C	**G**
55 to 85 °F or 13 to 30 °C	**D**	*See pg I3 for Additional Setpoint Display Ranges*	

Setpoint Output Value Range **Skip if not required**

##

Desired Range	Designator	Desired Range	Designator
674 to 274 Ω	**23**	15 to 5 kΩ	**61**
800 to 1200 Ω	**25**	0 to 20 kΩ	**80**
909 to 1309 Ω	**26**	4.75 to 24.75 kΩ	**81**
1800 to 2200 Ω	**27**	6.19 to 26.19 kΩ	**82**
0 to 1 kΩ	**40**	7.87 to 27.87 kΩ	**83**
500 to 1500 Ω	**41**	10 to 30 kΩ	**84**
2 to 3 kΩ	**42**	0 to 100 kΩ	**90**
0 to 10 kΩ	**60**	0 to 5 V**	**00**

Any Setpoint **$6** $_____

See App. Notes pg I2 for Additional Setpoint Ranges

SETPOINT LEGEND (insert Designator #)

Legend Range	Designator	Legend Range	Designator
5-30 C	**L1**	65-80 F	**L4**
55-85 F	**L2**	COOL/WARM	**L6**
60-85 F	**L3**	WARM/COOL	**L7**
		No Legend	**L0**

Override Configuration **Must select one**

-J	Override as a Separate Output. (Dry contact only, not intended to switch a load)	**$5**	$_____
-N	Override in Parallel (//) with Sensor	**$5**	$_____
-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models	**$5**	$_____
-Z	No Override. (Needed if no override is required)	**$0**	

Optional Communication Jack ***Mounted in unit's base***

-C11L	RJ11 (4 pin) Style Jack with Leads	**$20**	$_____
-C11LT	RJ11 (4 pin) Style Jack with Leads and Terminal Block	**$20**	$_____
-C35L	3.5 mm Phono Jack w/ Leads Attached	**$10**	$_____
-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block	**$10**	$_____

Optional Test and Balance Switch

-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value, **call for details**.	**$7.50**	$_____

Connection Configuration
Must select one, default is common ground

-CG	Common Ground		
-DF	Differential Inputs *(only with resistive setpoint)*		

EXAMPLE

BA/	10K-2-	H220	-B	D	F	-C	80L6	-J	-C35L	-TB	-CG

Example Part Number: BA/10K-2-H220-BDF-C80L6-J-C35L-TB-CG

Total = $_____

Your Part Number:

*DC input voltage is required for current output.
**Common Ground Model Only
Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

BAPI-Stat 3™ Room Unit

Humidity & Combination Temp/Humidity Sensors

Rev. 10/16/12

Membrane Pushbuttons for Wipedown Cleaning

Features & Options

- Designed for Operating Rooms and Clean Rooms
- Large Easy-to-Read Display
- Humidity Only or Combination Temp./Humidity
- Membrane Pushbuttons for Wipedown Cleaning
- Adjustable Temp and Humidity Setpoints and Override
- Wide Selection of Temperature Sensors
- 2% RH Accuracy
- Two Year Warranty



BAPI-Stat 3 Units with Gray & Off White Keypads (shown with optional humidity setpoint)

The BAPI-Stat 3 is designed for operating rooms, clean rooms and elder care facilities. It features an easy-to-read display and membrane pushbuttons for wipedown cleaning. It is available as a temperature sensor alone or as a combination temperature/humidity sensor. Depending upon the options selected, the BAPI-Stat can display room temperature, room humidity, temperature setpoint, humidity setpoint and override status.

The unit includes a number of field adjustments including °F or °C display, temp. offset (±5 °F or °C in increments of 0.1°), RH offset (±5% in increments of 0.1%), or setpoint lockout (which disables the setpoint pushbuttons). The display can also be set to show a large temperature and small RH, a large RH and a small temperature, or to alternate between these settings every 5 seconds.

This unit can be configured with up to four transmitted variables. Contact your BAPI representative for details.

The BAPI-Guard

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow
- Available in Two Sizes

(See Accessories for more info.)



For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

Specifications

Power: 10 to 35 VDC (15 to 24 VDC recommended) for 4 to 20 mA or 0 to 5 VDC Outputs
15 to 35 VDC (15 to 24 VDC recommended) for 0 to 10 VDC Output
12 to 28 VAC (Requires a separate pair of shielded wires) for 0 to 5 VDC Outputs
15 VAC to 28 VAC (Requires a separate pair of shielded wires) 0 to 10 VDC Output

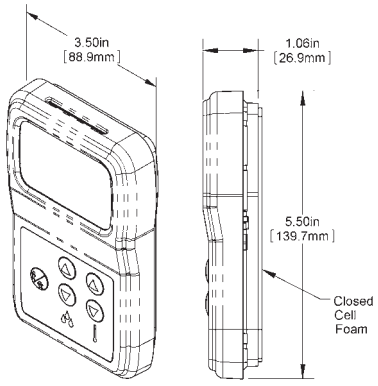
Power Consumption:
60 mA max. DC: 4 to 20 mA or 0 to 5 VDC Outputs
10 mA max. DC: 0 to 10 VDC Output
1.44 VA max. AC: 0 to 5 VDC Outputs
0.2 VA max. AC: 0 to 10 VDC Output

RH/Temp Sensor Construction: Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10% to 90%) @25°C, Fully Compensated
Temperature: Semi-conductor Band Gap, ±0.3°C @ 25°C

Optional Direct Temp. Sensor: Therm., RTD or Semi-conductor

Mounting: 2" by 4" J-box or drywall mount - screws provided

Environmental Specifications:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing



Wiring: 2 to 4 pair of 16 to 22 AWG*

Material: ABS Plastic - UL 94, V-0

*__BAPI__ recommends that you do not run wiring for Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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BAPI-Stat 3™ Room Unit

Humidity & Combination Temp/Humidity Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	BAPI-Stat 3 Room Unit - Temperature, Humidity or Combination	List Price	Your Order
BA/BS3		$200	$_____
Temperature Display Mode			
F	Temperatures Displayed in °F		
C	Temperatures Displayed in °C		
Humidity Sensor Accuracy (skip if ordering a temperature only unit)			
2	Accuracy in % for the Relative Humidity Output (i.e. ±2% RH)	$80	$_____
Channel # 1* - *T*, *H*, *R* are placeholders for the range options. (See inset charts)			
-0 *T*	Temperature Output, 4 - 20 mA		
-1 *T*	Temperature Output, 0 - 5 V	$50 for Channel #1	$_____
-2 *T*	Setpoint Output, Temperature 4 - 20 mA		
-3 *T*	Setpoint Output, Temperature 0 - 5 V		
-4 *H*	Setpoint Output, %RH 4 - 20 mA		
-5 *H*	Setpoint Output, %RH 0 - 5V		
-6 *T*	Temperature Output 0 - 10V		
-7 *T*	Setpoint Output, Temperature 0 - 10V		
-8 *H*	Setpoint Output, %RH 0 - 10V		
Channel # 2* - *T*, *H*, R are placeholders for the range options. (See inset charts)			
-10 *H*	%RH Output, 4 - 20 mA		
-11 *H*	%RH Output, 0 - 5 V	$50 for Channel #2	$_____
-12 *T*	Setpoint Output, Temperature 4 - 20 mA		
-13 *T*	Setpoint Output, Temperature 0 - 5 V		
-14 *H*	Setpoint Output, %RH 4 - 20 mA		
-15 *H*	Setpoint Output, %RH 0 - 5 V		
-16 *H*	%RH Output, 0 - 10 V		
-17 *T*	Setpoint Output, Temperature 0 - 10 V		
-18 *H*	Setpoint Output, %RH 0 - 10 V		
Optional Additional Outputs Ch 3 & 4 - *T*, *H*, *R* are placeholders for range options. (See inset charts)			
-20 *T* *R* G	Setpoint Output, Temperature Resistive w/ Override (DF is wired to Channel 3 & 4)		
-22 *H* *R* G	Setpoint Output, %RH Resistive w/ Override (DF is wired to Channel 3 & 4)	$50 for Channel #3	$_____
-24 *T* *R* G	Setpoint Output, Temperature Resistive w/o Override (DF is wired to Channel 3 & 4)		
-25 *T* *R* G	Setpoint Output,Temperature voltage w/o Override (Common Ground required)		
-26 *H* *R* G	Setpoint Output, %RH Resistive w/o Override (DF is wired to Channel 3 & 4)		
-27 *H* *R* G	Setpoint Output, %RH Voltage w/o Override (Common Ground required)		
-28 G	Override Only [High Ω -> Low Ω ->High Ω] (DF is wired to Channel 3 & 4)		
-29 G	Override Only [5 V -> 0 V -> 5V] (Common Ground required)		
Optional Override Ch 3 or 4 - dry contact			
-60 G	Dry Contact Override Ch4 (If the unit is DF, use terminals CH3 & CH4)		
-61 G	Dry Contact Override Ch5 [Temp - Temp]		
Optional Sensor Type Ch 5 (if resistive sensor required)			
-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.	**RTD's** $25 Each or $35 for 1NI	$_____
-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.		
-1NI	1K Ω Nickel RTD, 1,000 Ω @ 21°C, 5 Ω/°C temp. coeff.		
-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.		
-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.		
-18	1.8K Thermistor, 1,800 Ω @ 25 °C	**Thermistors** $18 Each	$_____
-3	3K Thermistor, 3,000 Ω @ 25 °C		
-33	3.3K Thermistor, 3,300 Ω @ 25 °C		
-102	10K-2 Thermistor, 10,000 Ω @ 25 °C		
-103	10K-3 Thermistor, 10,000 Ω @ 25 °C		
-10311	10K-3[11K] Therm., 5,238 Ω @ 25 °C, 11kΩ shunt resistor		
-20	20K Thermistor, 20,000 Ω @ 25 °C		
-50	50K Thermistor, 50,000 Ω @ 25 °C		
-100	100K Thermistor, 100,000 Ω @ 25 °C	**Semi conductors** $25 Each	$_____
-592	AD592 Semiconductor, 273 µA @ 0 °C		
-ES	External Sensor connection. 10K-2 thermistor purchased separately.***		
Optional Communication Jack			
-C11L	RJ11 (4 pin) Style Jack with Leads	$20	$_____
-C11LT	RJ11 (4 pin) Style Jack w/ Leads and Terminal Block	$20	$_____
-C35L	3.5 mm Phono Jack w/ Leads Attached	$10	$_____
-C35LT	3.5 mm Phono Style Jack w/ Leads and Term. Block	$10	$_____
-C22L	RJ22 (4 pin) Style Jack with Leads Attached	$25	$_____
-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block	$25	$_____
Optional Test & Balance Switch**			
-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value, call for details.*	$7.50	$_____
Keypad Color	**Must Select One**		
-GRY	Gray Keypad Color		
-OFW	Off White Keypad Color		

R = Output Range Designator

Designator	Output Range	Span
00	0 to 5 V	5 Volts
01	1 to 5 V	4 Volts
02	3.7 to 0.85 V	2.85 Volts
03	5 to 0 V	5 Volts
04	4.2 to 1.2 V	3 Volts
10	0 to 10 V	10 Volts
20	889 to 111 Ω	778Ω
21	792 to 208 Ω	584Ω
22	695 to 305 Ω	390Ω
23	674 to 274 Ω	400Ω
24	597 to 305 Ω	292Ω
25	800 to 1200	400Ω
26	909 to 1309	400Ω
27	1800 to 2200	400Ω
28	866 to1286	400Ω
40	0 to 1 kΩ	1 kΩ
41	500 to 1500 Ω	1 kΩ
42	2 to 3 kΩ	1 kΩ
43	249 to 1249 Ω	1 kΩ
44	10 to 11 kΩ	1 kΩ
45	12.5K-11.5K Ω	1 kΩ
46	1K to 0 Ω	1 kΩ
47	182 to 1182 Ω	1 kΩ
50	0 to 5 kΩ	5 kΩ
51	7.87k to 2.87kΩ	5 kΩ
60	0 to 10 kΩ	10 kΩ
61	15 to 5 kΩ	10 kΩ
62	9577 to 1422 Ω	
63	1 to 11 kΩ	10 kΩ
64	200 to 10200	10 kΩ
80	0 to 20 kΩ	20 kΩ
81	4.75 to 24.75 kΩ	20 kΩ
82	6.19 to 26.19 kΩ	20 kΩ
83	7.87 to 27.87 kΩ	20 kΩ
84	10 to 30 kΩ	20 kΩ

***T* = Temperature, Output & Display Range**

	°F	°C
A	-3 to +3	-3 to +3
B	-5 to +5	-5 to +5
C	50 to 90 °F	10 to 32 °C
D	55 to 85 °F	13 to 30 °C
E	60 to 80 °F	15 to 27 °C
F	65 to 80 °F	18 to 27 °C
G	45 to 96 °F	7 to 35 °C
J	68 to 78 °F	20 to 26 °C
K	65 to 95 °F	18 to 35 °C
L	70 to 74 °F	21 to 23 °C
P	-2 to +2	-2 to +2
X	40 to 80 °F	4 to 27 °C

***H* = Relative Humidity Range**

Designator	%RH
M	0 to 100
N	35 to 70

G = Connection Configuration

Designator	Type
CG	Common Grnd
DF	Differential Grnd

EXAMPLE

BA/BS3	F	2	0	C	-10	M	-24	C	80	CG	-61	CG	-102	-C35L	-TB	-GRY

Example Part Number: BA/BS3F2-0C-10M-24C80CG-61CG-102-C35L-TB-GRY

Your Part Number:

Total = $_____

All ranges and options may not be shown here, call BAPI for additional options or with questions about this ordering grid

* Channel 1 or 2 are Common Ground

** Test & Balance is only available with Direct Sensor Type Output

***Must use a 10K-2 thermistor for the External Sensor option. Thermistor is purchased separately. (25' max) This option is only available on units without humidity

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BAPI-Stat™ Room Unit

Humidity & Combination Temp/Humidity Sensors

Rev. 10/16/12

Membrane Pushbuttons for Wipedown Cleaning

Features & Options

- Large Easy-to-Read LCD Display
- Humidity Only or Combination Temp./Humidity
- Membrane Pushbuttons for Wipedown Cleaning
- Temperature and Humidity Setpoints and Override
- Wide Selection of Temperature Sensing Elements
- 2% RH Accuracy
- Two Year Warranty



BAPI-Stat Units with Gray & Off White Keypads (shown with optional humidity setpoint)

The BAPI-Stat is designed for operating rooms, clean rooms and elder care facilities. It features an easy-to-read display and membrane pushbuttons for wipedown cleaning. It is available as a temperature sensor alone or as a combination temperature/humidity sensor. Depending upon the options selected, the BAPI-Stat can display room temperature, room humidity, temperature setpoint, humidity setpoint and override status.

The unit includes a number of field adjustments including °F or °C display, temperature offset (±5 °F or °C in increments 0.1°), RH offset (±5% in increments of 0.1%), or setpoint lockout (which disables the setpoint pushbuttons). The display can also be set to show a large temperature and small RH, a large RH and a small temperature, or to alternate between these two settings every five seconds.

This unit can be configured with up to four transmitted variables. Contact your BAPI representative for details.

The BAPI-Guard

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow
- Available in Two Sizes

(See Accessories for more info.)



For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

Specifications

Power: 10 to 35 VDC (15 to 24 VDC recommended) for 4 to 20 mA or 0 to 5 VDC Outputs
15 to 35 VDC (15 to 24 VDC recommended) for 0 to 10 VDC Output
12 to 28 VAC (Requires a separate pair of shielded wires) for 0 to 5 VDC Outputs
15 VAC to 28 VAC (Requires a separate pair of shielded wires) 0 to 10 VDC Output

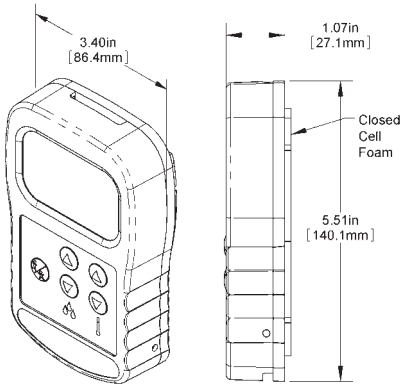
Power Consumption:
60 mA max. DC: 4 to 20 mA or 0 to 5 VDC Outputs
10 mA max. DC: 0 to 10 VDC Output
1.44 VA max. AC: 0 to 5 VDC Outputs
0.2 VA max. AC: 0 to 10 VDC Output

RH/Temp Sensor Construction: Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10% to 90%) @25°C, Fully Compensated
Temperature: Semi-conductor Band Gap, ±0.3°C @ 25°C

Optional Direct Temp. Sensor: Therm., RTD or Semi-conductor

Mounting: 2" by 4" J-box or drywall mount - screws provided

Environmental Specifications:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95%, non-condensing



Wiring: 2 to 4 pair of 16 to 22 AWG*

Material: ABS Plastic - UL 94, V-0

*__BAPI__ recommends that you do not run wiring for Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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| *Ordering Information* BAPI-Stat Room Unit - Temperature, Humidity or Combination | | |

BAPI-Stat 4 “X-Combo” Room Unit

Humidity & Combination Temp/Humidity Sensors

Rev. 04/15/13

Temperature & Humidity Setpoint

Features & Options

- Large Easy-to-Read Display, °F or °C
- Fully Compensated 2% RH Sensor
- Three Configurable Channels (Temperature, Humidity and Setpoint)
- User Adjustable Toggle Rate Between Temp. and Humidity Display
- Options include Override, Passive Sensor, Test and Balance Switch and Communication Jack
- Two Year Warranty



BAPI-Stat 4 “X-Combo” Units with Warm White and Gray Logo Plate

The BAPI-Stat 4 “X-Combo” Room Unit features local indication of both temperature and humidity in one unit. Additional options include Temperature Setpoint, Humidity Setpoint and Local Override.

The optional LCD shows room temperature in °C or °F and room humidity. In addition, the unit has adjustable offsets for both temperature and humidity and both transmitter ranges can be configured in the field.

The unit has 4 output channels. Channel 1 and 2 can be ordered as voltage or current, channel 3 can be ordered as voltage or resistance and channel 4 is for a passive temperature sensor.

For detailed specs on the individual Sensors & Transmitters, turn to the Sensors section.

The BAPI-Guard Thermostat Protector

- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Available in Two Sizes

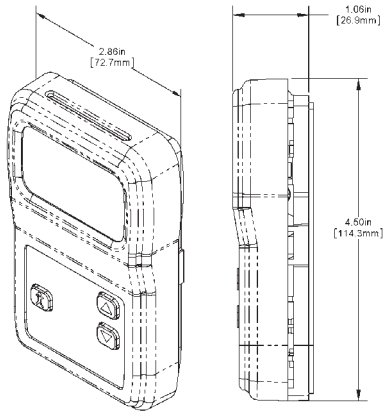
(See Accessories for more info.)



Specifications

Supply Volts: (Contact BAPI if AC power is required)	
0 to 10V Output:	16 to 30VDC
0 to 5V & 4 to 20mA Output:	12 to 30VDC
Supply Power:	VDC = 50mA
Temperature Sensor:	Semicond. Band Gap, ±0.6ºC@25°C
RH Sensor:	Capacitive, ±2% Accuracy, 20 to 80%@25°C
Available Outputs:	3 Configurable, 1 Passive Sensor
Channels 1 & 2	Voltage or Current
Channel 3	Voltage or Resistance
Channel 4	Passive Sensor
Output Signals:	
Voltage, VDC	0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V, Impedance>10KΩ
Current (Sourcing)	4 to 20mA, 500Ω@13.5VDC
Resistance (Setpoint)	Available on Ch. 3 Only
Passive Sensor (Ch. 4)	Thermistor, RTD or Solid State
Input (Digital):	1 (lights Occ/Unocc. BAPI-Man Icon)
Termination:	8 Terminals, 16 to 22 AWG
Optional Override:	Shunt on any of 4 Channels
Optional Comm. Jack:	Located in Base
Test & Balance:	3 Temp. Positions: Hi/Sensor/Lo
Active type	Standard Program Mode, Ch. 1
Passive Sensor	Optional for Ch. 4 w/ 3-Way Switch

Indicators on Display:	Temp, RH, SP, Override
Display size	2.04” W x 1.33” H
Mounting:	Standard 2x4” J-Box or Drywall, screws provided
Enclosure Material:	ABS Plastic, UL94V-0
Ambient (Enclosure):	32 to 122ºF (0 to 50ºC) 0 to 95% RH, Non-Cond.
Agency:	RoHS



*__BAPI__ recommends that you do not run wiring for the room units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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BAPI-Stat 4 "X-Combo" Room Unit

Rev. 07/02/13

Humidity & Combination Temp/Humidity Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information: Required | Optional

					List Price	Your Order
X-Combo in a BAPI-Stat 4 Enclosure (required)						
BA/BS4XC	BAPI-Stat 4 w/ Optional (Rm. Temp., Rm. RH, Temp. Setpoint, Humidity Setpoint, Override and/or Display)				$165	$_____
Display Mode (required) - °F or °C display can be changed in the field						
-F	Temperature factory displayed in ˚F.				$35	$_____
-C	Temperature factory displayed in ˚C.					
-X	No Display Option (Setpoint options require a display)				-	
Humidity Sensor Accuracy (required)						
-2	2% Humidity Sensor				$80	$_____
**** Channel 1 Output** (optional) - replace "D" & "R" with codes from Table D & R or from App notes (p. I2 & I3)						
-10 D R	Temperature	Not available with resistance outputs			$50	$_____
-15 D R	Setpoint Temperature or Setpoint Humidity ^^^					
**** Channel 2 Output** (required) - replace "D" & "R" with codes from Table D & R or from App notes (p. I2 & I3)						
-20 D R	Humidity output	Not available with resistance outputs			$50	$_____
-25 D R	Setpoint Temperature or Setpoint Humidity ^^^					
**** Channel 3 Output ^^^** (optional) - replace "D" & "R" with codes from Table D & R or from App notes (p. I2 & I3)						
-35 D R	Setpoint Temperature or Setpoint Humidity (Not available with R=16, 4-20mA)				$50	$_____
***Override Button Configuration** (required)						
-CH1	Override in Parallel (//) with Channel 1 (0V, 1V, 2V or 4mA)				$5	$_____
-CH2	Override in Parallel (//) with Channel 2 (0V, 1V, 2V or 4mA)					
-CH3	Override in Parallel (//) with Channel 3 (0V, 1V, 2V or Low ohms)					
-CH4	Dry Contact Override in Parallel (//) with Channel 4 (<1 ohm) ^ (Not available for solid state sensors)					
-Z	No Override. (No override button unless two setpoint channels are selected above)				-	
Channel 4 (optional) - Passive 2-wire Sensor Selection, "Temp + to Temp -"						
-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.				$25	$_____
-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.					
-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.					
-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.					
-1NI	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.				$35	
-18	1.8K Thermistor, 1,800 Ω @ 25 °C				$18	
-3	3K Thermistor, 3,000 Ω @ 25 °C					
-33	3.3K Thermistor, 3,300 Ω @ 25 °C					
-102	10K-2 Thermistor, 10,000 Ω @ 25 °C					
-103	10K-3 Thermistor, 10,000 Ω @ 25 °C					
-10311	10K-3(11K) Therm., 5,238 Ω @ 25 °C, 11kΩ shunt resistor					
-20	20K Thermistor, 20,000 Ω @ 25 °C					
-50	50K Thermistor, 50,000 Ω @ 25 °C					
-100	100K Thermistor, 100,000 Ω @ 25 °C					
-592	AD592 Solid State Semiconductor, 273 µA @ 0 °C, 2 wire only				$25	
-334	LM334 Solid State Semiconductor 2 wire only					
Communication Jack (optional) - Mounted in unit's base						
-C11L	RJ11 (4 pin) Style Jack with Leads				$20	$_____
-C11LT	RJ11 (4 pin) Style Jack with Leads and Terminal Block					
-C35L	3.5 mm Phono Jack w/ Leads Attached				$10	
-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block					
-C22L	RJ22 (4 pin) Style Jack with Leads Attached				$25	
-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block					
Test and Balance Switch ^^ (optional)						
-TB	Three Position Switch - "Low & High" values vary by sensor type, Normal is live passive sensor value.				$7.50	$_____
Connection Configuration (Only required if Channel 4 sensor is used)						
-CG	Common Ground for - TEMP sensor terminal				-	
-DF	+ and - TEMP sensor terminals are isolated					
Logo Plate Color (required)						
-WMW	Warm White				-	
-GRY	Gray					
					Total =	$_____

Table D - Output & Display Range

Code	°F	°C	% RH
A	-3 to +3	-3 to +3	
C	50 to 90 °F	10 to 32 °C	
D	55 to 85 °F	13 to 30 °C	
E	60 to 80 °F	15 to 27 °C	
F	65 to 80 °F	18 to 27 °C	
G	45 to 96 °F	7 to 35 °C	
M			0 to 100%
N			35 to 70%
P	-2 to +2	-2 to +2	
AA	60 to 85°F	15 to 30°C	
EE	67 to 77°F	19 to 25°C	
GG	0 to 100°F	-18 to 38°C	

Table R - Signal Range

Code	Signal Range	Span
00	0 to 5 V	5 Volts
01	1 to 5 V	4 Volts
10	0 to 10 V	10 Volts
11	2 to 10 V	8 Volts
16	4 to 20 mA*	16 mA
60	0 to 10 kΩ	10 kΩ
61	15 to 5 kΩ	10 kΩ
62	9577 to 1422 Ω	8.15 kΩ
63	1 to 11 kΩ	10 kΩ
64	200 to 10200	10 kΩ
65	10.4k to 400Ω	10 kΩ
66	10 kΩ to 0	10 kΩ
67	5 to 15 kΩ	10 kΩ
68	9629 to 806	~10 kΩ
80	0 to 20 kΩ	20 kΩ
81	4.75 to 24.75 kΩ	20 kΩ
82	6.19 to 26.19 kΩ	20 kΩ
83	7.87 to 27.87 kΩ	20 kΩ
84	10 to 30 kΩ	20 kΩ
85	24.75 to 4.75 kΩ	20 kΩ

Example Part Number:

BA/BS4XC	-F	-2	-10C00	-20M10	-35C80	-CH4				-CG	-WMW	= BA/BS4XC-F-2-10C00-20M10-35C80-CH4-CG-WMW

Your Part Number: Shaded cells are optional selections

BA/BS4XC											

Notes:

* This sensor is not loop powered. The output sources the 4-20mA output. The sensor will always require external power.

** Common Ground only, for voltage, current, and resistive outputs.

*** An override adds one button on the sensor. Selecting temperature and humidity setpoints adds a mode button. The override and mode button are the same single button.

^ Front button if setpoints are used or side button if override only. Not intended to switch a load. (0.5A MAX @24V)

^ ^ This is for the passive sensor only. Active Test & Balance is through the sensor Mode select

^ ^ ^ The option adds setpoint buttons. This sensor can only have 2 setpoint buttons. The override button is used to toggle between Temperature and Humidity setpoints

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

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Delta Style Room Units

Humidity & Combination Temp/Humidity Sensors

Rev. 01/16/13

Features & Options

- Low Profile Delta Style Enclosure
- Humidity Only or Temp./Humidity Combo
- Optional Display
- 2% and 3% RH Accuracies
- Optional Communications Jack
- User Adjustable Toggle Rate Between Temperature and Humidity
- Wide Selection of Temperature Sensing Elements
- Full-range Temperature Compensation of RH Signal
- Two Year Warranty



Delta Style Enclosures with and without Display

The Delta Style room units are available as Humidity Only sensors or as Combination temperature and humidity sensors. The Delta Style enclosure features an optional display with a user adjustable toggle rate between humidity and temperature and can display in either °C or °F.

The unit is available with the entire line of BAPI temperature sensors. If a temperature transmitter and humidity transmitter are desired, then see the "X-Combo" Unit on pages B12-13 of this section.

For detailed specs on the individual Sensors & Transmitters, turn to the "Sensors" section.

* All Passive Thermistors 10K Ω and smaller are CE compliant.

The BAPI-Guard



- Prevents Tampering and Unauthorized Adjustment
- Exceptional Airflow
- Available in Two Sizes

(See Accessories for more info.)

Specifications

Power: 10 to 35 VDC (0 to 5 VDC or 4 to 20 mA Outputs)
15 to 40 VDC (0 to 10 VDC Output)
12 to 24 VAC (0 to 5 VDC Output)
15 to 28 VAC (0 to 10 VDC Output)
Note: If AC power is used, it must be shielded from the signal wiring

Power Consumption:
22 mA max. DC (0 to 5 VDC or 4 to 20 mA Outputs)
6 mA max DC (0 to 10 VDC Output)
0.53 VA max. AC (0 to 5 VDC Output)
0.14 VA max. AC (0 to10 VDC Output)

Sensing Elements:
Temperature - Thermistor, RTD or Semiconductor
Humidity - Capacitive Type, ±2% or ±3% RH, 20 to 80%@25°C

RH Calb. Adjustment: ±5% POT

Wiring: 2 to 3 pair of 16 to 22 AWG**

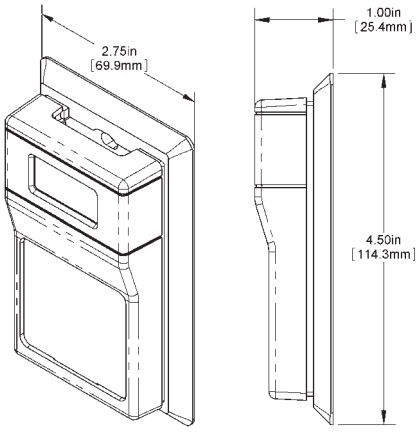
Mounting: Standard 2"x4" J-box or drywall mount - screws provided

Environmental Operation Range:
Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 5 to 95%, non-condensing

Material: ABS Plastic

Material Rating: UL 94V-HB

Agency: RoHS and CE* (for transmitters and select thermistors)



****BAPI** recommends that you do not run wiring for the room units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	Delta Style Room Unit, Humidity only or Temp./Humidity Combo							List Price	Your Order
BA/									
	Optional Temp. Sensor	**Use the designator number, shown to the left in bold. Omit if ordering humidity only**							
	##-	**THERMISTORS**		**RTDs**				**Thermistors**	
		1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.			**$18 Each**	$_____
		2.2K	2.2K Ω @ 25 °C	**1K [375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.				
		3K	3K Ω @ 25 °C	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.			**RTD's**	
		3.25K	3.25K Ω @ 25 °C (T30 type)	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.			**$25 Each**	
		3.3K	3.3K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.			**or**	$_____
		10K-2	10K Ω @ 25 °C					**$35 for 1K[NI]**	
		10K-3	10K Ω @ 25 °C						
		10K-3[11K]	5,238 Ω @ 25 °C					**Semi-**	
		20K	20K Ω @ 25 °C	**SEMICONDUCTORS**				**conductors**	
		47K	47K Ω @ 25 °C	**334**	LM334 Semiconductor			**$25 Each**	$_____
		50K	50K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C				
		100K	100K Ω @ 25 °C						
			TEMPERATURE TRANSMITTERS						
			See X-Combo Unit on pages B12-13						
		Humidity Transmitter	**Must select one**						
		H200	±2% Humidity Transmitter with Interchangeable Output of 0 to 5 V or 4 to 20 mA*					**$240**	$_____
		H210	±2% Humidity Transmitter with 0 to 10 V Output					**$240**	$_____
		H300	±3% Humidity Transmitter with Interchangeable Output of 0 to 5 V or 4 to 20 mA*					**$240**	$_____
		H310	±3% Humidity Transmitter with 0 to 10 V Output					**$240**	$_____
			Delta Style Enclosure	**Must select**					
			-R	Delta Style Room Enclosure					
				Optional LCD Display	**Omit if ordering a unit without display**				
				D	LCD Display			**$35**	$_____
					Optional Test & Balance	**Skip if not required**			
					-TB	Three Position Switch - "Low" & "High" values vary, "Normal" is live sensor value. Call for details.		**$7.50**	$_____
						Optional Comm. Jack	**Mounted in unit's base**		
						-C35L	3.5 mm Phono Jack w/ Leads Attached	**$10**	$_____
						-C35LT	3.5 mm Phono Jack w/ Leads & Terminal Block	**$10**	$_____
							Optional Copla White Enclosure (Warm White is Standard)		
							-CPW Copla White Enclosure Color		
EXAMPLE									
BA/	**10K-2**	**H200**	**-R**	**D**		**-C35L**		**Total =**	$_____
Example Part Number: BA/10K-2-H200-RD-35L									
Your Part Number:									

*DC input voltage is required for current output.
See the "X-Combo" Unit on page B12-13 for more Temperature Transmitter & Humidity Transmitter combination options.
Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

BAPI-Com, Two-wire Multifunction Sensor

Humidity & Combination Temp/Humidity Sensors

Rev. 10/16/12

Features & Options

- Power and Communication on Just Two Wires
- Available with Temperature Sensing, Temperature Setpoint, Occupant Override, Optional Display and Optional %RH Sensing
- Thermistor, Voltage, Resistance or Dry Contact Outputs
- Up to 500 Foot Wire Runs — Perfect for Existing Wires

Many existing buildings have two wire sensors but do not have the other sensor features that customers expect in today's sophisticated systems. The BAPI-Com system uses those existing two wires and offers the owner a full function temperature sensor with temperature setpoint, occupant override, an optional easy-to-read display and optional %RH sensing.

This retrofit sensor can update old systems to a new look without pulling new wire or disrupting the occupants while saving on labor.

The sensors are powered and communicate over two wires to a Communication Output Module for use by a BAS system. The outputs are configurable as a thermistor, voltage, resistance or dry contact override output. The sensor is powered by the Communication Output Module which itself is supplied by any 24VDC/VAC source.





BAPI-Com Pushbutton and Slider Units with White and Gray Logo Plates (each BAPI-Com includes a BAPI-Stat 4 Room Sensor & Communication Output Module)

Specifications

ROOM SENSOR

Power: 18VDC, from the Comm. Output Module

Wiring: 2 wires, Up to 500ft (new or existing)

AWG gauge .....22 to 14AWG
Twist per foot .....5 per ft preferred
Shielding.....Preferred (not required)
Wire spec typical ...Belden 9841

Temperature Sensor: Thermistor, ±0.36ºF (±0.2ºC)

RH/Temp Sensor Construction:
Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10 to 90%) @25°C, Fully Compensated
Temperature: Semi-conductor Band Gap, ±0.3°C @ 25°C

Pole Rate: 400 ms

Options:
Setpoint .....Slide or Pushbutton
Test & Balance.....Available with Display
Humidity.....2% Accuracy, Capacitive
Override.....Pushbutton
Display.....LCD

Ambient:
32 to 122°F (0 to 50°C),
0 to 95%RH, non-condensing

COMMUNICATION OUTPUT MODULE

Power in: 24VDC/AC, 30mA

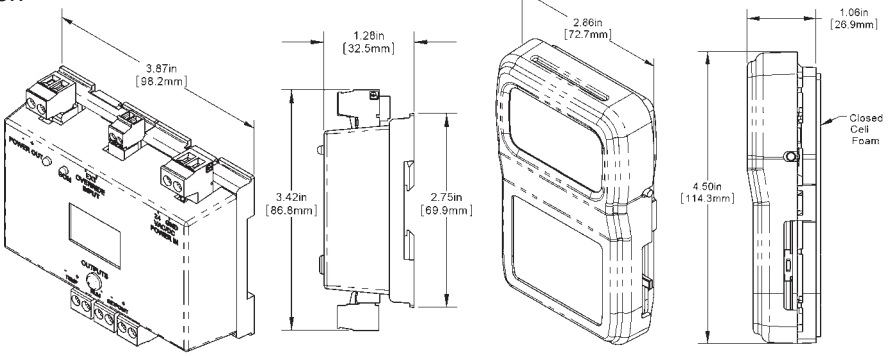
Terminations:
Comm. & PWR .....2 wires to the sensor
Power in.....2 wires, 12 to 28 AWG
Output.....2 wires per output, 12 to 28 AWG
Override Input.....2 wires, 16 to 30 AWG

Outputs:.....Three Maximum
Volts.....0 to 5 or 0 to 10VDC,10kΩ min
Resistance.....20K span
Thermistor .....10K-2 or 10K-3

Input (DI): Ext. Override Dry Contact, Closed = Occupied

Mounting: .....3 EZ mount methods
35mm DIN Rail ....Quick tab release
2.75" Snaptrack ....4" length
Screw Mount.....Four tabs w/0.125" holes

Material:.....ABS Plastic, UL94V-0, RoHS



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BAPI-Com, Two-wire Multifunction Sensor

Humidity & Combination Temp/Humidity Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information		*BAPI-Com Room Temperature Sensor* Unit	List Price	Your Order
BA/BS4MCOM		BAPI-Stat 4 Enclosure Sensor with Pushbuttons for Setpoint & Override & the Communication Output Module. (Must use display -F or -C)	$290.00	$_____
BA/BS4SCOM		BAPI-Stat 4 Enclosure Sensor with Slide Setpoint & the Communication Output Module. (Override button on the side if needed)	$290.00	$_____
	Display Option	**(Required Selection Field, Select Only One)**		
	-F	Display Configurable in the field (default is in °F), (Optional Legend selection below)	$35.00	$_____
	-C	Display Configurable in the field (default is in °C), (Optional Legend selection below)	$35.00	$_____
	-X	No Display Option (Must use a Slide for the Setpoint), (Required Legend selection below)	$0.00	
	Humidity Sensing	**(Skip if not required)**		
	-2	2% Humidity Sensor	$80.00	$_____
		Temperature Output Range (Also used for the voltage output module range) (Required)		
		-# — **Temperature Output / Designator**: 50 to 90˚F or 10 to 32˚C **C**; 55 to 85˚F or 13 to 30˚C **D**; 60 to 80˚F or 15 to 27˚C **E**; 65 to 80˚F or 18 to 27˚C **F**; 70 to 74˚F or 21 to 23˚C **L**; See Application Notes, pg I3 for more ranges	$0.00	
		Setpoint Configuration (Skip if no display is required)		
		-# — **Setpoint Display / Designator**: -2 to +2 **P**; -3 to +3 **A**; -5 to +5 **B**; 50 to 90˚F or 10 to 32˚C **C**; 55 to 85˚F or 13 to 30˚C **D**; 60 to 80˚F or 15 to 27˚C **E**; 65 to 80˚F or 18 to 27˚C **F**; 70 to 74˚F or 21 to 23˚C **L**; 0 to 100% RH **M**; 35 to 70% RH **N**; 0 to 100˚F or -18 to 38˚C **GG**; See Application Notes, pg I3 for more ranges	$0.00	
		Legend Designator on the Sensor Cover (Required for all slide type sensors)		
		-L0 No Legend	$0.00	
		-L6 COOL/WARM	$0.00	
		Logo Plate Color (Required)		
		-WMW Warm White Logo Plate Color	$0.00	
		-GRY Gray Logo Plate Color	$0.00	
		Special Factory Configurations — List in Alpha order as needed (-ES-SDO) (Skip if not required)		
		-ES External Temp Sensor (Requires separately purchased 10K-2 sensor), (Not available with humidity)	$0.00	
		-SDO Setpoint Display Only	$0.00	
		Setpoint Output Value Range (Skip if not required)		
		-# — **Desired Range / Designator**: 0 to 20KΩ **80**; 4.75K to 24.75KΩ **81**; 6.19K to 26.19KΩ **82**; 7.87K to 27.87KΩ **83**; 10K to 30KΩ **84**; 0 to 5V* **00**; 0 to 10V* **10**; See App. Notes, pg I2 for more ranges	$80.00	$_____
		Override Output — Momentary for 3-5 seconds (Required)		
		-J Dry Contact Override on dedicated terminals (Not Available for Humidity Units)	$50.00	$_____
		-M Override in Parallel (//) with RH signal	$0.00	
		-N Override in Parallel (//) with Sensor	$0.00	
		-P Override in Parallel (//) with Setpoint	$0.00	
		-Z No Override	$0.00	
		Room Humidity Output Value (Skip if humidity is not required)		
		-M00 Humidity Output 0-5V = 0-100%RH (Common ground only)	$50.00	$_____
		-M10 Humidity Output 0-10V = 0-100%RH (Common ground only)	$50.00	$_____
		Room Temperature Output Value (Skip if not required)		
		-102 Thermistor Temperature Output, 10K-2, 10KΩ @ 25˚C		
		-103 Thermistor Temperature Output, 10K-3, 10KΩ @ 25˚C		
		-10311 Thermistor Temp Output, 10K-3 w/ 11KΩ shunt, 5238Ω @ 25˚C		
		-00 0 to 5V over the Temp Output Range (Common grnd only)		
		-10 0 to 10V over the Temp Output Range (Common grnd only)		
		Connection Configuration (Required)		
		-CG Common ground for resistive and voltage outputs	$0.00	
		-DF Differential ground for resistive outputs	$0.00	

EXAMPLE

BA/BS4SCOM	-F		-C	-P	-L6	-WMW		-82	-N		-103	-DF		Total =	$_____

BA/BS4SCOM-F-C-P-L6-WMW-82-N-103-DF - BS4 sensor, w/slide setpoint & override, Outputs for sensor, setpoint and override

Your Part Number:

*Common Ground Only

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

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Echelon® Compatible "L-Combo"

Humidity & Combination Temp/Humidity Sensors

Rev. 10/16/12

Features & Options

- LCD with User Selectable °C or °F Display
- 2% RH Accuracy
- User Adjustable Toggle Rate Between Temperature and Humidity
- Full-range Temperature Compensation of RH Signal
- Onboard Neuron® 3120® Chip
- Optional Setpoint Adjustment and Occupancy Override
- Standard 4-Wire Termination
- Two Year Warranty



L-Combo Unit with Setpoint & Override

The Echelon compatible "L-Combo" Room Unit features measurement and display of local temperature and relative humidity, as well as display of outdoor temperature and outdoor humidity – all in one aesthetically-pleasing package. Additional options include Temperature Setpoint, Humidity Setpoint and Local Override. An onboard Neuron® chip allows connection directly to a LonWorks® network using star, bus, or loop topology. The LCD can toggle between temperature and humidity at a user adjustable rate, and the user can select °C or °F.

The "L-Temp" and "L-Combo" were designed following the LonMark® Interoperability Guidelines, and incorporates standard configuration property types (SCPT). A complete SNVT/SCPT list with definitions is available upon request. Echelon®, LonWorks®, Neuron®, and 3120® are trademarks of Echelon Corporation registered in the United States and other countries. LonMark® is a trademark of the LonMark Interoperability Association registered in the United States and other countries.

Specifications

Power: 8 to 24VDC (recommended) or 12 to 28VAC

Power Consumption: 35 mA maximum DC

RH/Temp Sensor Construction:
Communicating Integrated Circuit
Humidity: Capacitive Polymer, ±2% RH (10% to 90%) @25°C, Fully Compensated
Temperature: Semi-conductor Band Gap, ±0.3°C @ 25°C

Optional Direct Temp. Sensor:
Thermistor, RTD or Semi-conductor

Wiring: 4 wire, twisted pair 22 AWG minimum*

For additional wiring information and requirements, refer to Echelon® Corporation's Bulletin titled "Junction Box and Wiring Guidelines for Twisted Pair LonWorks® Networks" which can be found online at the following URL.
www.echelon.com/support/documentation/Bulletin/005-0023-01K.pdf

Communication:
Neuron® 3120®, 78 kbps using FTT-10A transceiver

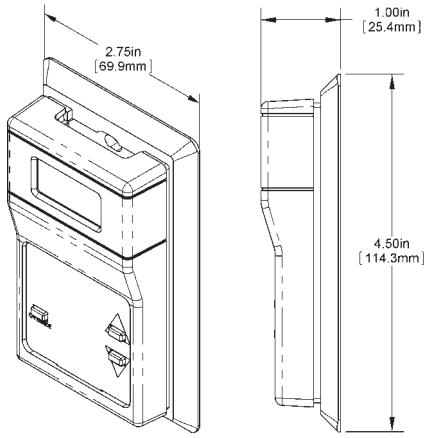
Mounting:
Standard 2" by 4" J-box or drywall mount - mounting screws provided

Environmental Specifications:
Temperature: 32 to 122ºF (0 to 50ºC)
Humidity: 0 to 95%, non-condensing

Enclosure Material: ABS Plastic

Material Rating: UL 94, V-0

Range: -40ºC to 85ºC



*__BAPI__ recommends that you do not run wiring for the Room Units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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Echelon® Compatible "L-Combo"

Humidity & Combination Temp/Humidity Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information					"L-Temp" & "L-Combo" Room Units	List Price	Your Order
BA/LC						**$240**	**$_____**
	Humidity Accuracy				**Skip this number if ordering a temperature only unit**		
	H2	±2% RH Accuracy				**$80**	**$_____**
		Enclosure			**Required selection**		
		-R	Delta Style Room Enclosure				
			Options		**Select in order as required**		
			S	Temperature Setpoint (Display is required if Setpoint is selected)		**$6**	**$_____**
			O	Override		**$5**	**$_____**
			D	Display		**$35**	**$_____**
			XLD*	Fan Speed Adjustment and Temperature Setpoint Adjustment. Note: SOD options are not needed if XLD is selected.		**$46**	**$_____**
				Optional Copla White Enclosure (Warm White is Standard)			
				-CPW	Copla White Enclosure Color		
EXAMPLE							
BA/LC		**-R**	**SOD**				
Example Part Number: BA/LC-RSOD - "L-Temp" Unit with setpoint, override and display							
BA/LC	**H2**	**-R**	**SOD**			**Total =**	**$_____**
Example Part Number: BA/LCH2-RSOD - "L-Combo" Unit with ±2% RH, setpoint, override & display							
Your Part Number:							

Call BAPI if you have questions about the above ordering/pricing grid.
*XLD option is not available with Humidity
*XLD option includes Setpoint, Override & Display

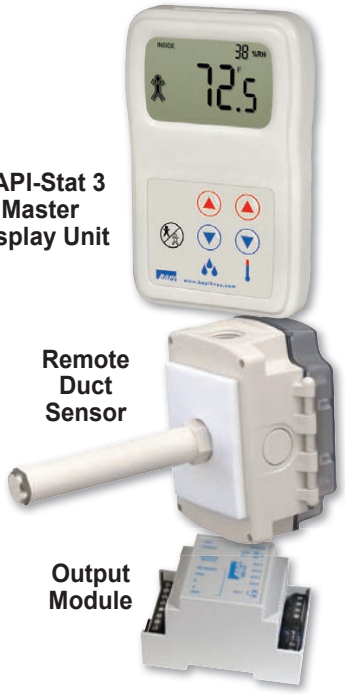
BAPI-Stat 3MB Remote Sensor System

Humidity & Combination Temp/Humidity Sensors

Rev. 04/15/13

Features & Options

- RS485 Communication Protocol
- Designed for Operating Rooms and Clean Rooms
- Humidity Only or Combination Temp./Humidity Outputs
- Adjustable Temperature and Humidity Setpoints and Override
- Membrane Pushbuttons for Wipedown Cleaning
- Remote Mounted Duct Temperature and Humidity Sensors
- 2% RH Accuracy

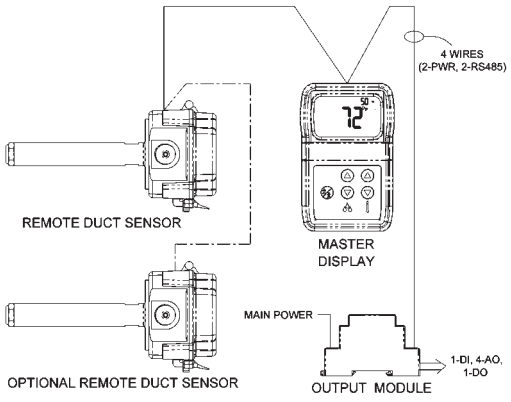


The BAPI-Stat 3MB Remote Sensor System is designed for operating rooms, clean rooms and isolation rooms. It includes a master display unit and up to 16 remote duct temperature and humidity sensors. Depending on the options selected, the unit can display room duct temp., room duct humidity, temp. setpoint, humidity setpoint and occupied status. The unit can allow local users to set the occupancy state, temp. and humidity setpoint.

The unit includes a number of field adjustments including °F or °C display, temperature offset, %RH offset or setpoint lockout (which disables the setpoint pushbuttons). The display can also be set to show a large temperature and small RH, a large RH and a small temperature, or to alternate between these two settings every 5 seconds.

BAPI-Stat 3MB System Overview

The remote sensors (up to 16) send the data to the master display unit. The master unit averages all the remote sensor data (of like kind), displays the average and sends the data (along with the setpoint and override info) to the output module. The output module produces analog voltage signals (AOs) of the remote sensor data and setpoint values as well as a signal for the occupied status (DO). The master unit will display the room's "Occupied" or "Unoccupied" status if it receives a signal (DI) from the BAS system.



Specifications for the Master Display Unit

Power: 12 VDC ±10% (From Output Module)

Power Consumption: 6 mA max. DC

Sensing Elements If Ordered:

Humidity	Capacitive Polymer, ±2% RH Accuracy, 10% to 90%@25°C
Temp	Semicond. Band Gap, ±0.3°C@25°C
Temp Only	10K-2 Thermistor, ±0.36ºF (±0.2ºC)

Sensor Communication:

Protocol	RTU-Modbus
Electrical	RS485
Addressing	DIP Switch

Diagnostic Indication: Dual-color LED (Grn/Red)

Display: LCD Multi-segment

Main	3.5 Digit, 0.8" Tall
Minor	2.5 Digit, 0.25" Tall
Other	Occupancy Status (BAPI-Man Icon)

Face Controls: (5 Wipedown Buttons)

Setpoint	4 Buttons for Temp and/or Humidity
Override	1 Button for Override Request

Menu Configurable:

Major Display	Temp, RH%, Setpoint, Fixed or Rotating
Minor Display	Temp, RH%, Setpoint, Fixed or Rotating
Setpoint	Absolute or Relative, Opt. Setpoint Lockout
Offset	±10% or 10°F/°C in .1 Increments

Sensor Wiring: 2 TSP, 16 to 22 AWG*

4 Terminals 2-Power, 2-RS485 (A & B)

Mounting: Dry Wall or Back Box (screws included)

Dimensions: 5.5 x 3.5 x 1.06" (140 x 89 x 27mm)

Enclosure Material: ABS Plastic - UL94, V-0

Environmental Operation Range:

Temperature	32 to 122°F (0 to 50 °C)
Humidity	5 to 95% RH Non-condensing

*__BAPI__ recommends that you do not run wiring in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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BAPI-Stat 3MB Remote Sensor System

Humidity & Combination Temp/Humidity Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Specifications for Output Modules and Remote Duct Sensors

Output Module

System Power: 18 to 28VAC or 15 to 40VDC at 0.5 A max. (18VA)
Power Out: 12VDC ±10% (To power remote module devices)
Module Point I/O: 1-DI, 4-AO, 1-DO
- 1-Digital Input (DI): Terminal to GND = Occupied (BAPI-Man "On")
- 4-Analog Output (AO): 0 to 5, 1 to 5, 0 to 10 or 2 to 10VDC, Output >10KΩ
- 1-Digital Output (DO): Opto-isolated SSR 0.2 A max @ 24V DC/AC

Sensor Communication:
- Protocol: RTU-Modbus
- Communication: RS485
- Addressing: DIP switch, up to 16 sensors per system

Diagnostic Indication: 2 LED's (Grn/Red) for Operation & Comm.
Module Wiring: 14 terms, 16 to 22 AWG, grounds are common
- 2- Power in: 18 to 28VAC or 15 to 40VDC
- 4- Com./Pwr. Out: 2 Twisted, Shielded Pair
- 2- DI: Occupied Status Input
- 4- AO: Analog Voltage Output
- 2- DO: Override Request Output

Enclosure Material: Polycarbonate, UL94, V-0
Mounting: DIN rail or Screw in
Dimensions: 3.7 x 2.3 x 2.1" (95 x 58 x 53mm)
Environmental Operation Range:
- Temperature: 32 to 122 °F (0 to 50 °C)
- Humidity: 5 to 95% RH Non-condensing

Agency: RoHS

Remote Temp & RH Duct Sensor

Power: 12 VDC ±10% at 6mA max. DC (From Output Module)
Duct Unit Sensing Elements:
- Temp: Semicond. Band Gap, ±0.3°C@25°C
- Humidity: Capacitive Polymer, ±2%RH Accuracy, 10% to 90%@25°C

Remote Sensor Communication:
- Protocol: RTU-Modbus
- Electrical: RS485
- Addressing: DIP switch, up to 16 sensors per system

Diagnostic: Tri-color LED
Sensor Wiring: 2 TSP, 16 to 22 AWG
- 4 terminals: 2-Power, 2-RS485 (A & B)

Enclosure Material: UV-resistant Polycarbonate, UL94, V-0
Enclosure Rating: IP66, NEMA 4
Dimensions: 5 x 4.1 x 2.5" (127 x 104 x 64mm) with 6" Probe
Environmental Operation Range:
- Temp: 32 to 122 °F (0 to 50 °C)
- Humidity: 5 to 122% RH Non-condensing

Ordering Information

* Ordering Information	BAPI-Stat 3MB Remote Sensor System - Temperature, Humidity, Setpoints or Combination	List Price	Your Order
BA/BS3MBM	BAPI-Stat 3MB Room Display & Control w/ Remote Sensor Connection and 5 Buttons (4 setpoint and 1 override).	$730	$_____
	Display Mode (required) - °F or °C display can be changed in the field		
-F	Temperature factory displayed in ˚F.		
-C	Temperature factory displayed in ˚C.		
	Built in Sensor (optional)		
2	Humidity and Temperature sensor built into the master display	$80	
	Channel 1 Output Module (*optional) - select range from Table D & R		
-10 D R	Temperature Sensor value		
	Channel 2 Output Module (*optional) - select range from Table D (M or N only) & R		
-20 D R	Relative Humidity		
	Channel 3 Output Module (*optional) - select range from Table D & R		
-30 D R	Temperature Setpoint		
	Channel 4 Output Module (*optional) - select range from table D (M or N only) & Table R		
-40 D R	RH Setpoint		
	Override Button Configuration (required)		
-J	^ Dry Contact Override located at the output module		
-Z	^^ No Override. The Modbus output module override contact disabled.		
	Logo Plate Color (required)		
-WMW	Warm White		
-GRY	Gray		
	Remote Modbus Sensor Selection (*optional) (select only one)		
-1D	One Remote Duct RH & Temp Sensor	$525	$_____
-2D	Two Remote Duct RH & Temp Sensors	$1,050	$_____
-3D	Three Remote Duct RH & Temp Sensors	$1,575	$_____
-4D	Four Remote Duct RH & Temp Sensors	$2,100	$_____
-1S	One Remote Space RH & Temp Sensor (No display)	$525	$_____
-2S	Two Remote Space RH & Temp Sensors (No display)	$1,050	$_____
-3S	Three Remote Space RH & Temp Sensors (No display)	$1,575	$_____

Table D	Output & Display Range		
	°F	°C	%RH
A	-3 to +3	-3 to +3	
B	-5 to +5	-5 to +5	
C	50 to 90 °F	10 to 32 °C	
D	55 to 85 °F	13 to 30 °C	
E	60 to 80 °F	15 to 27 °C	
F	65 to 80 °F	18 to 27 °C	
G	45 to 96 °F	7 to 35 °C	
J	68 to 78 °F	20 to 26 °C	
K	65 to 95 °F	18 to 35 °C	
L	70 to 74 °F	21 to 23 °C	
M			0 to 100 % RH
N			35 to 70 % RH
P	-2 to +2	-2 to +2	
X	40 to 80 °F	4 to 27 °C	
Future	0 to 2000 PPM, CO2		
Future	0 to 2000 PPM, VOC		
Future	Call BAPI for other available ranges		

Table R = Output Range Designator		
Designator	Output Range	Span
00	0 to 5 V	5 Volts
01	1 to 5 V	4 Volts
03	5 to 0 V	5 Volts
10	0 to 10 V	10 Volts
11	2 to 10 V	8 Volts

Example										
BA/BS3MBM	-F		-10C10	-20M10	-30C10	-40M10	-J	-WMW	-2D	
Example Part Number:										

Total = $_____

Notes: This sensor always has 5 buttons.
* This sensor requires at least one channel selected. All active outputs are located at the Output Module.
^ N.O. independent solid state contact. Not intended to switch a load. (.2A max @24V AC/DC)
^ ^ Override button is deactivated.
Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

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Dew Point Sensor

Humidity & Combination Temp/Humidity Sensors

Rev. 04/15/13

Features & Options

- Accurate Dew Point and Dry Bulb Temperature in One Unit
- ± 1.8°F (1°C) Dew Point Accuracy for the Normal Occupied Range
- Multiple Analog Outputs 0 to 5Vdc or 0 to 10Vdc
- No Installation Calibration or Recalibration Required
- Optional Passive Temperature Sensing Elements



BAPI-Stat 2 (left) & BAPI-Stat 4 Style Units with Setpoint, Display and Override

The green revolution is increasing the use of chilled beams and chilled ceilings in commercial buildings. Chilled water is pumped through hollow beams or special hollow ceiling tiles. Radiation cools the space eliminating air handlers, VAV boxes, fan-coil units and the energy to run them.

The temperature of the chilled water has to be regulated above the space's air dew point temperature. If the beam or ceiling temperature is below the space's dew point, they will "sweat", promoting mold growth and dropping water on the occupants and their belongings.

BAPI's Dew Point Sensor is an easy and economical way to measure the dew point temperature. The unit is available with an optional display, temperature setpoint slider and an occupant override pushbutton.

The large format display allows you to easily read Dew Point Temperature and Dry Bulb Temperature. The display alternates between these values and is field adjustable between °F or °C. One or both of the displayed values may be easily turned on or off by an HVAC technician.

For detailed specs on the individual Temperature Sensors, turn to the "Sensors" section.

Specifications

Power: 15 to 35 VDC @ 4 mA max

Sensing Element:
Humidity – Capacitive Polymer,
±2% RH Accuracy, 10% to 90%@25°C

Temperature Sensor
Thermistor, RTD or Semiconductor

Mounting: 2"x4" J-Box or drywall mount (screws provided)

Dew Point Temperature Range:
-4 to 122°F (-20 to 50°C)

Response Time: Less Than 60 Seconds

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

Display: 3.5 digit numeric (Dew Pt & Dry Bulb Temp)

Measurement Offsets (field adjustable)
±5° (F or C) in 0.1° or 0.5° increments – DB
±5 RH in 0.1% or 0.5% increments – RH

Analog Output (0 to 5VDC or 0 to 10VDC, 1KΩ impedance)
Dew Point Temperature: -4 to 122°F (-20 to 50°C)

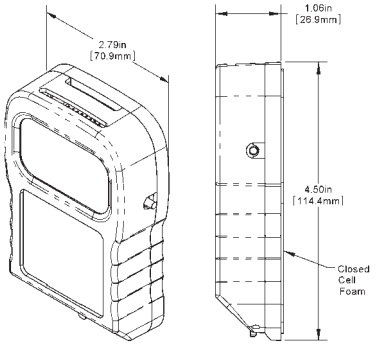
Calibration: Internal & continuous, (No field calibration)

Weight: .25lb, (.11kg)

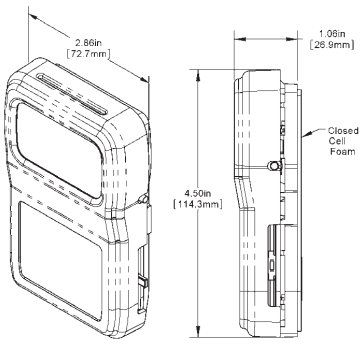
Material: ABS Plastic, Material Rated UL94V-0

Certifications: CE, RoHS

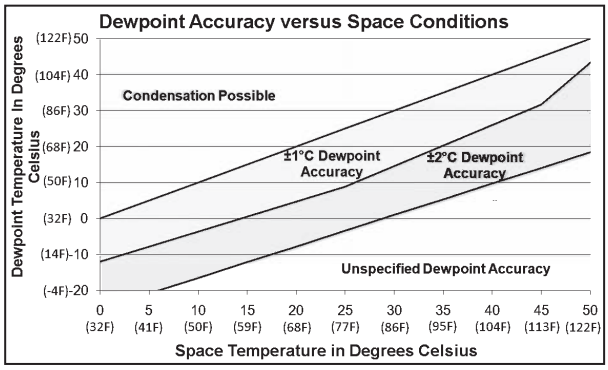
Warranty: Two years from manufacture date



BAPI-Stat 2 Enclosure



BAPI-Stat 4 Enclosure



BAPI recommends that you do not run wiring for the room units in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

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Ordering Information													**Dew Point or Dew Point and Temperature Combination**	**List Price**	**Your Order**
BA/															
	Dew Point Transmitter														
	DP05												Dew Point Transmitter as -4 to 122°F (-20 to 50°C) Dew Point, 0 to 5 VDC output	**$260.00**	$_____
	DP10												Dew Point Transmitter as -4 to 122°F (-20 to 50°C) Dew Point, 0 to 10 VDC output	**$260.00**	$_____
		Optional Temperature Sensor Use the designator number (shown to the left in bold) to indicate the sensor													
		-##	**THERMISTORS**											**Thermistors**	
			1.8K	1.8K Ω @ 25 °C										**$18 Each**	$_____
			3K	3K Ω @ 25 °C											
			3.3K	3.3K Ω @ 25 °C										**RTD's**	
			10K-2	10K Ω @ 25 °C										**$25 Each**	$_____
			10K-3	10KΩ @ 25 °C											
			10K-3(11K)	5,238 Ω @ 25 °C										**Semi-conductors**	
			20K	20K Ω @ 25 °C										**$25 Each**	$_____
			50K	50K Ω @ 25 °C											
			100K	100K Ω @ 25 °C											
			RTDs												
			100	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.											
			1K (375)	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.											
			1K	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.											
			2K	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.											
			SEMICONDUCTORS												
			334	LM334 Semiconductor											
			592	AD592 Semiconductor, 273 µA @ 0 °C											
		Enclosure Style													
		-B	BAPI-Stat2 Style Enclosure												
		-B4	BAPI-Stat 4 Style Enclosure												
			LCD Display												
			D	LCD Display										**$35.00**	$_____
			X	No LCD Display											
			°F or °C Display Mode (Select one if ordering a unit with LCD Display)												
			F	Temperatures Displayed in °F											
			C	Temperatures Displayed in °C											
			Setpoint Display Options (Skip if not required)												
			-#	Desired Range	**Designator**		Desired Range	**Designator**							
				-2 to +2	**P**		60 to 80 °F or 15 to 27 °C	**E**							
				-3 to +3	**A**		65 to 80 °F or 18 to 27 °C	**F**							
				-5 to +5	**B**		70 to 74 °F or 21 to 23 °C	**L**							
				50 to 90 °F or 10 to 32 °C	**C**		45 to 96 °F or 7 to 36 °C	**G**							
				55 to 85 °F or 13 to 30 °C	**D**										
			Setpoint Output Value Range (Skip if not required)												
			##	**Desired Range**	**Designator**		**Desired Range**	**Designator**						**Any Setpoint**	
				674 to 274 Ω	**23**		15 to 5 kΩ	**61**						**$6.00**	$_____
				800 to 1200 Ω	**25**		0 to 20 kΩ	**80**							
				909 to 1309 Ω	**26**		4.75 to 24.75 kΩ	**81**							
				1800 to 2200 Ω	**27**		6.19 to 26.19 kΩ	**82**							
				0 to 1 kΩ	**40**		7.87 to 27.87 kΩ	**83**							
				500 to 1500 Ω	**41**		10 to 30 kΩ	**84**							
				2 to 3 kΩ	**42**		0 to 100 kΩ	**90**							
				0 to 10 kΩ	**60**		0 to 5 V**	**00**							
			SETPOINT LEGEND (insert Designator #)												
				Legend Range	**Designator**		**Legend Range**	**Designator**							
				5-30 C	**L1**		65-80 F	**L4**							
				55-85 F	**L2**		COOL/WARM	**L6**							
				60-85 F	**L3**		WARM/COOL	**L7**							
			Override Configuration (Must select one)												
			-J	Override as a Separate Output. (Dry contact only, not intended to switch a load.)										**$5.00**	$_____
			-N	Override in Parallel (//) with Sensor										**$5.00**	$_____
			-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models										**$5.00**	$_____
			-Z	No Override. (Needed if no override is required)										**$0.00**	
			Optional Communication Jack *Mounted in unit's base*												
			-C11L	RJ11 (4 pin) Style Jack with Leads										**$20.00**	$_____
			-C11LT	RJ11 (4 pin) Style Jack with Leads and Terminal Block										**$20.00**	$_____
			-C35L	3.5 mm Phono Jack w/ Leads Attached										**$10.00**	$_____
			-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block										**$10.00**	$_____
			-C22L	RJ22 (4 pin) Style Jack with Leads Attached										**$25.00**	$_____
			-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block										**$25.00**	$_____
				Optional Test and Balance Switch											
				-TB	Three Position Switch									**$7.50**	$_____
				Logo Plate Color (BAPI-Stat 2 is Warm White only)											
				-WMW	Warm White Logo Plate Color (standard)										
				-GRY	Gray Logo Plate Color (BAPI-Stat 4 only)										
EXAMPLE															
BA/	**DP05**	**10K-2**	**-B**	**D**	**F**	**A**	**41L6**				**-WMW**			**Total =**	$_____
Example Part Number: BA/DP05-10K2-B4DF-A61L6-J-C11L-WMW															
Your Part Number:															

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Outside Air Units

Humidity & Combination Temp/Humidity Sensors

CE*

Rev. 10/16/12

Features & Options

- 10 Points of Calibration from 10 to 90% RH
- Four Enclosure Styles
- Humidity Only or Temp./Humidity Combination
- Replaceable Filter
- 2% and 3% RH Accuracies
- Wide Selection of Temp. Sensing Elements

100% Compatible with your System GUARANTEED!

Humidity control is an important aspect of any climate control system. Therefore, humidity sensors must be both accurate and dependable. BAPI's humidity transmitters are calibrated at 10 points from 10 to 90% RH for accuracy, eliminating field calibration. The Outside Air Units are also extremely dependable, featuring four of the most watertight enclosures available today.

The Weather Tight **(EU)** enclosure is made from a flame-retardant polymer with an IP66 rating. The cast aluminum Weatherproof **(WP)** enclosure carries a NEMA 3R, while the BAPI-Box **(BB)** and BAPI-Box 2 **(BB2)** are made of UV-resistant polycarbonate and carry an IP66 rating.

All Outside Air Units are built to withstand high humidity and condensation and perform in the real world. This is especially important in an Outside Air Unit which can be exposed to rain, snow and large temperature swings.

Replacement Filter - The 100 micron sintered stainless steel filter protects the sensor from contamination while allowing airflow. See "Accessories" for more info.



*All Passive Thermistors 10K Ω and smaller are CE compliant.



BAPI-Box (BB)

BAPI-Box 2 (BB2)



Weatherproof (WP)

Weather Tight (EU)

Specifications

Power and Consumption:

10 to 35 VDC, 22 mA max. (for units with 0 to 5 VDC or 4 to 20 mA Humidity Outputs)
15 to 35 VDC, 6 mA max. (for units with 0 to 10 VDC Humidity Output)
12 to 27 VAC, 0.53 VA max. (for units with 0 to 5 VDC Humidity Outputs)
15 to 27 VAC, 0.14 VA max. (for units with 0 to 10 VDC Humidity Output)

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5" (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35" (125 x 71.6 x 60mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2" (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1" (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

Sensor:

Humidity: Capacitive 2% or 3% RH (10 to 90% RH @ 23°C)
Temp: Thermistor, Semiconductor RTD or Temp Transmitter

Enclosure Rating:

WP Model: NEMA 3R
EU Model: IP66, NEMA 4
BB & BB2: IP66, NEMA 4

Enclosure Material:

WP Model: Cast Aluminum
EU Model: ABS Plastic, UL 94, V-0
BB & BB2: UV-resistant Polycarbonate, UL 94, V-0

Environmental Operation Range:

Temp: -22 to 158°F (-30 to 70°C)
Humidity: 0% to 100% RH
Fully Temperature Compensated

Note: See installation sheets for full specifications.

For detailed specifications on the Sensors & Transmitters, see the "Sensors" section.

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Ordering Information	Outside Air Units - Humidity or Combination Temp. & Humidity			List Price	Your Order
BA/					
Optional Sensor Type	**Use the designator number (shown to the left in bold) to indicate the sensor**				
##-	**THERMISTORS**		**RTDs**	**Thermistors**	
	1.8K	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
	3K	3K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.	
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**
	3.3K	3.3K Ω @ 25 °C	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**
	10K-2	10K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
	10K-3	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**
	10K-3[11K]	5,238 Ω @ 25 °C			
	20K	20K Ω @ 25 °C		**SEMICONDUCTORS**	**Semi-conductors**
	50K	50K Ω @ 25 °C	**334**	LM334 Semiconductor	
	100K	100K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
			592-10K	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C	
	TEMPERATURE TRANSMITTERS ***Must include a "range" figure***				**Temperature Transmitters**
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output*				
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			**$125 for T100, T1K or T10K**	$_____
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output*			
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output*			
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0 to 5 VDC Output*			
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0 to 10 VDC Output*			
	TEMPERATURE TRANSMITTER RANGES				
	Custom temperature transmitter ranges are available. Common ranges are listed below				**$280 for T100M & T1KM**	$_____
	40 TO 90F	**4 TO 32C**	**-30 TO 130F**	**-34 TO 54C**	
	0 TO 100F	**-18 TO 38C**	**32 TO 212F**	**0 TO 100C**	
	20 TO 120F	**-7 TO 48C**	**30 TO 234F**	**-1 TO 112C**	
	32 TO 134F	**0 TO 57C**			
	Humidity Transmitter (required selection)				
	H200	±2% Humidity Transmitter with Interchangeable Output of 0 to 5 V or 4 to 20 mA			**$240**	$_____
	H210	±2% Humidity Transmitter with 0 to 10 V Output			**$240**	$_____
	H212	±2% Humidity Transmitter with 2 to 10 V Output			**$240**	$_____
	H300	±3% Humidity Transmitter with Interchangeable Output of 0 to 5 V or 4 to 20 mA			**$240**	$_____
	H310	±3% Humidity Transmitter with 0 to 10 V Output			**$240**	$_____
	H312	±3% Humidity Transmitter with 2 to 10 V Output			**$240**	$_____
		Enclosure (required selection)				
		-O-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-O-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate*		**$12**	$_____
		-O-EU	Weather Tight Enclosure - IP66 rated UV-resistant enclosure*		**$12**	$_____
		-O-EUD	Weather Tight Enclosure - IP66 rated UV-resistant enclosure (Probe is attached to the base of the enclosure, similar to a duct sensor)*		**$12**	$_____
		-O-WP	Weatherproof Enclosure - NEMA 3R rated metal enclosure*		**$12**	$_____
EXAMPLE						
BA/	**10K-2-**	**H200**	**-O-EU**		**Total =**	$_____
Example Part Number: BA/10K-2-H200-O-EU						
Your Part Number:						

*Note: Units with a temperature transmitter and a humidity transmitter require a doublegang O-WP enclosure or O-BB enclosure. Dual transmitter units are not available with the O-EU, O-EUD or O-BB2 enclosures.

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Doublegang Weatherproof Enclosure

Units with a Temperature Transmitter and a Humidity Transmitter require a doublegang Weatherproof (O-WP) enclosure or BAPI-Box (O-BB) enclosure and are not available in the Weather Tight (O-EU, O-EUD) or the BAPI-Box 2 (O-BB2) enclosures.



Doublegang Weatherproof Enclosure

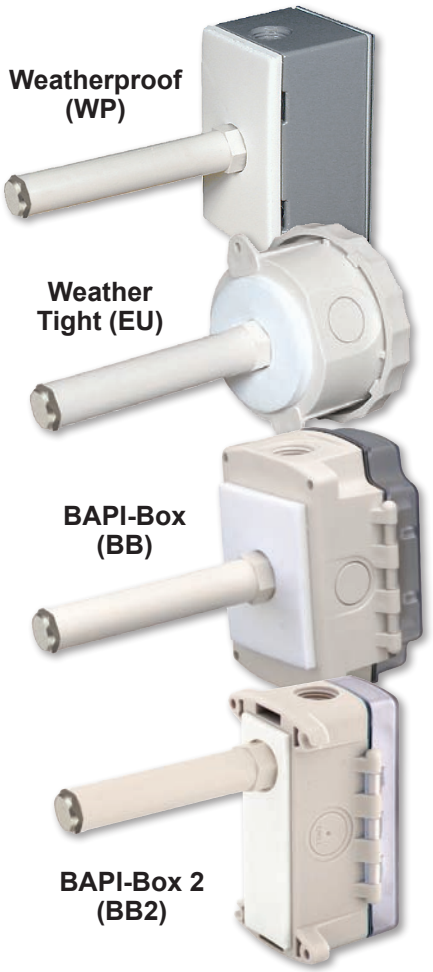
Duct Units

Humidity & Combination Temp/Humidity Sensors

Rev. 10/16/12

Features & Options

- 10 Points of Calibration from 10 to 90% RH
- Humidity Only or Temp./Humidity Combination
- Four Watertight Enclosure Styles
- Replaceable Stainless Steel Filter
- 2% and 3% RH Accuracies
- Wide Selection of Temperature Sensing Elements



Humidity control is an important aspect of any climate control system. Therefore, humidity sensors must be both accurate and dependable. BAPI's humidity transmitters are calibrated at 10 points from 10 to 90% RH for accuracy, eliminating field calibration. The Duct Units are also extremely dependable, featuring four of the most watertight enclosures available today: the polycarbonate BAPI-Box and BAPI-Box 2, the ABS plastic EU enclosure and the cast aluminum WP enclosure.

All Duct Units feature closed cell foam to seal the insertion hole and to absorb vibration. Mounting tabs allow for easy installation to the wall of the duct. The units are built to withstand high humidity and condensation and perform in the real world.

Replacement Filter - The 100 micron sintered stainless steel filter protects the sensor from contamination while allowing airflow. See "Accessories" for more info.



*All Passive Thermistors 10K Ω and smaller are CE compliant.

Specifications

Power and Consumption:
10 to 35 VDC, 22 mA max. (for units with 0 to 5 VDC or 4 to 20 mA Humidity Outputs)
15 to 35 VDC, 6 mA max. (for units with 0 to 10 VDC Humidity Output)
12 to 27 VAC, 0.53 VA max. (for units with 0 to 5 VDC Humidity Outputs)
15 to 27 VAC, 0.14 VA max. (for units with 0 to 10 VDC Humidity Output)

Encl. Dimensions:	**H x W x D**
BAPI-Box (BB)	5 x 4.1 x 2.5" (127 x 104 x 63.5mm)
BAPI-Box 2 (BB2)	4.9 x 2.8 x 2.35" (125 x 71.6 x 60mm)
Weatherproof (WP)	4.5 x 2.75 x 2.2" (114 x 70 x 55mm)
Weather Tight (EU)	4.1 x 3.8 x 2.1" (104 x 97 x 54mm)

(For enclosure dimension drawings, turn to the end of the section.)

Sensor:
Humidity: Capacitive 2% or 3% RH (10 to 90% RH @ 23°C)
Temp: Thermistor, Semiconductor RTD or Temp Transmitter

Enclosure Rating:
WP Model: NEMA 3R
EU Model: IP66, NEMA 4
BB & BB2: IP66, NEMA 4

Enclosure Material:
WP Model: Cast Aluminum
EU Model: ABS Plastic, UL 94, V-0
BB & BB2: UV-resistant Polycarbonate, UL 94, V-0

Environmental Operation Range:
Temp: -22°F to 158°F (-30 to 70°C)
Humidity: 0% to 100% RH
Fully Temperature Compensated

Note: See installation sheets for full specifications.

For detailed specifications on the Sensors & Transmitters, see the "Sensors" section.

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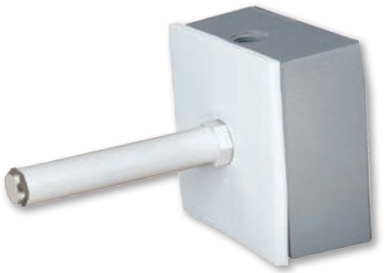
Ordering Information		*Duct Units - Humidity or Combination Temp. & Humidity*			List Price	Your Order
BA/						
Optional Sensor Type		**Use the designator number (shown to the left in bold) to indicate the sensor**				
		THERMISTORS		**RTDs**	**Thermistors**	
##-	**1.8K**	1.8K Ω @ 25 °C	**100**	100 Ω Platinum @ 0 °C, .385 Ω/°C temp. coeff.	**$18 Each**	$_____
	3K	3K Ω @ 25 °C	**100[3W]**	3 Wire 100 Ω Plat. @ 0 °C, .385 Ω/°C temp. coeff.		
	3.25K	3.25K Ω @ 25 °C (T30 type)	**1K[375]**	1K Ω Platinum @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
	3.3K	3.3K Ω @ 25 °C	**1K[NI]**	1K Ω Nickel @ 21°C, 5 Ω/°C temp. coeff.	**$25 Each**	
	10K-2	10K Ω @ 25 °C	**1K**	1K Ω Platinum @ 0 °C, 3.85 Ω/°C temp. coeff.	**or**	$_____
	10K-3	10K Ω @ 25 °C	**2K**	2K Ω Silicon @ 20 °C, 8 Ω/°C temp. coeff.	**$35 for 1K[NI]**	
	10K-3[11K]	5,238 Ω @ 25 °C				
	20K	20K Ω @ 25 °C		**SEMICONDUCTORS**	**Semi-conductors**	
	50K	50K Ω @ 25 °C	**334**	LM334 Semiconductor		
	100K	100K Ω @ 25 °C	**592**	AD592 Semiconductor, 273 µA @ 0 °C	**$25 Each**	$_____
			592-10K	AD592 Semicond. w/ 10 kΩ shunt resistor, 2.73 V @ 0 °C		
		TEMPERATURE TRANSMITTERS *Must include a "range" figure*			**Temperature Transmitters**	
	T100[range]	100 Platinum RTD, 100 Ω @ 0 °C with 4 to 20 mA Output*				
	T100M[range]	100 Platinum RTD, 100 Ω @ 0 °C with MATCHED 4 to 20 mA Output*			**$125 for T100, T1K or T10K**	$_____
	T1K[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with 4 to 20 mA Output*				
	T1KM[range]	1K Platinum RTD, 1,000 Ω @ 0 °C with MATCHED 4 to 20 mA Output*				
	T10K[range]	10K Thermistor, 10,000 Ω @ 25 °C with 4 to 20 mA Output*				
	T10K5[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0 to 5 VDC Output*				
	T10K10[range]	10K Thermistor, 10,000 Ω @ 25 °C with 0 to 10 VDC Output*				
		STANDARD TEMPERATURE TRANSMITTER RANGES				
		40 TO 90F **-30 TO 130F** **4 TO 32C** **-34 TO 54C**			**$280 for T100M & T1KM**	$_____
		0 TO 100F **32 TO 212F** **-18 TO 38C** **0 TO 100C**				
		20 TO 120F **30 TO 234F** **-7 TO 48C** **-1 TO 112C**				
		32 TO 134F **0 TO 57C**				
	Humidity Transmitter (required selection)					
	H200	±2% Humidity Transmitter with Interchangeable Output of 0 to 5 V or 4 to 20 mA			**$240**	$_____
	H210	±2% Humidity Transmitter with 0 to 10 V Output			**$240**	$_____
	H212	±2% Humidity Transmitter with 2 to 10 V Output			**$240**	$_____
	H300	±3% Humidity Transmitter with Interchangeable Output of 0 to 5 V or 4 to 20 mA			**$240**	$_____
	H310	±3% Humidity Transmitter with 0 to 10 V Output			**$240**	$_____
	H312	±3% Humidity Transmitter with 2 to 10 V Output			**$240**	$_____
		Enclosure				
		-D-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		**$12**	$_____
		-D-BB2	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate*		**$12**	$_____
		-D-EU	Weather Tight Enclosure - IP66 rated ABS polymer enclosure*		**$12**	$_____
		-D-EUO	Weather Tight Enclosure - IP66 rated UV-resistant enclosure*		**$12**	$_____
		-D-WP	Weatherproof Enclosure - NEMA 3R rated metal enclosure*		**$12**	$_____
EXAMPLE						
BA/	**10K-2-**	**H200**	**D-EUO**		**Total =**	$_____
Example Part Number: BA/10K-2-H200-D-EUO						
Your Part Number:						

*Note: Units with a temperature transmitter and a humidity transmitter require a doublegang D-WP enclosure or D-BB enclosure. Dual transmitter units are not available with the D-EU, D-EUO or D-BB2 enclosures.

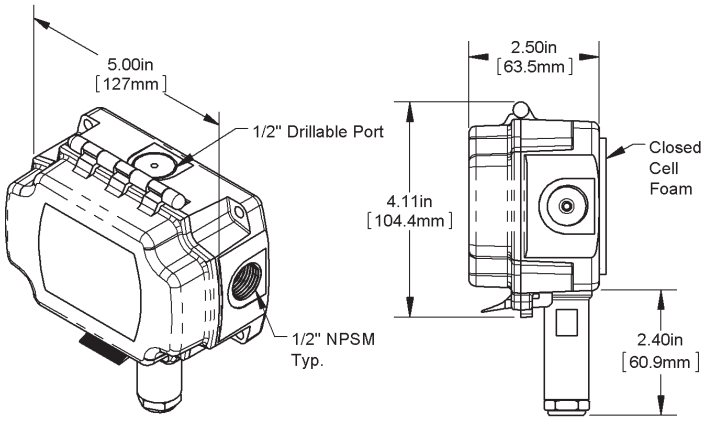
Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Doublegang Weatherproof Enclosure

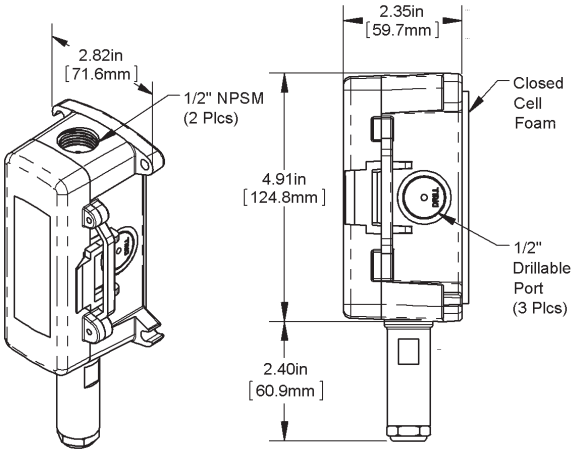
Units with a Temperature Transmitter and a Humidity Transmitter require a doublegang Weatherproof (D-WP) enclosure or BAPI-Box (D-BB) enclosure and are not available in the Weather Tight (D-EU, D-EUO) or the BAPI-Box 2 (D-BB2) enclosures.



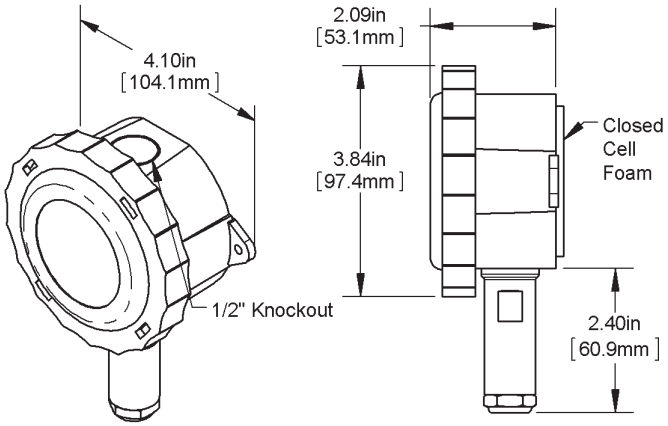
Doublegang Weatherproof Enclosure



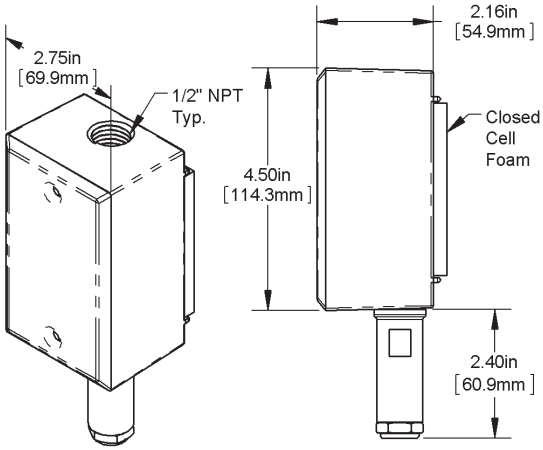
BAPI-Box (BB)



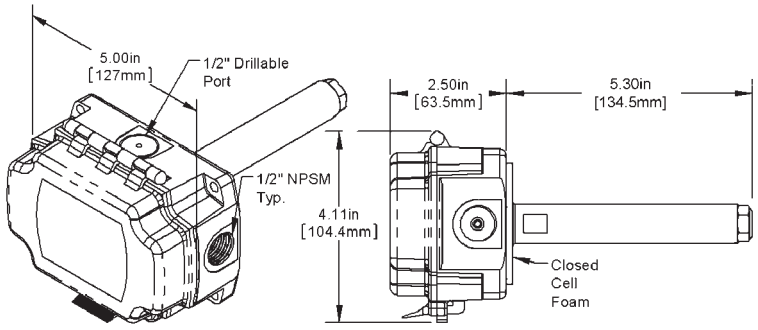
BAPI-Box 2 (BB2)



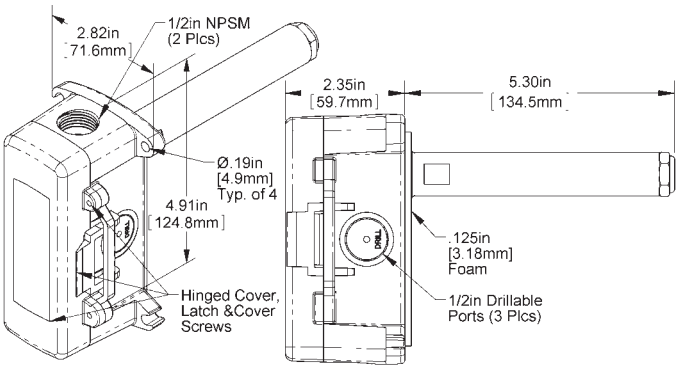
Weather Tight (EU)



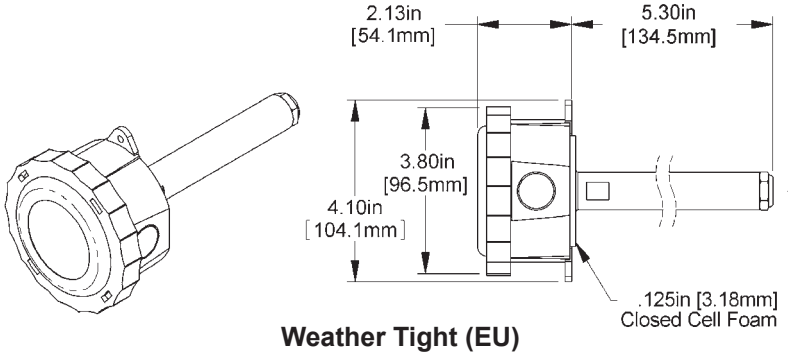
Weatherproof (WP)



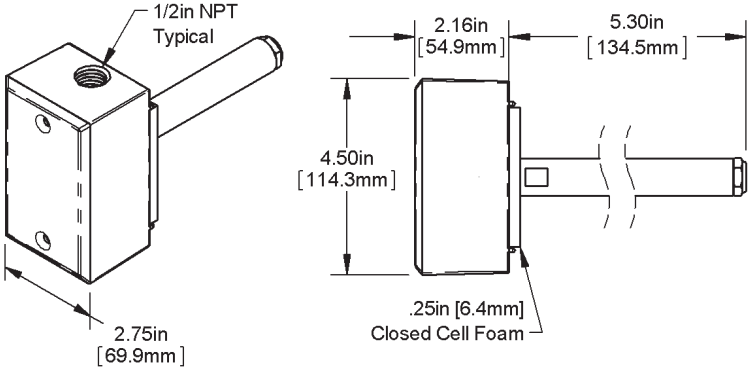
BAPI-Box (BB)



BAPI-Box 2 (BB2)



Weather Tight (EU)



Weatherproof (WP)

It's construction season, so let BAPI

take the PRESSURE off...

From differential pressure sensors and switches to pickup ports and probes, BAPI has what you need for accurate and reliable building pressure.



For videos & information on BAPI Pressure Sensors, visit **www.bapihvac.com/pressure**!

EZ Pressure Sensors - pgs 2-5



- 10 Field Selectable Pressure Ranges
- 3 Field Selectable Outputs, 4 to 20 mA, 0 to 5 or 0 to 10 VDC
- LCD Displays Pressure Over the Entire Operational Range
- Inches of Water Column or Pascal
- Simple Auto-Zero and One Touch Set Up
- Snaptrack, DIN Rail or Surface Mounting

EZ with Standard Pressure Ranges - pgs 2-3

EZ with Low Pressure Ranges - pgs 4-5

BAPI-Box Pressure Sensors - pgs 6-11

- Field Selectable Ranges and Outputs
- Touch Interface Through the Cover, No More Dip Switches
- WC or Pascal Operation

Standard Pressure - pgs 6-7

Low Pressure - pgs 8-9

High Pressure - pgs 10-11



Pressure Pickup Ports - pgs 12-13



Ceiling Mount **Wall and Room**

- Economical & Easy to Install
- 100 Micron Filter

Low Profile & Outside Air Ports - pgs 14-17



Low Profile, Pgs 16-17

- Flush Pressure Port Mounting
- Paintable with Latex or Oil Base



Outside Air, pgs 14-15

Probes & Accessories - pgs 18-19

Static & Total Pressure Probe Assemblies



The Static Pressure Probe and Total Pressure Probe Assemblies connect to the BAPI Zone Pressure Sensor to provide duct static pressure or duct air velocity. The angled total probe faces into the airflow to sense the moving air's total pressure while the static probe senses static pressure.

Pressure Switches - pgs 20-21

- Easy to Access Field Adjustable Setpoint from 0.1" to 35" W.C.
- UL 353 Listing Which Means the Unit Can Be Used for Safety Controls
- 5 Amp Silver Contacts
- Built In Pressure Snubber for More Stable Readings



C2

EZ Pressure Sensor

Zone Pressure Sensors (ZPS)

Rev. 10/16/12

Features & Options

- 10 Field Selectable Pressure Ranges
- 3 Field Selectable Outputs, 4 to 20 mA, 0 to 5 or 0 to10 VDC
- LCD Displays Pressure Over the Entire Operational Range Regardless of Which Individual Pressure Range is Selected
- Inches of Water Column (W.C.) or Pascal Operation
- Simple Auto-Zero and One Touch Set Up
- Snaptrack, DIN Rail or Surface Mounting
- Accommodates 1/8" I.D. to 5/32" I.D. Tubing
- Three Year Warranty



EZ Pressure Sensor

Measuring building pressure and air velocities or volumes doesn't get any easier than with the BAPI EZ Pressure Sensor. The revolutionary mounting system allows for 2.75" snaptrack, DIN rail or surface mounting, and the three Outputs and 10 Pressure Ranges are field selectable by simply turning the rotary switch and pressing the "Next" button. The auto-zeroing process is also very easy — simply turn the rotary switch to zero, push the button, wait for five seconds, turn the rotary switch back to your pressure range and walk away.

Besides being easy to set up and install, it is also accurate, rugged and economical. The heart of the unit is a micro-machined silicon pressure sensor. The sensor design inherently provides excellent accuracy, repeatability and stability.

The unit features a rugged NEMA 1 rated enclosure with short circuit proof outputs and reverse polarity protected inputs to perform under real world conditions.

The LCD display helps with troubleshooting because it displays the actual differential pressure over the entire operational range (5 to +5 inches W.C. or -1,250 to 1,250 Pascals) regardless of which individual pressure range is selected for output to the system controller.

Specifications

Power:
7 to 40 VDC (4 to 20 mA Output)
7 to 40 VDC or 7 to 32 VAC (0 to 5 VDC Output)
13 to 40 VDC or 13 to 32 VAC (0 to 10 VDC Output)

Power Consumption:
20 mA max, DC only at 4 to 20 mA Output
4.9 mA max DC at 0 to 5 VDC or 0 to 10 VDC Output
0.12 VA max AC at 0 to 5 VDC or 0 to 10 VDC Output

Load Resistance:
4 to 20 mA Output 850 Ω Maximum @ 24 VDC
0 to 5 VDC or 0 to 10 VDC output 1KΩ minimum

Accuracy at 72°F: ±0.25% of range

Stability: ±0.25% F.S. per year

Environmental Operation Range:
32°F to 140°F (0°C to 60°C)

Storage Temperature: -40 to 203°F (-40 to 95°C)

Temperature Error:
±2% of Span max (±5.0 in W.C. @ 50 to 104°F [10 to 40°C])

Overpressure: Proof: 27.68 in W.C (1 PSI),
Burst: 41.52 in W.C. (1.5 PSI)

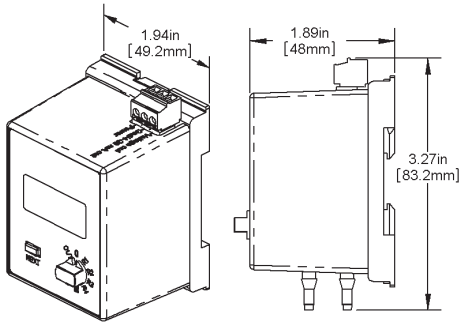
Wiring: 3-wire removable terminal block (14 to 24 AWG)*
2 wires (4 to 20mA Current loop)*
3 wires (AC or DC powered, Voltage out)*

Humidity: 0 to 95% RH, non-condensing

Port Connection:
1 High Pressure & 1 Low Pressure
for push-on 1/4-inch tubing (1/8" to 3/16" I.D.)

Enclosure Material: ABS Plastic, UL94, V-0

Mounting:
DIN Rail, Snaptrack or Surface Mountable



*__BAPI__ recommends that you do not run wiring for the pressure transmitter in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

Note: Mount unit with the pressure fittings on the bottom to prevent condensation from entering the sensor.

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Ordering Information (for units without a factory specified range or output)

PART NUMBER	DESCRIPTION	LIST PRICE
ZPS-SR-EZ-NT-IN	EZ Pressure Sensor, Inches of W.C. Display, No Tube or Probe included	$320
ZPS-SR-EZ-NT-PA	EZ Pressure Sensor, Pascal Display, No Tube or Probe included	$320
ZPS-SR-EZ-ST-IN	EZ Pressure Sensor, Inches of W.C. Display with Static Pressure Probe	$320
ZPS-SR-EZ-ST-PA	EZ Pressure Sensor, Pascal Display with Static Pressure Probe	$320

Note: Pressure Range and Output Range for these units will be selected in the field.

Part numbers for units with a factory specified range or output

Ordering Information			*EZ Zone Pressure Sensor with Display*				List Price	Your Order
ZPS							**$320**	$_____
	Output Range							
	-20	4 to 20 mA	(7 to 45 VDC Supply ONLY)					
	-05	0 to 5 V	(7 to 45 VDC Supply or 7 to 32 VAC Supply)					
	-10	0 to 10 V	(13 to 45 VDC Supply or 13 to 32 VAC Supply)					
		Pressure Range						
		-SR(range)	Standard Pressure Ranges - *replace (range) with option # shown below*					
			Option / **Range *(inches W.C.)***		**Option** / **Range *(Pascals)***			
			71 0 to 1.00		**81** 0 to 250			
			72 0 to 2.00		**82** 0 to 300			
			73 0 to 2.50		**83** 0 to 500			
			74 0 to 3.00		**84** 0 to 1,000			
			75 0 to 5.00		**85** 0 to 1,250			
			76 -1.00 to 1.00		**86** -250 to 250			
			77 -2.00 to 2.00		**87** -300 to 300			
			78 -2.50 to 2.50		**88** -500 to 500			
			79 -3.00 to 3.00		**89** -1,000 to 1,000			
			80 -5.00 to 5.00		**90** -1,250 to 1,250			
			Custom Range *(W.C.)****		**Custom Range *(Pascals)******		**$30**	
			CI [0 to y.yy]*		**CP** [0 to yyyy]**		**Net Add*****	
			Enclosure Style					
			-EZ	NEMA 1 rated enclosure			**$0**	
				Optional Static Pressure Probe				
				-NT	No Tube or Probe Included		**$0**	
				-ST	Static Pressure Measurement Probe Included (not attached)		**$0**	
					LCD Display (See note ** below)**			
					-D	LCD Display****	**$0**	
EXAMPLE								
ZPS	**-20**	**-SR71**	**-EZ**	**-NT**	**-D**		**Total =**	$_____
Example Part Number: ZPS-20-SR71-EZ-NT-D								
Your Part Number:								

*Custom W.C. ranges must start at zero and y.yy can be any pressure between 0.50 and 5.00 inches W.C. Placing the unit into +/- places the custom range in bi-directional mode (Example Part # ZPS-20-SRCI[1.00 to 3.50]-EZ-NT-D)

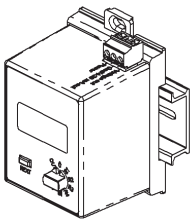
**Custom W.C. ranges must start at zero and yyyy can be any pressure between 125 and 1250 Pascals. Placing the unit into +/- places the custom range in bi-directional mode (Example Part #: ZPS-20-SRCP[250 to 750]-EZ-NT-D)

***There is a net add of $30 for custom ranges. Multipliers do not apply to net adds. Custom Ranges include a certification of 3 points within the custom pressure range.

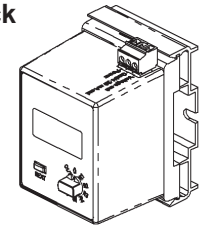
****If you do not wish to view the current pressure on the display, simply leave off the "-D" in the part number. Instead of showing the current pressure, the display will show the word "on".

Mounting Options

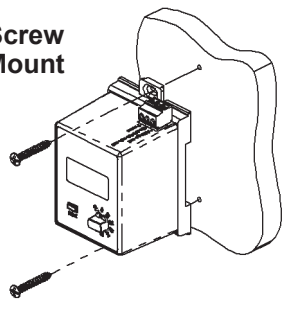
DIN Rail Mount



Snaptrack Mount



Screw Mount



C4

EZ Low Pressure Sensor

Zone Pressure Sensors (ZPS)

Rev. 10/16/12

Features & Options

- 10 Field Selectable Pressure Ranges
- 3 Field Selectable Outputs: 4 to 20 mA, 0 to 5 or 0 to 10 VDC
- LCD Displays Pressure Over the Entire Operational Range Regardless of Which Individual Pressure Range is Selected
- Inches of Water Column (W.C.) or Pascal Operation
- Simple Auto-Zero and One Touch Set Up
- Snaptrack, DIN Rail or Surface Mounting
- Optimized for Pressures Below 1" W.C. or 250 Pascals
- Three Year Warranty



EZ Pressure Sensor

Measuring building pressure and air velocities or volumes doesn't get any easier than with the BAPI EZ Low Pressure Sensor. The revolutionary mounting system allows for 2.75" snaptrack, DIN rail or surface mounting, and the three Outputs and 10 Pressure Ranges are field selectable by simply turning the rotary switch and pressing the "Next" button. The auto-zeroing process is also very easy — simply turn the rotary switch to zero, push the button, wait for five seconds, turn the rotary switch back to your pressure range and walk away.

Besides being easy to set up and install, it is also accurate, rugged and economical. The heart of the unit is a micro-machined silicon pressure sensor specifically developed for low pressure. The sensor design inherently provides excellent accuracy, repeatability and stability. The unit has been optimized for pressures below 1" W.C. or 250 Pascals.

The unit features a rugged NEMA 1 rated enclosure with short circuit proof outputs and reverse polarity protected inputs to perform under real world conditions. The LCD display helps with troubleshooting because it displays the actual differential pressure over the entire operational range (-1 to +1 inches W.C. or -250 to +250 Pascals) regardless of which individual pressure range is selected for output to the system controller.

Specifications

Power:
7 to 40 VDC (4 to 20 mA Output)
7 to 40 VDC or 7 to 32 VAC (0 to 5 VDC Output)
13 to 40 VDC or 13 to 32 VAC (0 to 10 VDC Output)

Power Consumption:
20 mA max, DC only at 4 to 20 mA Output
4.9 mA max DC at 0 to 5 VDC or 0 to 10 VDC Output
0.12 VA max AC at 0 to 5 VDC or 0 to 10 VDC Output

Load Resistance:
4 to 20 mA Output 850 Ω Maximum @ 24 VDC
0 to 5 VDC or 0 to 10 VDC output 1KΩ minimum

Accuracy at 72°F:
±0.5% of range 0 to 0.1", 0 to 0.25", ±0.1" and ±0.25" ranges
±0.5% of range 0 to 30 Pa, 0 to 50 Pa, ±30 Pa and ±50 Pa ranges
±0.25% of range all other ranges

Stability: ±0.25% F.S. per year

Temperature Error: ±2% of Span max
(±1.0 in WC @ 50 to 104°F [10 to 40°C])

Environmental Operation Range: 32 to 140°F (0 to 60°C)

Storage Temperature: -40 to 203°F (-40 to 95°C)

Overpressure: Proof: 27.68 in W.C (1 PSI),
Burst: 41.52 in W.C. (1.5 PSI)

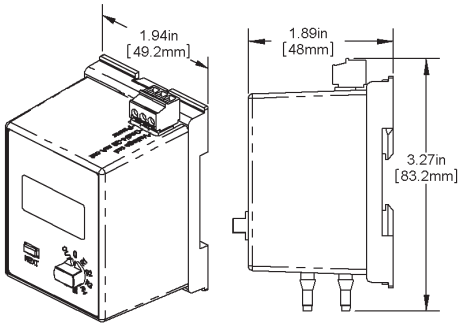
Wiring: 3-wire removable terminal block (14 to 24 AWG)*
2 wires (4 to 20mA Current loop)*
3 wires (AC or DC powered, Voltage out)*

Humidity: 0 to 95% RH, non-condensing

Port Connection:
1 High Pressure & 1 Low Pressure for push-on 1/4" tubing (1/8" to 3/16" I.D.)

Enclosure Material: ABS Plastic, UL94, V-0

Mounting:
DIN Rail, Snaptrack or Surface Mountable



*__BAPI__ recommends that you do not run wiring for the pressure transmitter in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.

Note: Mount unit with the pressure fittings on the bottom to prevent condensation from entering the sensor.

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Ordering Information (for units without a factory specified range or output)

PART NUMBER	DESCRIPTION	LIST PRICE
ZPS-LR-EZ-NT-IN	EZ Low Pressure Sensor, Inches of W.C. Display, No Tube or Probe included	$320
ZPS-LR-EZ-NT-PA	EZ Low Pressure Sensor, Pascal Display, No Tube or Probe included	$320
ZPS-LR-EZ-ST-IN	EZ Low Pressure Sensor, Inches of W.C. Display with Static Pressure Probe	$320
ZPS-LR-EZ-ST-PA	EZ Low Pressure Sensor, Pascal Display with Static Pressure Probe	$320

Note: Pressure Range and Output Range for these units will be selected in the field.

Part numbers for units with a factory specified range or output

Ordering Information								List Price	Your Order
ZPS								**$320**	$_____
	Output Range								
	-20	4 to 20 mA	(7 to 45 VDC Supply ONLY)						
	-05	0 to 5 V	(7 to 45 VDC Supply or 7 to 32 VAC Supply)						
	-10	0 to 10 V	(13 to 45 VDC Supply or 13 to 32 VAC Supply)						
		Pressure Range							
		-LR(range)	Standard Pressure Ranges - *replace (range) with option # shown below*						
			Option	**Range *(inches W.C.)***	**Option**	**Range *(Pascals)***			
			51	0 to 0.10	**61**	0 to 30			
			52	0 to 0.25	**62**	0 to 50			
			53	0 to 0.50	**63**	0 to 100			
			54	0 to 0.75	**64**	0 to 175			
			55	0 to 1.00	**65**	0 to 250			
			56	-0.10 to 0.10	**66**	-30 to 30			
			57	-0.25 to 0.25	**67**	-50 to 50			
			58	-0.50 to 0.50	**68**	-100 to 100			
			59	-0.75 to 0.75	**69**	-175 to 175			
			60	-1.00 to 1.00	**70**	-250 to 250			
			Custom Range *(W.C.)****		**Custom Range *(Pascals)******			**$30 Net Add*****	
			CI	[0 to y.yy]*	**CP**	[0 to yyyy]**			
		Enclosure Style							
		-EZ	NEMA 1 rated enclosure					**$0**	
			Optional Static Pressure Probe						
			-NT	No Tube or Probe Included				**$0**	
			-ST	Static Pressure Measurement Probe Included (not attached)				**$0**	
				LCD Display (See note ** below)**					
				-D	LCD Display****			**$0**	
EXAMPLE									
ZPS	**-20**	**-LR51**	**-EZ**	**-NT**	**-D**			**Total =**	$_____
Example Part Number: ZPS-20-LR51-EZ-NT-D									
Your Part Number:									

*Custom W.C. ranges must start at zero and y.yy can be any pressure between 0.05 and 1.00 inches W.C. Placing the unit into +/- places the custom range in bi-directional mode (Example Part # ZPS-20-SRCI[0.10 to 0.50]-EZ-NT-D)

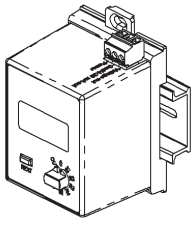
**Custom W.C. ranges must start at zero and yyyy can be any pressure between 15 and 250 Pascals. Placing the unit into +/- places the custom range in bi-directional mode (Example Part #: ZPS-20-SRCP[20 to 200]-EZ-NT-D)

***There is a net add of $30 for custom ranges. Multipliers do not apply to net adds. Custom Ranges include a certification of 3 points within the custom pressure range.

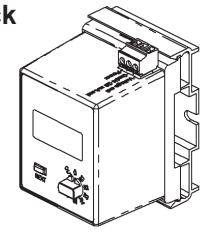
****If you do not wish to view the current pressure on the display, simply leave off the "-D" in the part number. Instead of showing the current pressure, the display will show the word "on".

Mounting Options

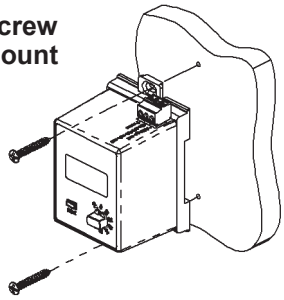
DIN Rail Mount



Snaptrack Mount



Screw Mount



Pressure Sensor

Zone Pressure Touch Sensors (ZPT)

Rev. 10/16/12

Features & Options

- Touch Interface Through the Cover, No More Dip Switches
- Field Selectable Output, Pressure Ranges and WC or Pascal Operation
- 21 Field Selectable Pressure Ranges
- Adjustable Pressure Endpoints for Custom Pressure Ranges

BAPI's Pressure Sensor is an accurate, rugged and economical solution for measuring and reporting duct/building static pressure, room-to-room differential pressure or air velocities/volumes. The heart of the unit is a micro-machined silicon pressure sensor with excellent accuracy, repeatability and stability.

The touch interface allows for quick and easy menu driven set up of all parameters including auto zero, pressure ranges, output ranges, W.C. or Pascal operation, and display format of pressure, percent output or "On". You can also use the interface to create custom ranges by adjusting the upper and lower pressure endpoints.

The LCD helps with troubleshooting because it displays the actual differential pressure over the entire operational range (-5 to +5 inches W.C. or -1,250 to 1,250 Pascals) regardless of which individual pressure range is selected for output to the system controller.

Patent Pending



Pressure Sensor in the BAPI-Box

Pressure Sensor with Attached Static Tube

The unit is available with an Attached Static Tube so it doesn't require two trades to install the unit. Choose the **(-AT)** option in the Static Pressure Probe section of the ordering grid at right.



Specifications

Power:
7 to 40 VDC (4 to 20 mA Output)
7 to 40 VDC or 7 to 32 VAC (0 to 5 VDC Output)
13 to 40 VDC or 13 to 32 VAC (0 to 10 VDC Output)

Power Consumption:
20 mA max, DC only at 4 to 20 mA Output
4.9 mA max DC at 0 to 5 VDC or 0 to 10 VDC Output
0.12 VA max AC at 0 to 5 VDC or 0 to 10 VDC Output

Load Resistance:
4 to 20 mA Output 850 Ω Maximum @ 24 VDC
0 to 5 VDC or 0 to 10 VDC output 1KΩ minimum

Accuracy at 72°F: ±0.25% of range

Stability: ±0.25% F.S. per year

Environmental Operation Range:
32 to 140°F (0 to 60°C)

Storage Temperature: -40 to 203°F (-40 to 95°C)

Temperature Error:
±2% of Span max (±5.0 in WC @ 50 to 104°F [10 to 40°C])

Overpressure: Proof: 27.68 in W.C (1 PSI),
Burst: 41.52 in W.C. (1.5 PSI)

Wiring: 2 wires (4 to 20mA Current loop)*
3 wires (AC or DC powered, Voltage out)*

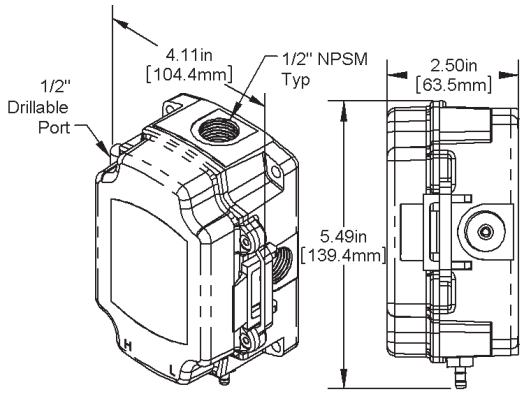
Humidity: 0 to 95% RH, non-condensing

Port Connection:
1 High Pressure & 1 Low Pressure
for push-on 1/4" tubing (1/8" to 3/16" I.D.)

Enclosure Material:
UV-resistant Polycarbonate, UL94, V-0

Enclosure Rating: IP66, NEMA 4

Mounting:
Four external tabs with holes for #10 screws



***BAPI** recommends that you do not run wiring for the pressure transmitter in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.
Note: Mount unit with the pressure fittings on the bottom to prevent condensation from entering the sensor.

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Ordering Information (for units without a factory specified range or output)

Part Number	Description	List Price
ZPT-SR-BB-NT-D	... Zone Pressure Touch sensor, Standard Ranges, No Tube/Probe included	..... $340
ZPT-SR-BB-ST-D	... Zone Pressure Touch sensor, Standard Ranges, with Static Pressure Probe	..... $340
ZPT-SR-BB-AT-D	... Zone Pressure Touch sensor, Standard Ranges, with Attached Static Tube	..... $340

Note: Pressure Range and Output Range for these units will be selected in the field.

Part numbers for units with a factory specified range or output

Ordering Information			*Zone Pressure Touch sensor in a BAPI-Box, Standard Ranges*				List Price	Your Order
ZPT							**$340**	$_____
	Output Range							
	-20	4 to 20 mA	(7 to 45 VDC Supply ONLY)					
	-05	0 to 5 V	(7 to 45 VDC Supply or 7 to 32 VAC Supply)					
	-10	0 to 10 V	(13 to 45 VDC Supply or 13 to 32 VAC Supply)					
		Pressure Range						
		-SR(range)	Standard Pressure Ranges - *replace (range) with option # shown below*					
			Option Range *(inches W.C.)*		**Option** Range *(Pascals)*			
			71 0 to 1.00		**81** 0 to 250			
			72 0 to 2.00		**82** 0 to 300			
			73 0 to 2.50		**83** 0 to 500			
			74 0 to 3.00		**84** 0 to 1,000			
			75 0 to 5.00		**85** 0 to 1,250			
			76 -1.00 to 1.00		**86** -250 to 250			
			77 -2.00 to 2.00		**87** -300 to 300			
			78 -2.50 to 2.50		**88** -500 to 500			
			79 -3.00 to 3.00		**89** -1,000 to 1,000			
			80 -5.00 to 5.00		**90** -1,250 to 1,250			
			Custom Range *(W.C.)* *** **CI** [x.xx to y.yy]*		Custom Range *(Pascals)* *** **CP** [xxxx to yyyy]**		**$30 Net Add*** **	
			Enclosure Style (Must Select One)					
			-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate			**$0**	
				Static Pressure Probe (Must Select One)				
				-NT	No Tube or Probe Included		**$0**	
				-ST	Static Pressure Measurement Probe Included (not attached)		**$0**	
				-AT	Attached Static Pressure Probe (Not available with Back Mount [-BM])		**$0**	
					LCD Display (Must Select, See note ** below)**			
					-D	LCD Display	**$0**	
						Back Mounting Options (Omit if not required)		
						-BM Back Mount (pressure ports run out the back, not available with Attached Static Pressure Probe [-AT])	**$0**	
EXAMPLE								
ZPT	**-20**	**-SR71**	**-BB**	**-NT**	**-D**	**-BM**		
Example Part Number: ZPT-20-SR71-BB-NT-D-BM							**Total =**	$_____
Your Part Number:								

While field technicians can easily set up custom ranges in the field, BAPI will setup custom ranges in our factory. See the notes below for additional information and fees.

*For custom W.C. ranges, x.xx and y.yy can be any pressure from -5.00 to +5.00 inches W.C. However, x.xx must be less than y.yy and y.yy - x.xx must be at least 1 inch. (Example: ZPT-20-SRCI[0.00 to 3.50]-BB-NT-D-BM)

**For custom Pascal ranges, xxxx and yyyy can be any pressure between -1250 to +1250 Pascals. However, xxxx must be less than yyyy and yyyy - xxxx must be at least 250 Pascals. (Ex: ZPT-20-SRCP[0 to 750]-BB-NT-D-BM)

***There is a net add of $30 for custom ranges. Multipliers do not apply to net adds. Custom Ranges include a certification of 3 points within the custom pressure range.

****If you do not wish to view the current pressure on the display, simply leave off the "-D" in the part number. Instead of showing the current pressure, the display will show the word "on".

Low Pressure Sensor

Zone Pressure Touch Sensors (ZPT)

Rev. 10/16/12

Features & Options

- Touch Interface Through the Cover, No More Dip Switches
- Field Selectable Output, Pressure Ranges and WC or Pascal Operation
- 21 Field Selectable Pressure Ranges
- Adjustable Pressure Endpoints for Custom Pressure Ranges

Patent Pending



Low Pressure Sensor in the BAPI-Box

BAPI's Low Pressure Sensor is an accurate, rugged and economical solution for measuring and reporting duct/building static pressure, room-to-room differential pressure or air velocities/volumes. The heart of the unit is a micro-machined silicon pressure sensor with excellent accuracy, repeatability and stability. The unit has been optimized for pressures below 1" W.C. or 250 Pascals.

The touch interface allows for quick and easy menu driven set up of all parameters including auto zero, pressure ranges, output ranges, W.C. or Pascal operation, and display format of pressure, percent output or "On". You can also use the interface to create custom ranges by adjusting the upper and lower pressure endpoints.

The LCD helps with troubleshooting because it displays the actual differential pressure over the entire operational range (-1 to +1 inches W.C. or -250 to +250 Pascals) regardless of which individual pressure range is selected for output to the system controller.

Pressure Sensor with Attached Static Tube

The unit is available with an Attached Static Tube so it doesn't require two trades to install the unit. Choose the **(-AT)** option in the Static Pressure Probe section of the ordering grid at right.



Specifications

Power:
7 to 40 VDC (4 to 20 mA Output)
7 to 40 VDC or 7 to 32 VAC (0 to 5 VDC Output)
13 to 40 VDC or 13 to 32 VAC (0 to 10 VDC Output)

Power Consumption:
20 mA max, DC only at 4 to 20 mA Output
4.9 mA max DC at 0 to 5 VDC or 0 to 10 VDC Output
0.12 VA max AC at 0 to 5 VDC or 0 to 10 VDC Output

Load Resistance:
4 to 20 mA Output 850 Ω Maximum @ 24 VDC
0 to 5 VDC or 0 to 10 VDC output 1KΩ minimum

Accuracy at 72°F:
±0.5% of range 0 to 0.1", 0 to 0.25", ±0.1" and ±0.25" ranges
±0.5% of range 0 to 30 Pa, 0 to 50 Pa, ±30 Pa and ±50 Pa ranges
±0.25% of range all other ranges

Stability: ±0.25% F.S. per year

Temperature Error: ±2% of Span max
(±1.0 in WC @ 50 to 104°F [10 to 40°C])

Environmental Operation Range: 32 to 140°F (0 to 60°C)

Storage Temperature: -40 to 203°F (-40 to 95°C)

Overpressure: Proof: 27.68 in W.C (1 PSI),
Burst: 41.52 in W.C. (1.5 PSI)

Wiring: 2 wires (4 to 20mA Current loop)*
3 wires (AC or DC powered, Voltage out)*

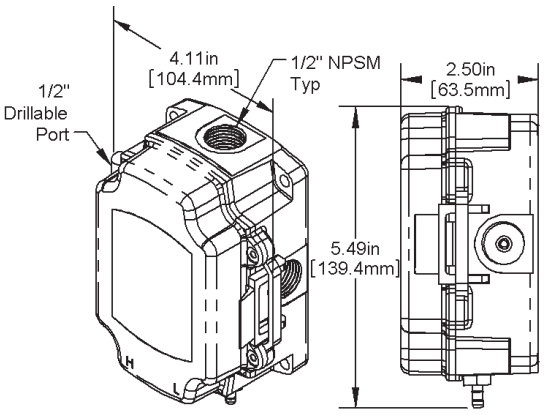
Humidity: 0 to 95% RH, non-condensing

Port Connection:
1 High Pressure & 1 Low Pressure for push-on 1/4-inch tubing (1/8" to 3/16" I.D.)

Enclosure Material:
UV-resistant Polycarbonate, UL94, V-0

Enclosure Rating: IP66, NEMA 4

Mounting:
Four external tabs with holes for #10 screws



***BAPI** recommends that you do not run wiring for the pressure transmitter in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.
Note: Mount unit with the pressure fittings on the bottom to prevent condensation from entering the sensor.

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Ordering Information (for units without a factory specified range or output)

Part Number	Description	List Price
ZPT-LR-BB-NT-D	.. Zone Pressure Touch sensor, Low Ranges, No Tube/Probe included	$340
ZPT-LR-BB-ST-D	.. Zone Pressure Touch sensor, Low Ranges, with Static Pressure Probe.....	$340
ZPT-LR-BB-AT-D	.. Zone Pressure Touch sensor, Low Ranges, with Attached Static Tube.....	$340

Note: Pressure Range and Output Range for these units will be selected in the field.

Part numbers for units with a factory specified range or output

Ordering Information							*Zone Pressure Touch sensor in a BAPI-Box, Low Pressure Ranges*	List Price	Your Order
ZPT								**$340**	**$_____**
	Output Range								
	-20	4 to 20 mA	(7 to 45 VDC Supply ONLY)						
	-05	0 to 5 V	(7 to 45 VDC Supply or 7 to 32 VAC Supply)						
	-10	0 to 10 V	(13 to 45 VDC Supply or 13 to 32 VAC Supply)						
		Pressure Range							
		-LR(range)	Low Pressure Ranges - *replace (range) with option # shown below*						
			Option / **Range *(inches W.C.)*** / **Option** / **Range *(Pascals)***						
			51 0 to 0.10 / **61** 0 to 30						
			52 0 to 0.25 / **62** 0 to 50						
			53 0 to 0.50 / **63** 0 to 100						
			54 0 to 0.75 / **64** 0 to 175						
			55 0 to 1.00 / **65** 0 to 250						
			56 -0.10 to 0.10 / **66** -30 to 30						
			57 -0.25 to 0.25 / **67** -50 to 50						
			58 -0.50 to 0.50 / **68** -100 to 100						
			59 -0.75 to 0.75 / **69** -175 to 175						
			60 -1.00 to 1.00 / **70** -250 to 250						
			CI Custom Range *(W.C.)**** [0 to y.yy]* / **CP** Custom Range *(Pascals)**** [0 to yyyy]**					**$30 Net Add*****	
			Enclosure Style (Must Select One)						
			-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate				**$0**	
				Static Pressure Probe (Must Select One)					
				-NT	No Tube or Probe Included			**$0**	
				-ST	Static Pressure Measurement Probe Included (not attached)			**$0**	
				-AT	Attached Static Pressure Probe (Not available with Back Mount [-BM])			**$0**	
					LCD Display (Must Select, See note ** below)**				
					-D	LCD Display		**$0**	
						Back Mounting Options (Omit if not required)			
						-BM	Back Mount (pressure ports run out the back, not available with Attached Static Pressure Probe [-AT])	**$0**	
EXAMPLE									
ZPT	**-20**	**-LR51**	**-BB**	**-NT**	**-D**	**-BM**		**Total =**	**$_____**
Example Part Number: ZPT-20-LR51-BB-NT-D-BM									
Your Part Number:									

While field technicians can easily set up custom ranges in the field, BAPI will setup custom ranges in our factory. See the notes below for additional information and fees.

*For custom W.C. ranges, x.xx and y.yy can be any pressure from -1.00 to +1.00 inches W.C. However, x.xx must be less than y.yy and y.yy - x.xx must be at least 0.1 inch. (Example: ZPT-20-SRCI[-0.50 to 0.75]-BB-NT-D-BM)

**For custom Pascal ranges, xxxx and yyyy can be any pressure between -250 to +250 Pascals. However, xxxx must be less than yyyy and yyyy - xxxx must be at least 30 Pascals. (Ex: ZPT-20-SRCP[0 to 125]-BB-NT-D-BM)

***There is a net add of $30 for custom ranges. Multipliers do not apply to net adds. Custom Ranges include a certification of 3 points within the custom pressure range.

****If you do not wish to view the current pressure on the display, simply leave off the "-D" in the part number. Instead of showing the current pressure, the display will show the word "on".

C10 High Pressure Sensor (up to 30" W.C.)

Zone Pressure Sensors (ZPS)

Rev. 10/16/12

Features & Options

- Field Selectable Pressure Ranges and Outputs
- Optional LCD Shows Pressure Over the Entire Operational Range Regardless of Which Individual Pressure Range is Selected
- Inches of Water Column (W.C.) or Pascal Operation
- Simple Auto-Zero Process
- Three Year Warranty

Patent Pending



High Pressure Sensor in the BAPI-Box

BAPI's High Pressure Sensor is an accurate, rugged and economical solution for measuring duct/building static pressure, room-to-room differential pressure or air velocities/volumes. The heart of the unit is a micro-machined silicon sensor with excellent accuracy, repeatability and stability.

The LCD aids in troubleshooting by displaying the actual differential pressure over the entire operational range (0 to 30 W.C. or 0 to 7,400 Pascals) regardless of which individual pressure range is selected for output to the controller.

The unit is available in a rugged, IP66-rated enclosure with short circuit proof outputs and reverse polarity protected inputs to perform under real world conditions. The unit installs quickly by connecting standard 1/8" or 5/32" I.D. tubing to the two pressure ports. The various Output Ranges and Pressure Ranges are all field selectable with DIP switches, and the auto-zeroing process is very simple (flip a switch, wait five seconds, flip it back and walk away).

Pressure Sensor with Attached Static Tube

The unit is available with an Attached Static Tube so it doesn't require two trades to install the unit. Choose the **(-AT)** option in the Static Pressure Probe section of the ordering grid at right.



Specifications

Power:
7 to 40 VDC *(4 to 20 mA output)*
7 to 40 VDC or 7 to 32 VAC (*0 to 5 VDC output)*
13 to 40 VDC or 13 to 32 VAC (*0 to 10 VDC output)*

Load Resistance:
0 to 5 VDC or 0 to 10 VDC Output - 1 kΩ minimum
4 to 20 mA Output - 850 Ω max @ 24 VDC

Power Consumption:
4.9 mA max DC at 0 to 5 or 0 to 10 VDC Output
0.12 VA max AC at 0 to 5 or 0 to 10 VDC Output
20 mA max, DC only at 4 to 20 mA Output

Accuracy at 72 ºF: ±0.25% on all ranges

Stability: ±0.25 % F.S. (full scale) per year

Temperature Error:
Zero: ±0.025% F.S. per °C,
Span: max ±0.03% F.S. per °C

Environmental Operation Range: 32 to 140°F (0 to 60°C)

Storage Temperature: -40 to 203°F (-40 to 95°C)

Overpressure: Proof: 2 PSI, Burst: 3 PSI

Wiring: 2 wires (4 to 20mA Current loop)*
3 wires (AC or DC powered, Voltage out)*

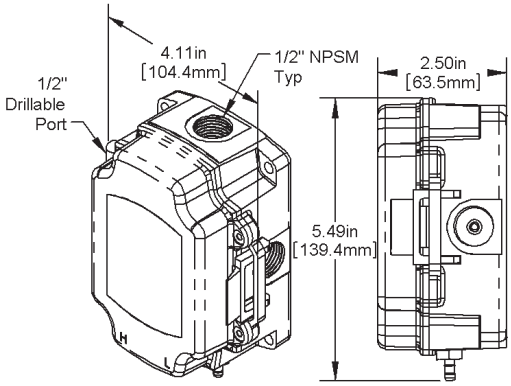
Humidity: 0 to 95% RH, non-condensing

Port Connection:
1 High Pressure & 1 Low Pressure for push-on 1/4-inch tubing (1/8" to 3/16" I.D.)

Enclosure Material:
UV-resistant Polycarbonate, UL94, V-0

Enclosure Rating: IP66, NEMA 4

Mounting:
Four external tabs with holes for #10 screws



*__BAPI__ recommends that you do not run wiring for the pressure transmitter in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.
Note: Mount unit with the pressure fittings on the bottom to prevent condensation from entering the sensor.

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Ordering Information (for units without a factory specified range or output)

PART NUMBER	DESCRIPTION	LIST PRICE
ZPS-HR-BB-NT-D-IN	BAPI-Box High Pressure with Display, W.C. ranges, No Tube or Probe included	$340
ZPS-HR-BB-ST-D-IN	BAPI-Box High Pressure with Display, W.C. ranges with Static Pressure Probe	$340
ZPS-HR-BB-AT-D-IN	BAPI-Box High Pressure with Display, W.C. ranges with Attached Static Tube	$340
ZPS-HR-BB-NT-D-PA	BAPI-Box High Pressure with Display, Pascal ranges, No Tube or Probe included	$340
ZPS-HR-BB-ST-D-PA	BAPI-Box High Pressure with Display, Pascal ranges with Static Pressure Probe	$340
ZPS-HR-BB-AT-D-PA	BAPI-Box High Pressure with Display, Pascal ranges with Attached Static Tube	$340
ZPS-HR-BB-NT-IN	BAPI-Box High Pressure without Display, W.C. ranges, No Tube or Probe included	$340
ZPS-HR-BB-ST-IN	BAPI-Box High Pressure without Display, W.C. ranges with Static Pressure Probe	$340
ZPS-HR-BB-AT-IN	BAPI-Box High Pressure without Display, W.C. ranges with Attached Static Tube	$340
ZPS-HR-BB-NT-PA	BAPI-Box High Pressure without Display, Pascal ranges, No Tube or Probe included	$340
ZPS-HR-BB-ST-PA	BAPI-Box High Pressure without Display, Pascal ranges with Static Pressure Probe	$340
ZPS-HR-BB-AT-PA	BAPI-Box High Pressure without Display, Pascal ranges with Attached Static Tube	$340

Note: Pressure Range and Output Range for these units will be selected in the field.

Part numbers for units with a factory specified range or output

Ordering Information			*Zone Pressure Sensor in a BAPI-Box, High Pressure Ranges*				List Price	Your Order
ZPS							**$340**	$_____
	Output Range							
	-20	4 to 20 mA	(7 to 45 VDC Supply ONLY)					
	-05	0 to 5 V	(7 to 45 VDC Supply or 7 to 32 VAC Supply)					
	-10	0 to 10 V	(13 to 45 VDC Supply or 13 to 32 VAC Supply)					
		Pressure Range						
		-HR(range)	High Pressure Ranges - *replace (range) with option # shown below*					
			Option / **Range *(inches W.C.)*** / **Option** / **Range *(Pascals)***					
			31 0 to 5 / **41** 0 to 1,250					
			32 0 to 10 / **42** 0 to 2,500					
			33 0 to 15 / **43** 0 to 4,000					
			34 0 to 25 / **44** 0 to 6,000					
			35 0 to 30 / **45** 0 to 7,400					
			Enclosure Style					
			-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate			**$0**	
			Optional Static Pressure Probe					
				-NT	No Tube or Probe Included		**$0**	
				-ST	Static Pressure Probe Included (not attached)		**$0**	
				-AT	Attached Static Pressure Probe (Not available with Back Mount [-BM])		**$0**	
				Optional LCD Display (Omit if not required)				
				-D	LCD Display		**$0**	
				Back Mounting Options (Omit if not required)				
					-BM	Back Mount (wires and pressure ports run out the back, not available with Attached Static Pressure Probe [-AT])	**$0**	
EXAMPLE								
ZPS	**-20**	**-HR31**	**-BB**	**-NT**	**-D**	**-BM**	**Total =**	$_____
Example Part Number: ZPS-20-HR31-BB-NT-D-BM								
Your Part Number:								

Wall & Ceiling Pressure Pickup Ports & Temp./Pressure Pickup Combos

Features & Options

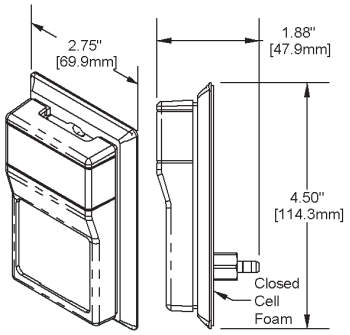
- Economical & Easy to Install
- Delta Style Enclosure or Stainless Steel Plate for Wall Mount
- Ceiling Mount with or without J-Box
- Connects to Zone Pressure Sensor
- 100 Micron Filter
- Accommodates 1/8” I.D. to 5/32” I.D. Tubing

The Wall Pressure Pickup Port comes standard on a brushed stainless steel plate or in a Delta Style enclosure, both sized to fit a common 2” x 4” electrical box. A foam gasket seals the plate or enclosure to the wall to insure the integrity of the measured space. The Wall Plate and Delta Style Enclosure can be used for pressure alone or as a combination temperature sensor and pressure pickup port. BAPI also offers a Ceiling Mount Square Cover that fits a standard 3/4” thick suspended ceiling tile. If additional protection is required, a second ceiling cover fits on a common 2” x 4” electrical box. The brass fitting on all Pickup Ports accommodates standard 1/8” to 5/32” I.D. tubing.

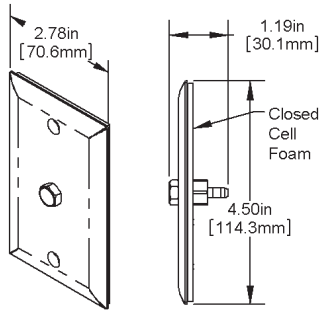
Specifications

Environmental Operation Range:
Temp: 32 to 122 °F (0 to 50 °C)
Humidity: 0% to 95% RH, non-condensing

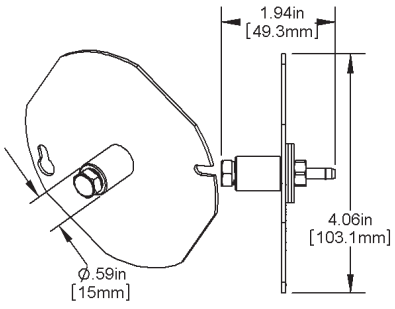
Material:
Delta Style Enclosure:
ABS Plastic, UL 94, V-0
Wall Plate: Stainless Steel



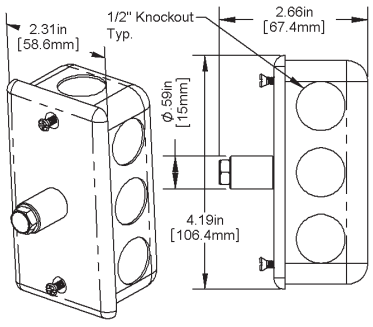
Delta Enclosure (ZPS-ACC03)



Wall Plate (ZPS-ACC01)



Ceiling Mount Cover (ZPS-ACC05)



Ceiling Mount Cover & J-Box (ZPS-ACC06)



Delta Style Enclosure



Wall Plate



Ceiling Mount Square Cover (ZPS-ACC05)



Ceiling Mount Cover & J-Box (ZPS-ACC06)

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Pressure Pickup Ports and Probe Assemblies

Ordering Information	Pressure Pickup Ports		List Price	Your Order
ZPS				
	Pressure Pickup Type			
	-ACC	Option Description		
	01	2" X 4" Stainless Steel Wall Plate with Static Pickup	**$18**	**$**_____
	02	Unassigned		
	03	Room Mount Delta Style Enclosure with Static Pickup	**$15**	**$**_____
	04	Unassigned		
	05	Ceiling Mount Square Cover with Static Pickup	**$15**	**$**_____
	06	Ceiling Mount Rectangular 2" X 4" Cover and Box with Static Pickup	**$17**	**$**_____
EXAMPLE				
ZPS	**-ACC**	**03**	**Total =**	**$**_____
Example Part Number: ZPS-ACC03				
Your Part Number:				

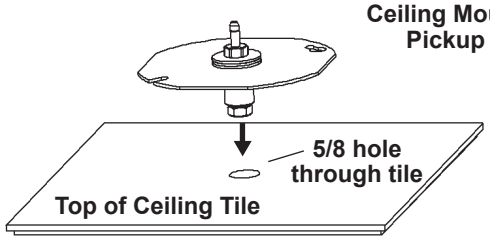
Combination Static Pressure Pickup Port & Temperature Sensor

Ordering Information	Combination Pressure Pickup Port & Temp Sensors			List Price	Your Order
ZPS					
	Pressure Pickup Type				
	-ACC	Option Description			
	01	2" X 4" Stainless Steel Wall Plate with Static Pickup		**$18**	**$**_____
	02	Unassigned			
	03	Room Mount Delta Style Enclosure with Static Pickup		**$15**	**$**_____
	04	Unassigned			
		Temperature Sensor Type			
		-0	100 Platinum RTD, 100 Ω @ 0 °C, 0.385 Ω/°C temp. coeff.		
		-1375	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.75 Ω/°C temp. coeff.	**RTD's**	
		-1	1K Platinum RTD, 1,000 Ω @ 0 °C, 3.85 Ω/°C temp. coeff.	**$25 Each**	**$**_____
		-2	2K Silicon RTD, 2,000 Ω @ 20 °C, 8 Ω/°C temp. coeff.		
		-18	1.8K Thermistor, 1,800 Ω @ 25 °C		
		-22	2.2K Thermistor, 2,200 Ω @ 25 °C	**Thermistors**	
		-3	3K Thermistor, 3,000 Ω @ 25 °C	**$18 Each**	**$**_____
		-33	3.3K Thermistor, 3,300 Ω @ 25 °C		
		-102	10K-2 Thermistor, 10,000 Ω @ 25 °C		
		-103	10K-3 Thermistor, 10,000 Ω @ 25 °C		
		-10311	10K-3(11K) Therm., 5,238 Ω @ 25 °C, 11kΩ shunt resistor		
		-20	20K Thermistor, 20,000 Ω @ 25 °C		
		-47	47K Thermistor, 47,000 Ω @ 25 °C		
		-50	50K Thermistor, 50,000 Ω @ 25 °C		
		-100	100K Thermistor, 100,000 Ω @ 25 °C		
		-334	LM334 Semiconductor	**Semi-**	
		-592	AD592 Semiconductor, 273 µA @ 0 °C	**conductors**	
		-592-10K	AD592 Semiconductor with a 10 kΩ shunt resistor, 2.73 V @ 0 °C	**$25 Each**	**$**_____
EXAMPLE					
ZPS	**-ACC**	**03**	**-102**	**Total =**	**$**_____
Example Part Number: ZPS-ACC03-102					
Your Part Number:					

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Ceiling Mount Pickup Installation

The Ceiling Mount pickup is designed to fit through a standard 3/4-inch thick ceiling tile. Cut a 5/8-inch hole in the tile and place the static pressure sensor on top of the tile with the filter extending through the hole. The filter should stick out slightly below the tile's room surface. Attach tubing to the barbed fitting on the back of the pickup port and run the tubing to the pressure sensor. An optional Junction Box is available for the cover to protect the barbed fitting.



Outside Air Pressure Pickup Port

Zone Pressure Sensors (ZPS)

Rev. 10/16/12

Features & Options

- Economical & Easy to Install
- Accommodates 1/8" I.D. to 5/32" I.D. Tubing
- Rooftop, Wall or Vertical Mount

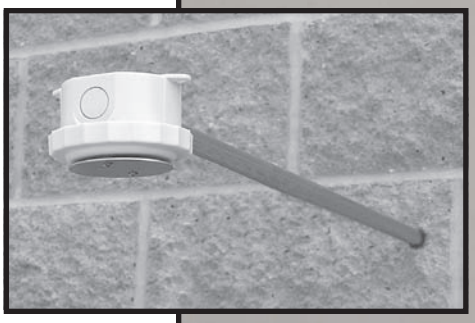
BAPI's Outside Air Pressure Pickup Port is an easy, economical and attractive way of measuring outdoor static pressure. The pickup port also helps stabilize readings because it significantly reduces the pressure fluctuations caused by wind gusts.

Differences in building pressure are caused by the operation of supply fans or exhaust fans and usually measure less than .1 inches of water column (W.C.). A gentle breeze of 10 MPH provides a pressure of .048 inches W.C., while a strong wind of 40 MPH provides .772 inches W.C. A gale of 75 MPH can measure over 2.7 inches. BAPI's pickup port significantly reduces these wind pressures for a stable and accurate reading at the pressure sensor and controller.

The unit is also very rugged with a UV-resistant and flame-retardant housing to perform and last under harsh conditions. It is available in Rooftop or Wall Mount or Vertical Mount for building soffits or ceilings.



Rooftop Mount or Wall Mount
(Conduit and tubing not included)



ORDERING INFORMATION

Part Number: ZPS-ACC10
Rooftop or Wall Mount Unit

Part Number: ZPS-ACC10-V
Vertical Mount Unit

Specifications

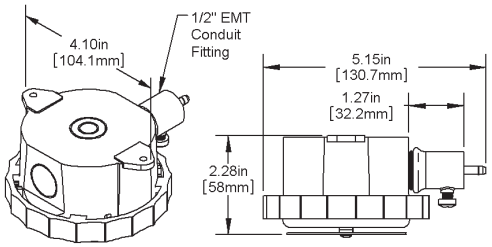
Environmental Operation Range:

Temperature:
-40 to 212 °F
(-40 to 100 °C)

Humidity:
0% to 100% RH, condensing

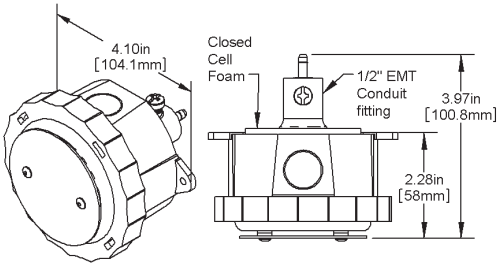
Material:
UV-resistant plastic

Rooftop or Wall Mount



Patent Pending

Vertical Mount



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Ordering Information

PART NUMBER	DESCRIPTION	LIST PRICE
ZPS-ACC10	Rooftop or Wall Mount Outside Air Pressure Pickup Port	$40
ZPS-ACC10-V	Vertical Mount Outside Air Pressure Pickup Port	$40

Wall & Ceiling Pressure Pickup Ports

Wallplates and Delta Style units available as pressure pickups alone or as combination pressure pickup and temperature sensor

BAPI's Wall Pressure Pickup Port comes standard on a brushed stainless steel plate or in a Delta Style enclosure, both sized to fit a common 2" x 4" electrical box. A foam gasket seals the plate or enclosure to the wall to insure the integrity of the measured space. The Wall Plate and Delta Style Enclosure can be used for pressure alone or as a combination temperature sensor and pressure pickup port.

BAPI also offers a Ceiling Mount Cover designed to fit a standard 3/4" thick suspended ceiling tile. If additional protection is required in the ceiling, a second ceiling cover fits on a common 2" x 4" electrical box. The brass fitting on the back of all Pickup Ports accommodates standard 1/8" to 5/32" I.D. tubing.



Delta Style Enclosure



Wall Plate



Ceiling Mount Square Cover



Ceiling Mount Cover & J-Box

For more info, see pages C12-13

Low Profile Pressure Pickup Port

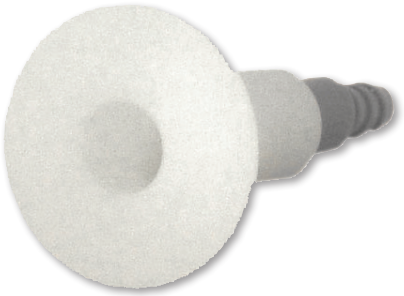
Zone Pressure Sensors (ZPS)

Rev. 10/16/12

Features & Options

- Small Flush Pressure Port Mounting
- Accurate Air Pressure Measurement
- Paintable with Latex or Oil Base
- Five-Micron Filter
- Built in Surge Damper
- Accommodates 1/8” I.D. to 5/32” I.D. Tubing

The Low Profile Pressure Port is ideal for locations where aesthetics are as important as the pressure measurement. The inconspicuous sensor mounts easily by pushing through a 3/8” hole and secured with an adhesive ring. The only visible portion is a flush 7/8” dot on the wall. The built in surge damper provides five-micron filtering and smoothes out rapid variations in air pressure for a more stable reading.



Low Profile Pressure Pickup Port

ORDERING INFORMATION

Part Number: ZPS-ACC20

Specifications

Mounting: 3/8” hole, push in plastic sheath with an adhesive ring

Configuration: Round Flush Sensor Sheath

Dimensions:

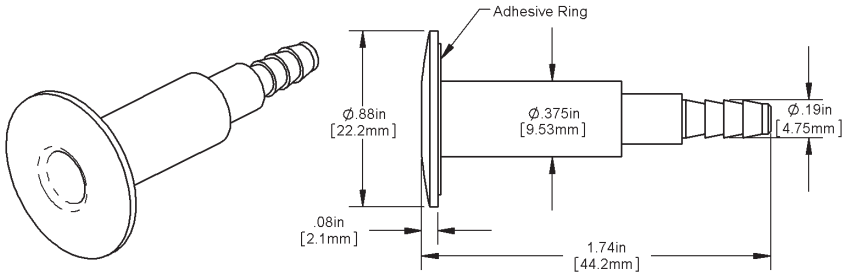
Insertion: 1.74” depth (44.2mm), into a 0.375” hole
Sleeve: 0.375” (9.53mm) Diameter
Bezel: 0.88” (22.2mm) Diameter

Material: White Delrin, UL94V-HB

Filter: 5 Micron

Ambient:

0 to 100% RH, Non-condensing
-40 to 185ºF, (-40 to 85ºC)



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Ordering Information

PART NUMBER	DESCRIPTION	LIST PRICE
ZPS-ACC20	Low Profile Pressure Pickup Port	$30

Wall & Ceiling Pressure Pickup Ports

Wallplates and Delta Style units available as pressure pickups alone or as combination pressure pickup and temperature sensor

BAPI's Wall Pressure Pickup Port comes standard on a brushed stainless steel plate or in a Delta Style enclosure, both sized to fit a common 2" x 4" electrical box. A foam gasket seals the plate or enclosure to the wall to insure the integrity of the measured space. The Wall Plate and Delta Style Enclosure can be used for pressure alone or as a combination temperature sensor and pressure pickup port.

BAPI also offers a Ceiling Mount Cover designed to fit a standard 3/4" thick suspended ceiling tile. If additional protection is required in the ceiling, a second ceiling cover fits on a common 2" x 4" electrical box. The brass fitting on the back of all Pickup Ports accommodates standard 1/8" to 5/32" I.D. tubing.



Delta Style Enclosure



Wall Plate



Ceiling Mount Square Cover



Ceiling Mount Cover & J-Box

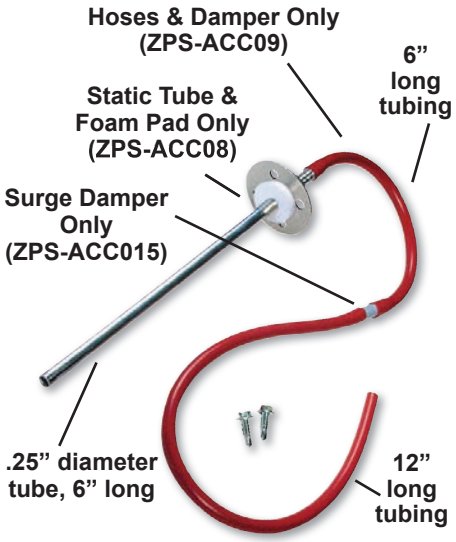
For more info, see pages C12-13

Pressure Probe Assemblies

Overview

The Static Pressure Probe and Total Pressure Probe Assemblies connect to the BAPI Zone Pressure Sensor to provide duct static pressure or duct air velocity. The angled total probe faces into the airflow to sense the moving air's total pressure while the static probe senses static pressure.

Both probe assemblies include a tube and rubber hose with built in surge damper to smooth out variations in airflow for a more stable reading. The Static Pressure Probe is available individually while the Pitot Pressure Probe Assemby includes the total probe and the static probe assemblies.



Static Pressure Probe Assembly



Total Pressure Probe Assembly



Static Tube Only, Zero Depth

ORDERING INFORMATION

ZPS-ACC07... Static Pressure Probe Assembly, 6" long

ZPS-ACC08... Aluminum static Tube Only (6") w/ Circular Foam

ZPS-ACC09... Rubber Hoses w/ Surge Damper (includes a bulk head fitting)

ZPS-ACC11... Pitot Pressure Probe Assembly, 3.5" long (includes the Static & Total Probe Assemblies)

ZPS-ACC12... Pitot Pressure Probe Assembly, 6" long (includes the Static & Total Probe Assemblies)

ZPS-ACC13... Total Tube Only (3.5") with Circular Foam (doesn't include hoses & damper)

ZPS-ACC14... Total Tube Only (6") with Circular Foam (doesn't include hoses & damper)

ZPS-ACC15... Surge Damper Only, 5 micron

ZPS-ACC17... Static Tube Only (0.5") with Circular Foam (doesn't include hoses & damper)

ZPS-ACC18... 2 Static Pressure Tube Assemblies, 6" Long

ZPS-ACC21... Stainless Steel Static Tube Only (6") with Circular Foam and Mounting Screws (doesn't include hoses & damper)

ZPS-ACC22... Static Tube Only, Zero Length, with Circular Foam and Mounting Screws

Silicone Rubber Tubing

Overview

Made from a material that's used for green house glazing, this synthetic rubber tubing maintains its flexibility and resiliency over time.

Specifications:

ID: 1/8 inch • **OD:** 1/4 inch • **Bend Radius:** 1/4 inch

Hardness: 50 durometer • **Tensile Strength:** 1100 psi

Application Temperature: -94 to 392°F (-70 to 200°C)

Material: Silicone Rubber



Silicone Rubber Tubing

ORDERING INFORMATION

ZPS-SIL-250-125-50 ..... 50 foot roll of silicone rubber tubing

Pressure Probe Assemblies

Ordering Information

PART NUMBER	DESCRIPTION	LIST PRICE
ZPS-ACC07	Static Pressure Probe Assembly	$25.50
ZPS-ACC08	Aluminum Static Tube & Foam Pad Only (doesn't include hoses & damper)	$12
ZPS-ACC09	Rubber Hoses with Built-In Surge Damper (includes a bulk head fitting)	$13
ZPS-ACC11	Pitot Pressure Probe Assembly, 3.5" long (includes static & total probe assemblies)	$72
ZPS-ACC12	Pitot Pressure Probe Assembly, 6" long (includes ZPS-ACC07)	$72
ZPS-ACC13	Total Tube Only (3.5") with Circular Foam (doesn't include hoses & damper)	$13
ZPS-ACC14	Total Tube Only (6") with Circular Foam (doesn't include hoses & damper)	$13
ZPS-ACC15	Surge Damper Only, 5 micron	$7.50
ZPS-ACC17	Static Tube Only (0.5") with Circular Foam (doesn't include hoses & damper)	$10.50
ZPS-ACC18	2 Static Pressure Tube Assemblies, 6" Long	$51
ZPS-ACC21	Stainless Steel Static Tube Only (6") with Circular Foam and Mounting Screws (doesn't include hoses & damper)	$30.64
ZPS-ACC22	Static Tube Only, Zero Length, with Circular Foam and Mounting Screws	$7.50

Silicone Rubber Tubing

PART NUMBER	DESCRIPTION	LIST PRICE
ZPS-SIL-250-125-50	50 foot roll of silicone rubber tubing	$73.50

Gray shaded items follow the Buy and Resale Multiplier.

C20 Differential Pressure Switch

Zone Pressure Sensors (ZPS)

Rev. 10/16/12

Features & Options

- Easy to Access Field Adjustable Setpoint from 0.1” to 35” W.C.
- UL 353 Listing So the Unit Can Be Used for Safety Controls
- 5 Amp Silver Contacts
- Built In Pressure Snubber for More Stable Readings



Differential Pressure Switch

The BAPI Differential Pressure Switch is ideal for air filter monitoring, static pressure proving, airflow proving or auxiliary fan actuation. Because of its UL 353 Limit Control Listing, the BAPI Switch can be used in safety circuits to protect heating appliances, heating systems, processing systems and HVAC/R systems.

The setpoint is field adjustable from 0.1” to 35” W.C, and the unit can measure positive pressure, vacuum or true differential pressure. The seven pressure ranges are field selectable by changing a color-coded spring. The spring for the range that you order is preinstalled, and the other six springs are shipped with the unit so that you can change ranges in the field if you choose.

The unit features a rugged plastic enclosure that protects the electrical terminations and pressure adjustment screw which is easily accessed through a port in the front cover using a square screwdriver bit (BA/SQ1BIT). The quick connect wiring terminations are accessed by opening the hinged cover. The unit is very compact and can be mounted directly on a flat surface with the rugged mounting feet, and the pressure barbs accept 3/16” or 1/4” tubing.

The unit also features an extremely high proof pressure of 100” W.C. so that it will continue to function properly even if it is accidently connected to an unusually high or low pressure.

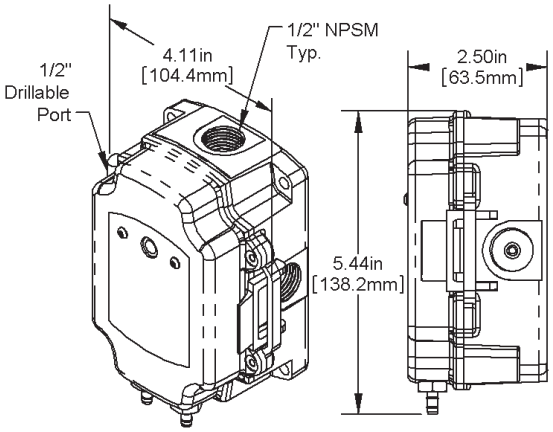
Ordering Information

Part Number	Description
ZPS-SW1:	Differential Pressure Switch, 0.12” to 0.52” W.C. (30 Pa to 130 Pa)
ZPS-SW2:	Differential Pressure Switch, 0.40” to 1.40” W.C. (100 Pa to 350 Pa)
ZPS-SW3:	Differential Pressure Switch, 1.20” to 2.40” W.C. (300 Pa to 600 Pa)
ZPS-SW4:	Differential Pressure Switch, 2.40” to 6.42” W.C. (600 Pa to 1,600 Pa)
ZPS-SW5:	Differential Pressure Switch, 5.22” to 12.84” W.C. (1,300 Pa to 3,200 Pa)
ZPS-SW6:	Differential Pressure Switch, 11.64” to 23.68” W.C. (2,900 Pa to 5,900 Pa)
ZPS-SW7:	Differential Pressure Switch, 21.68” to 35.32” W.C. (5,400 Pa to 8,800 Pa)
BA/SQ1BIT:	Square Screwdriver Bit to turn the Pressure Adjustment Screw



Specifications

Measurement Media: Air, Combustion Gases
Operating Temperature: -40 to 185°F (-40 to 85°C)
Operating Humidity: 5 to 95% RH non-condensing
Contact Ratings: 28 VA pilot duty, 24 VAC
1/10 HP, 120-277 VAC
125 VA Pilot Duty, 125 VAC
2.5 A Inductive, 125 VAC
5 A Resistive, 125 VAC
Proof Pressure: 100” W.C. (3.6 PSI, 24,900 Pa)
Pressure Ports: 1/4” Barbed Fittings
Switch Type: SPDT (Silver Contacts)
UL Limit Control Listing: 353
Repeatability: <10% of Setting
Hysteresis: 0.07 to 0.09 Inch W.C. For All Ranges



Differential Pressure Switch

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Ordering Information

PART NUMBERS	DESCRIPTION	LIST PRICE
ZPS-SW1:	Differential Pressure Switch, 0.12” to 0.52” W.C. (30 Pa to 130 Pa)	$79
ZPS-SW2:	Differential Pressure Switch, 0.40” to 1.40” W.C. (100 Pa to 350 Pa)	$79
ZPS-SW3:	Differential Pressure Switch, 1.20” to 2.40” W.C. (300 Pa to 600 Pa)	$79
ZPS-SW4:	Differential Pressure Switch, 2.40” to 6.42” W.C. (600 Pa to 1,600 Pa)	$79
ZPS-SW5:	Differential Pressure Switch, 5.22” to 12.84” W.C. (1,300 Pa to 3,200 Pa)	$79
ZPS-SW6:	Differential Pressure Switch, 11.64” to 23.68” W.C. (2,900 Pa to 5,900 Pa)	$79
ZPS-SW7:	Differential Pressure Switch, 21.68” to 35.32” W.C. (5,400 Pa to 8,800 Pa)	$79
BA/SQ1BIT:	Square Screwdriver Bit to turn the Pressure Adjustment Screw	*$1

*Net Price - multipliers do not apply on the Square Screwdriver Bit.

Note: If you are using metal tubing, add “-PIB” to the end of the part number so that the High and Low Pressure ports will be located in the base of the unit rather than in the hinged cover.

Wall & Ceiling Pressure Pickup Ports

Wallplates and Delta Style units available as pressure pickups alone or as combination pressure pickup and temperature sensor

BAPI’s Wall Pressure Pickup Port comes standard on a brushed stainless steel plate or in a Delta Style enclosure, both sized to fit a common 2” x 4” electrical box. A foam gasket seals the plate or enclosure to the wall to insure the integrity of the measured space. The Wall Plate and Delta Style Enclosure can be used for pressure alone or as a combination temperature sensor and pressure pickup port.

BAPI also offers a Ceiling Mount Cover designed to fit a standard 3/4” thick suspended ceiling tile. If additional protection is required in the ceiling, a second ceiling cover fits on a common 2” x 4” electrical box. The brass fitting on the back of all Pickup Ports accommodates standard 1/8” to 5/32” I.D. tubing.



Delta Style Enclosure



Wall Plate



Ceiling Mount Square Cover



Ceiling Mount Cover & J-Box

For more info, see pages C12-13



The simple truth is that CO_2-based ventilation doesn't assure indoor air quality. **BAPI's VOC Sensor** detects hundreds of air contaminants and is the best way of providing the appropriate ventilation needed for *true* indoor air quality.



For videos & information on BAPI's VOC Sensor, visit **www.bapihvac.com/voc**!

VOC in BAPI-Stat 3 - pg 2

- Measures Volatile Organic Compounds (VOCs)
- Output is Correlated to a CO_2 Value so You can Ventilate Using ASHRAE's VRP Algorithm



VOC in BAPI-Stat 4 - pg 4

- Measures Volatile Organic Compounds (VOCs)
- Output is Correlated to a CO_2 Value so You can Ventilate Using ASHRAE's VRP Algorithm



VOC Duct - pg 6

- Quick Response Sensor Through Aspiration Tube
- Measures Volatile Organic Compounds (VOCs) in the Air



CO_2 in BAPI-Stat 3 - pg 8

- Optimized for Periodically Unoccupied Areas
- Automatic Air Pressure and Temperature Compensation
- Optional Temperature and Humidity



"24/7" CO_2 in BAPI-Stat 3 - pg 10

- Optimized for Continuously Occupied Areas
- Automatic Air Pressure and Temperature Compensation
- Optional Temperature and Humidity



CO_2 in BAPI-Stat 4 - pg 12

- Automatic Air Pressure and Temperature Compensation
- Optimized for Periodically Unoccupied Areas



"24/7" CO_2 in BAPI-Stat 4 - pg 14

- Automatic Air Pressure and Temperature Compensation
- Optimized for Continuously Occupied Areas



CO_2 Duct - pgs 16-17

- Optimized for Periodically Unoccupied Areas
- Automatic Air Pressure and Temperature Compensation



"24/7" CO_2 Duct - pgs 18-19

- Optimized for Continuously Occupied Areas
- Automatic Air Pressure and Temperature Compensation



Refrig. Leak & CO - pgs 20-23



Refrigerant Leak Detector

Carbon Monoxide Sensor



CO_2 Calibration Kit - pg 24

Verifies proper operation and calibrates all of BAPI's room and duct CO_2 sensors.



VOC Verification Kit - pg 25

Tests the dynamic range of the VOC sensor to verify that the sensor element is working correctly.



VOC and CO_2 Sensor White Papers and App. Notes - pages 26-36

- BAPI VOC Sensor Offers an Alternative to CO_2 for Demand Controlled Ventilation, pg 26
- Using the BAPI VOC Sensor for Demand Controlled Ventilaton - White Paper, pgs 27-31
- Common Volatile Organic Compounds Detected by BAPI's VOC Sensor - App. Note, pgs 32-33
- The Effects of Temperature and Altitude on CO_2 Measurement - App. Note, pgs 34-35
- Calibration Methods for Single and Dual Beam CO_2 Sensors - App. Note, pg 36

VOC Room Sensor, BAPI-Stat 3 Enclosure

Air Quality Sensors

Rev. 10/16/12

Features & Options

- VOC Alone or Temperature and Humidity Combination
- Indicates Space Occupancy by Detecting Human-Generated VOCs
- Output is Correlated to a CO_2 Value Allowing You to Ventilate Using ASHRAE's Occupancy-Based VRP Algorithm

Humans respirate Volatile Organic Compounds (VOCs) as well as CO_2. The BAPI sensor is able to measure these VOCs and indicate when a space is occupied just as well as a CO_2 sensor.

The BAPI Sensor is different from other VOC sensors because it has been optimized for Demand Controlled Ventilation (DCV). Using a calibration algorithm, the sensor value is converted to an output with a high correlation to a CO_2 level[1]. This lets you use ASHRAE's occupancy-based VRP schedule to ventilate. ([1]More info on this correlated output is available on our website at www.bapihvac.com)

Besides from respiration, the sensor picks up VOCs from other sources such as building materials, perfumes, colognes and furniture off gassing. Using this sensor to ventilate is a way of achieving true indoor air quality and not just CO_2 dilution.

The unit is available as a VOC sensor alone or as a combination temperature and humidity sensor. The optional display alternates between the measured values and is field adjustable between °F or °C. An optional three color LED indicates "VOC Level" of Good, Fair or Poor.

True Blue IEQ FAMILY

Demand Controlled Ventilation with Confidence!

The VOC Sensor is part of BAPI's "True Blue IEQ Family". When used as a combination Temp. and Humidity Sensor, it addresses the Indoor Air Quality and Thermal Comfort portions of ASHRAE's Indoor Environment Quality (IEQ) section of Standard 189.1.



VOC Sensors with Temp. Setpoint and Override.

The top unit has the VOC Level of "Good, Fair or Poor" shown by an arrow on the display. The bottom unit has the VOC level shown by a 3-color LED.

Specifications

Power: (No AC Power)
0 to 5 VDC Output Units:
9 to 35 VDC @ 50 mA Max (9 to 15 VDC recommended)
0 to 10 VDC Output Units:
15 to 35 VDC @ 50mA Max (15 VDC recommended)

Sensing Elements:
Humidity: Capacitive Polymer, ±2% RH Accuracy
VOCs: Micro-machined Metal Oxide

Temp Sensor: Thermistor, RTD or Semiconductor

Mounting: 2"x4" J-Box or drywall mount – screws provided

VOC Detection Range: 0 to 2,000 CO_2 PPM equivalent

Response Time: Less Than 60 Sec. (after Start-Up Time)

Start-Up Time: 15 minutes

Operating Environment:
32 to 122°F (0 to 50°C) • 0 to 95% RH non-condensing

LCD Display:
Main Display: 0.76" 4-digit Numeric (Numeric Values)
Minor Display: 0.34" 3-digit Alpha-Numeric (PPM, %RH, °F, °C)
Occupied/Unoccupied BAPI Man Icon: (Blk=Occupied)

Measurement Offsets (field adjustable)
±5° (F or C) in 0.1° increments
±5% RH in 0.1% RH increments
±5% Contaminants in 0.1% increments
±100 ppp CO_2 Equivalent Contaminants in 2 ppm increments

Analog Outputs (0 to 5, 0 to 10 or 2 to 10VDC [%RH only], >10KΩ impedance)
VOC Contaminants: 0 to 2,000 CO_2 PPM equivalent
%RH: 0 to 100% or 35 to 70% RH

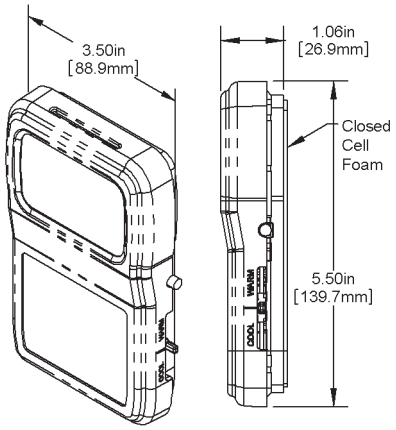
Override Output:
Contact: SPST
Sensor: Shorts out direct Temperature sensor (Temp)
Setpoint: Contact in parallel, resistive setpoint only

LED CO_2 Equivalent Level Indicator:
Good, Green < 1,000 PPM
Fair, Yellow = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

Material: ABS Plastic, Material Rated UL94V-0

Certifications: RoHS

Warranty Period: Two years from manufacture date



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VOC Room Sensor, BAPI-Stat 3 Enclosure

Rev. 10/16/12

Air Quality Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	VOC Room Sensor in the BAPI-Stat 3 Style Enclosure	List Price	Your Order
BA/			
Temperature Display Mode (Must select one)			
BS3F	Temperatures Displayed in °F (Temperature is displayed by default but can be turned off by the user. See instruction sheet.)	$35.00	$_____
BS3C	Temperatures Displayed in °C (Temperature is displayed by default but can be turned off by the user. See instruction sheet.)	$35.00	$_____
BS3X	No LCD Display	$0.00	
VOC Output (Must select one)			
-VOC05	VOCs Transmitted as 0 to 2,000 ppm CO2 Equivalent, 0 to 5 VDC output	$475.00	$_____
-VOC10	VOCs Transmitted as 0 to 2,000 ppm CO2 Equivalent, 0 to 10 VDC output	$475.00	$_____
Humidity Output (Skip if not required)			
-H205	±2% Humidity Transmitter, 0 to 5 VDC output	$80.00	$_____
-H210	±2% Humidity Transmitter, 0 to 10 VDC output	$80.00	$_____
-H212	±2% Humidity Transmitter, 2 to 10 VDC output	$80.00	$_____
Setpoint Display Options (Skip if not required)			

	Desired Range	Designator	Desired Range	Designator
-#	-2 to +2	P	60 to 80 °F or 15 to 27 °C	E
	-3 to +3	A	65 to 80 °F or 18 to 27 °C	F
	-5 to +5	B	70 to 74 °F or 21 to 23 °C	L
	50 to 90 °F or 10 to 32 °C	C	45 to 96 °F or 7 to 36 °C	G
	55 to 85 °F or 13 to 30 °C	D		

Setpoint Output Value Range (Skip if not required)

	Desired Range	Designator	Desired Range	Designator
##	674 to 274 Ω	23	15 to 5 kΩ	61
	800 to 1200 Ω	25	0 to 20 kΩ	80
	1800 to 2200 Ω	27	4.75 to 24.75 kΩ	81
	0 to 1 kΩ	40	7.87 to 27.87 kΩ	83
	500 to 1500 Ω	41	10 to 30 kΩ	84
	2 to 3 kΩ	42	0 to 100 kΩ	90
	0 to 10 kΩ	60	0 to 5 V*	00*

Additional Setpoint Ranges are available. See App. Notes Pg.2 for complete list.

SETPOINT LEGEND (insert Designator #)

Legend Range	Designator	Legend Range	Designator
No Legend	L0	COOL/WARM	L6

Additional Legends are available. Call BAPI for more information.

		List Price	Your Order
Sensor Type (Skip if resistive sensor in not required)			
0	100 Platinum RTD, 100Ω @ 0°C, 0.385Ω/°C temp coeff.	RTD's	
-1375	1K Platinum RTD, 1,000Ω @ 0°C, 3.75Ω/°C temp coeff.	$25.00	$_____
-1NI	1K Nickel RTD, 1,000Ω @ 21°C, 5Ω/°C temp coeff.	or	
-1	1K Platinum RTD, 1,000Ω @ 0°C, 3.85Ω/°C temp coeff.	$35 for 1NI	$_____
-2	2K Silicon RTD, 2,000Ω @ 20°C, 8Ω/°C temp coeff.		
-18	1.8K Thermistor, 1,800Ω @ 25°C	Thermistors	
-3	3K Thermistor, 3,000Ω @ 25°C	$18.00	$_____
-33	3.3K Thermistor, 3,300Ω @ 25°C		
-102	10K-2 Thermistor, 10,000Ω @ 25°C		
-103	10K-3 Thermistor, 10,000Ω @ 25°C		
-10311	10K-3[11K] Thermistor, 5,238Ω @ 25°C, 11KΩ shunt resistor		
-20	20K Thermistor, 20,000Ω @ 25°C		
-50	50K Thermistor, 50,000Ω @ 25°C	Semi-	
-100	100K Thermistor, 100,000Ω @ 25°C	conductor	
-592	AD592 Semiconductor, 273 µA @ 0°C	$25.00	$_____
Override Configuration (Must select one)			
-J	Override as a Separate Output.* (Dry contact only, not intended to switch a load.)	$5.00	$_____
-N	Override in Parallel (//) with Sensor	$5.00	$_____
-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models	$5.00	$_____
-Z	No Override. (Needed if no override is required)	$0.00	
Optional Communication Jack	***Mounted in unit's base***		
-C35L	3.5 mm Phono Jack w/ Leads Attached	$10.00	$_____
-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block	$10.00	$_____
Optional Test and Balance Switch (Skip if not required)			
-TB	Three Position Switch	$7.50	$_____
Differential Ground – Setpoint & Temp Sensor (Skip if not required)			
-DF	Differential Ground (Default is Common Ground, Only add -DF if required)		
VOC Level Indication (Must select one)			
-LED	Green/Orange/Red LED on Logo Plate to Indicate VOC PPM Level. Includes Legend for Good, Fair and Poor.		
-ARW	Black Arrow on Display to Indicate VOC PPM Level. Includes Legend Below Display for Good, Fair and Poor		
-BNK	No LED or Arrow Indicators, No Legend		

EXAMPLE												
BA/	BS3F	-VOC05	-H205	-A	80L6	-0	-J	-C35L	-TB		-LED	

Example Part Number: BA/BS3F-VOC05-H205-A80L6-0-J-C35L-TB-LED

Your Part Number:

Total = $_____

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

*Not available with Differential Ground (-DF) option

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VOC Room Sensor, BAPI-Stat 4 Enclosure

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Indicates Space Occupancy by Detecting Human-Generated VOCs
- Output is Correlated to a CO_2 Value Allowing You to Ventilate Using ASHRAE's Occupancy-Based VRP Algorithm
- BAPI-Stat 4 Style Enclosure with 0 to 5 VDC or 0 to 10 VDC Output

Humans respirate Volatile Organic Compounds (VOCs) as well as CO_2. The BAPI sensor measures these VOCs and indicates when a space is occupied just as well as a CO_2 sensor.

The advantage of the VOC sensor is that it measures air contaminants from other sources besides respiration, such as building materials, cleaners, perfumes and furniture and carpet off-gassing. Using this sensor for Demand Controlled Ventilation then is a way of achieving true indoor air quality, rather than just CO_2 dilution.

A further benefit is that it requires no additional work on your part. That's because the sensor converts the VOC reading to a CO_2 equivalent level. This lets you use ASHRAE's CO_2-based VRP schedule to ventilate. (More information on the CO_2 equivalent output is available on our website at www.bapihvac.com, or in the Application Notes at the end of Section D of the catalog.)

The VOC Room Sensor in the BAPI-Stat 4 Enclosure features 0 to 5 VDC or 0 to 10 VDC output with an optional indication of the VOC level as "Good, Fair or Poor" by a three-color LED on the front of the unit.



VOC Sensors in the BAPI-Stat 4 Enclosure

The bottom unit has the VOC Level of "Good, Fair or Poor" shown by a 3-color LED.

Specifications

Power:
18 to 24 VAC, 2 VA Max
12 to 32 VDC, 200 mA Max
(12 VDC Recommended)

Selectable Output:
0 to 2,000 PPM CO_2 at 0 to 5 or 0 to 10 VDC

Sensing Element: Micro-machined Metal Oxide

Termination: 3 Terminals, 16 to 22 AWG

Wiring: 2 Pair

Operating Environment:
32 to 122°F (0 to 50°C)
5 to 95%RH non-condensing

Enclosure Material:
ABS Plastic, Material Rated UL94V-O

VOC Detection Range: 0 to 2000 ppm CO_2 Equivalent

Start-Up Time: 15 Minutes

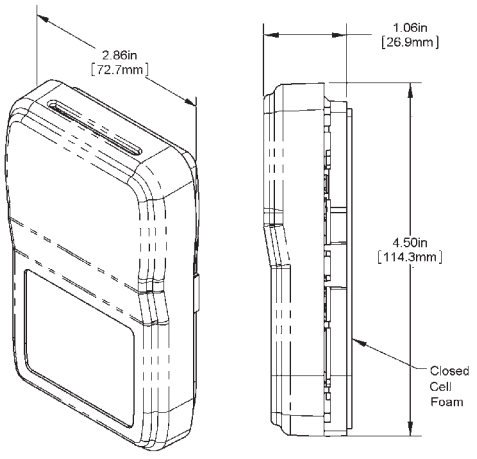
Response Time:
Less Than 2 Minutes (after Start-Up Time)

Mounting: 2"x4" J-Box or drywall – screws provided

Optional LED VOC Level Indicator:
Good, Green < 1,000 PPM
Fair, Orange = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

Certifications: RoHS

Warranty Period:
2 Years from manufacture date



VOC Sensor in the BAPI-Stat 4 Enclosure

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VOC Room Sensor, BAPI-Stat 4 Enclosure

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information	VOC Room Sensor in the BAPI-Stat 4 Enclosure			List Price	Your Order
BA/BS4				$425.00	$_____
	VOC Output				
	-VOC05	VOCs Transmitted as 0 to 2,000 ppm CO2 Equivalent, 0 to 5 VDC output			
	-VOC10	VOCs Transmitted as 0 to 2,000 ppm CO2 Equivalent, 0 to 10 VDC output			
		VOC Level Indication (Must select one)			
		-LED	Green/Orange/Red LED on Logo Plate to Indicate VOC PPM Level. Includes Legend for Good, Fair and Poor.		
		-BNK	No LED, No Legend		
EXAMPLE					
BA/BS4	-VOC05	-LED		Total =	$_____
Example Part Number: BA/BS4-VOC05-LED					
Your Part Number:					

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

VOC Duct Sensor

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Corresponds to ASHRAE's Occupancy-Based DCV Algorithm
- Quick Response Sensor Through Aspiration Tube
- Indicates Space Occupancy by Detecting Human-Generated VOCs
- 0 to 5 VDC or 0 to 10 VDC Output



VOC Duct Sensor

Humans respirate Volatile Organic Compounds (VOCs) as well as CO_2. The BAPI sensor measures these VOCs and indicates when a space is occupied just as well as a CO_2 sensor.

The advantage of the VOC sensor is that it measures air contaminants from other sources besides respiration, such as building materials, cleaners, perfumes and furniture and carpet off-gassing. Using this sensor for Demand Controlled Ventilation then is a way of achieving true indoor air quality, rather than just CO_2 dilution.

A further benefit is that it requires no additional work on your part. That's because the sensor converts the VOC reading to a CO_2 equivalent level. This lets you use ASHRAE's CO_2-based VRP schedule to ventilate. (More information on the CO_2 equivalent output is available on our website at www.bapihvac.com, or in the Application Notes at the end of Section D of the catalog.)

BAPI's VOC Duct Sensor samples duct air using an aspiration tube. Moving air from the duct enters the tube, is forced into the BAPI-Box enclosure and exits through the other half of the tube. As long as there is air movement in the duct, air is continuously exchanged.

Demand Controlled Ventilation with Confidence!

Specifications

Power:
9 to 35 VDC @ 50 mA Max (9 to 24VDC recommended) for 0 to 5 VDC Outputs
15 to 35 VDC @ 50mA Max (15 to 24VDC recommended) for 0 to 10 VDC Outputs
No AC Power

Sensing Element:
VOCs: Micro-machined Metal Oxide

Analog Outputs:
(0 to 5VDC or 0 to 10VDC, >10KΩ impedance)
VOC Contaminants: 0 to 2,000 PPM CO_2 Equivalent

VOC Detection Range: 0 to 100%

Response Time: Less Than 60 Seconds

Start-Up Time: 15 minutes

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

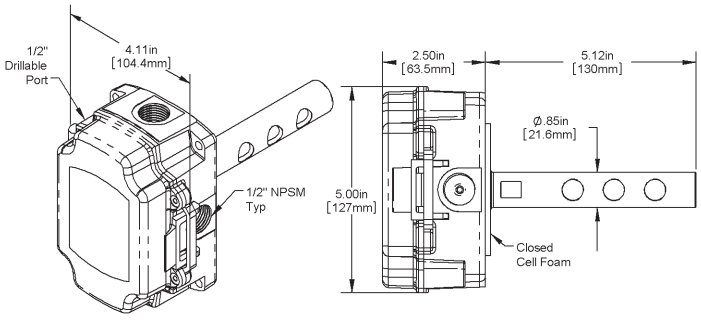
Dimension: 4.91"H x 3.21"W x 1.20"D
(124.6 x 81.5 x 30.5 mm)

Enclosure Rating:
NEMA 4, IP66

Enclosure Material:
Polycarbonate, UL94 V-O

Certifications: RoHS

Warranty Period:
Two years from manufacture date



VOC Duct Sensor in a BAPI-Box Enclosure

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information VOC Duct Sensor in the BAPI-Box Enclosure				List Price	Your Order
BA/				**$475.00**	**$_____**
	VOC Output	**Must Select One**			
	VOC05	VOCs Transmitted as 0 to 2,000 ppm CO2 Equivalent, 0 to 5 VDC output			
	VOC10	VOCs Transmitted as 0 to 2,000 ppm CO2 Equivalent, 0 to 10 VDC output			
		Enclosure	**Required Selection**		
		-D-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate	**$12.00**	**$_____**
EXAMPLE					
BA/	**VOC05**	-D-BB		**Total =**	**$_____**
Example Part Number: BA/VOC05-D-BB					
Your Part Number:					

Call BAPI if you have questions about the above ordering grid.

CO_2 Room Sensor, BAPI-Stat 3 Enclosure

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Automatic Altitude and Temperature Compensation
- Optional Temperature, Temperature Setpoint, Override and Humidity
- Optimized for Periodically Unoccupied Areas

The BAPI CO_2 Sensor is an accurate and reliable way of incorporating demand controlled ventilation into a building's HVAC strategy. It measures the CO_2 in a range of 0 to 2,000 ppm with a field selectable output of 0 to 5 or 0 to 10 VDC.

The non-dispersive infrared (NDIR) technology has been optimized for periodically unoccupied areas and features automatic background calibration over a long time period to reduce drift. The sensor is also altitude compensated for long-term accuracy. Air pressure changes from altitude or weather patterns can affect the output of CO_2 sensors, even putting them outside of their specified accuracy. The BAPI unit has a built-in barometric sensor that continuously compensates the output for accurate readings despite the weather or altitude of the installation.

The unit can be ordered as CO_2 alone, or with optional temp sensing, temp setpoint, override and humidity sensing. The large format display is easy to read and alternates between the measured values (CO_2, Temperature or Humidity). The display is also field adjustable between °F or °C and all the displayed values may be turned on or off by an HVAC technician.

Optional indication of the CO_2 level as "Good, Fair or Poor" is available as a three-color LED on the unit or as an arrow on the display.

The CO_2 Sensor is part of BAPI's "True Blue IEQ Family". When used as a combination Temp. and Humidity Sensor, it addresses the Indoor Air Quality and Thermal Comfort portions of ASHRAE's Indoor Environment Quality (IEQ) section of Standard 189.1.



CO_2 Sensors with Temp. Setpoint and Override.

The top unit has the CO_2 Level of "Good, Fair or Poor" shown by an arrow on the display. The bottom unit has the CO_2 level shown by a 3-color LED.

Specifications

Power for 0 to 5 VDC Outputs:
9 to 35 VDC @ 50mA avg, 200 mA max (9 to 24 VDC recomm.)

Power for 0 to 10 VDC Outputs:
15 to 35 VDC @ 50mA avg, 200 mA max (15 to 24 VDC recomm.)

Sensing Elements:
CO_2: Single Beam Non-Dispersive Infrared (NDIR)
Humidity: Capacitive Polymer ±2% RH Accuracy

Temperature Sensor:
Thermistor, RTD or Semiconductor

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

Material ABS Plastic, Material Rated UL94V-O

CO_2 Detection Range: 0 to 2000 ppm

Start-Up Time: 10 Minutes

Response Time: Less Than 2 Minutes (after Start-Up Time)

Mounting: 2"x4" J-Box or drywall – screws provided

CO_2 Accuracy: (Automatic Background Calibration)
400 to 1,250 ppm: ±30ppm or 3% of reading, whichever is greater
1,250 to 2,000 ppm: ±5% of reading + 30ppm

LCD Display:
Main Display: 0.76" 4-digit Numeric (Numeric Values)
Minor Display: 0.34" 3-digit Alpha-Numeric (PPM, %RH, °F, °C)
Occupied/Unoccupied BAPI Man Icon: (Blk=Occupied)

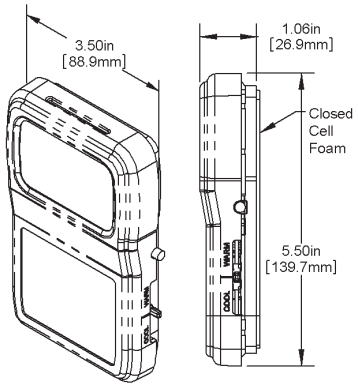
Measurement Offsets: (Field Adjustable)
±5° (F or C) in 0.1° increments
±5% RH in 0.1% RH increments

Override Output:
Contact .... SPST, 24V AC/DC, 0.5A max
Sensor ..... Shorts Out direct temperature sensor
Setpoint .... Contact in parallel, resistive setpoint only

LED CO_2 Level Indicator:
Good, Green < 1,000 PPM
Fair, Orange = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

Certifications: RoHS

Warranty Period: 2 Years from manufacture date



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CO_2 Room Sensor, BAPI-Stat 3 Enclosure

Rev. 10/16/12

Air Quality Sensors

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information BAPI-Stat 3 Style Room Unit - CO_2, Temperature and Humidity												List Price	Your Order
BA/													
	Temperature Display Mode												
	BS3F	Temperatures Displayed in °F (Temperature is displayed by default but can be turned off by the user. See instruction sheet.)										$35.00	$_____
	BS3C	Temperatures Displayed in °C (Temperature is displayed by default but can be turned off by the user. See instruction sheet.)										$35.00	$_____
	BS3X	No LCD Display										$0.00	
		CO_2 Output											
		-ACD05	CO_2 as 0 to 2,000 PPM, 0 to 5 VDC output, Automatic Background Calibration for buildings that are periodically unoccupied									$475.00	$_____
		-ACD10	CO_2 as 0 to 2,000 PPM, 0 to 10 VDC output, Automatic Background Calibration for buildings that are periodically unoccupied									$475.00	$_____
			Humidity Transmitter (Omit if not required)										
			-H205	±2% Humidity Transmitter, 0 to 5 VDC output								$80.00	$_____
			-H210	±2% Humidity Transmitter, 0 to 10 VDC output								$80.00	$_____
			-H212	±2% Humidity Transmitter, 2 to 10 VDC output								$80.00	$_____
				Setpoint Display Options (Skip if not required)									
				-#	P: -2 to +2 (60 to 80 °F or 15 to 27 °C) E; A: -3 to +3 (65 to 80 °F or 18 to 27 °C) F; B: -5 to +5 (70 to 74 °F or 21 to 23 °C) L; C: 50 to 90 °F or 10 to 32 °C (45 to 96 °F or 7 to 36 °C) G; D: 55 to 85 °F or 13 to 30 °C								
				Setpoint Output Value Range (Skip if not required)									
				##	23: 674 to 274 Ω; 25: 800 to 1200 Ω; 27: 1800 to 2200 Ω; 40: 0 to 1 kΩ; 41: 500 to 1500 Ω; 42: 2 to 3 kΩ; 60: 0 to 10 kΩ; 61: 15 to 5 kΩ; 80: 0 to 20 kΩ; 81: 4.75 to 24.75 kΩ; 83: 7.87 to 27.87 kΩ; 84: 10 to 30 kΩ; 90: 0 to 100 kΩ; 00*: 0 to 5 V*							Any Setpoint $6.00	$_____
					Additional Setpoint Ranges are Available. See App. Notes Pg.2 for complete list.								
					SETPOINT LEGEND (insert Designator #)								
					Legend Range: No Legend — Designator: L0; Legend Range: COOL/WARM — Designator: L6								
					Additional Legends are Available. Call BAPI for more information.								
					Sensor Type (If resistive sensor required)								
					-0	100 Platinum RTD, 100Ω @ 0°C, 0.385Ω/°C temp coeff.						RTD's $25.00	$_____
					-1375	1K Platinum RTD, 1,000Ω @ 0°C, 3.75Ω/°C temp coeff.							
					-1NI	1K Nickel RTD, 1,000Ω @ 21°C, 5Ω/°C temp coeff.						or $35 for 1NI	$_____
					-1	1K Platinum RTD, 1,000Ω @ 0°C, 3.85Ω/°C temp coeff.							
					-2	2K Silicon RTD, 2,000Ω @ 20°C, 8Ω/°C temp coeff.							
					-18	1.8K Thermistor, 1,800Ω @ 25°C						Thermistors $18.00	$_____
					-3	3K Thermistor, 3,000Ω @ 25°C							
					-33	3.3K Thermistor, 3,300Ω @ 25°C							
					-102	10K-2 Thermistor, 10,000Ω @ 25°C							
					-103	10K-3 Thermistor, 10,000Ω @ 25°C							
					-10311	10K-3[11K] Thermistor, 5,238Ω @ 25°C, 11KΩ shunt resistor							
					-20	20K Thermistor, 20,000Ω @ 25°C							
					-50	50K Thermistor, 50,000Ω @ 25°C						Semi-conductor	
					-100	100K Thermistor, 100,000Ω @ 25°C							
					-592	AD592 Semiconductor, 273 µA @ 0°C						$25.00	$_____
						Override Configuration (Must select one)							
						-J	Override as a Separate Output.* (Dry contact only, not intended to switch a load.)					$5.00	$_____
						-N	Override in Parallel (//) with Sensor					$5.00	$_____
						-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models					$5.00	$_____
						-Z	No Override. (Needed if no override is required)					$0.00	
							Optional Communication Jack (*Mounted in unit's base*)						
							-C11L	RJ11 (4 pin) Style Jack with Leads				$20.00	$_____
							-C11LT	RJ11 (4 pin) Style Jack with Leads and Terminal Block				$20.00	$_____
							-C35L	3.5 mm Phono Jack w/ Leads Attached				$10.00	$_____
							-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block				$10.00	$_____
							-C22L	RJ22 (4 pin) Style Jack with Leads Attached				$25.00	$_____
							-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block				$25.00	$_____
								Optional Test and Balance Switch					
								-TB	Three Position Switch			$7.50	$_____
									Differential Ground – Setpoint & Temp Sensor (Skip if not required)				
									-DF	Differential Ground (Default is Common Ground, Only add -DF if required)			
										CO_2 Level Indication (Must select one)			
										-LED	Green/Orange/Red LED on Logo Plate to Indicate CO_2 PPM Level. Includes Legend for Good, Fair and Poor.		
										-ARW	Black Arrow on Display to Indicate CO_2 PPM Level. Includes Legend Below Display for Good, Fair and Poor		
										-BNK	No LED or Arrow Indicators, No Legend		

EXAMPLE

BA/	BS3F	-ACD05	-H205	-A	80L6	-0	-J	-C11L	-TB		-LED		Total = $_____
Example Part Number: BA/BS3F-ACD05-H205-A80L6-0-J-C11L-TB-LED													
Your Part Number:													

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

*Not available with Differential Ground (-DF) option

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"24/7" CO_2 Room Sensor, BAPI-Stat 3

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Altitude and Temperature Compensation
- Optional Temperature, Temperature Setpoint, Override and Humidity
- Optimized for Areas that Are Continuously Occupied

The BAPI CO_2 Sensor is an accurate and reliable way of incorporating demand controlled ventilation into a building's HVAC strategy. It measures the CO_2 in a range of 0 to 2,000 ppm with a field selectable output of 0-5 or 0-10 VDC.

The non-dispersive infrared (NDIR) technology of the "24/7" unit has been optimized for continuously occupied areas. It features a dual-channel optical system and three-point calibration process for enhanced stability, accuracy and reliability. The sensor is also altitude compensated for long-term accuracy. Air pressure changes from altitude or weather patterns can affect the output of CO_2 sensors, even putting them outside of their specified accuracy. The BAPI unit has a built-in barometric sensor that continuously compensates the output for accurate readings despite the weather or the altitude of the installation.

The unit can be ordered as CO_2 alone, or with optional temp sensing, temp setpoint, override and humidity sensing. The large format display is easy to read and alternates between the measured values (CO_2, Temperature or Humidity). The display is also field adjustable between °F or °C and all the displayed values may be turned on or off by an HVAC technician.



CO_2 Sensors with Temp. Setpoint and Override.

The top unit has the CO_2 Level of "Good, Fair or Poor" shown by an arrow on the display. The bottom unit has the CO_2 level shown by a 3-color LED.

True Blue IEQ FAMILY

Optional indication of the CO_2 level as "Good, Fair or Poor" is available as a 3-color LED on the unit or an arrow on the display.

The CO_2 Sensor is part of BAPI's "True Blue IEQ Family". When used as a combination Temp. and Humidity Sensor, it addresses the Indoor Air Quality and Thermal Comfort portions of ASHRAE's Indoor Environment Quality (IEQ) section of Standard 189.1.

Specifications

Power for 0 to 5 VDC Outputs:
9 to 35 VDC @ 50mA avg, 200 mA max (9 to 24 VDC recomm.)

Power for 0 to 10 VDC Outputs:
15 to 35 VDC @ 50mA avg, 200 mA max (15 to 24 VDC recomm.)

Sensing Elements:
CO_2: Dual Channel Non-Dispersive Infrared (NDIR)
Humidity: Capacitive Polymer ±2% RH Accuracy

Temperature Sensor:
Thermistor, RTD or Semiconductor

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

Material ABS Plastic, Material Rated UL94V-O

CO_2 Detection Range: 0 to 2000 ppm

Start-Up Time: 10 Minutes

Response Time: Less Than 2 Minutes (after Start-Up Time)

Mounting: 2"x4" J-Box or drywall – screws provided

Override Output:
Contact .... SPST, 24V AC/DC, 0.5A max
Sensor ..... Shorts out direct temperature sensor
Setpoint ... Contact in parallel, resistive setpoint only

LCD Display:
Main Display:0.76" 4-digit Numeric (Numeric Values)
Minor Display: 0.34" 3-digit Alpha-Numeric (PPM, %RH, °F, °C)
Occupied/Unoccupied BAPI Man Icon: (Blk=Occupied)

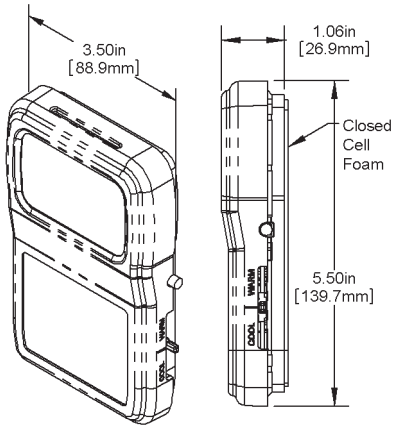
Measurement Offsets: (Field Adjustable)
±5° (F or C) in 0.1° increments
±5% RH in 0.1% RH increments

CO_2 Accuracy: ±75ppm

LED Air Quality Indicator:
Good, Green < 1,000 PPM
Fair, Yellow = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

Certifications: RoHS

Warranty Period: 2 Years from manufacture date



BAPI
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"24/7" CO_2 Room Sensor, BAPI-Stat 3

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information												List Price	Your Order
BA/	**BAPI-Stat 3 Style Room Unit - "24/7" CO_2, Temperature and Humidity**												
	Temperature Display Mode												
	BS3F	Temperatures Displayed in °F (Temperature is displayed by default but can be turned off by the user. See instruction sheet.)										$35.00	$_____
	BS3C	Temperatures Displayed in °C (Temperature is displayed by default but can be turned off by the user. See instruction sheet.)										$35.00	$_____
	BS3X	No LCD Display										$0.00	
		CO_2 Output											
		-DCD05	CO_2 as 0 to 2,000 PPM, 0 to 5 VDC output, Dual Channel Calibration for buildings that are continuously occupied									$505.00	$_____
		-DCD10	CO_2 as 0 to 2,000 PPM, 0 to 10 VDC output, Dual Channel Calibration for buildings that are continuously occupied									$505.00	$_____
			Humidity Transmitter (Omit if not required)										
			-H205	±2% Humidity Transmitter, 0 to 5 VDC output								$80.00	$_____
			-H210	±2% Humidity Transmitter, 0 to 10 VDC output								$80.00	$_____
			-H212	±2% Humidity Transmitter, 2 to 10 VDC output								$80.00	$_____
				Setpoint Display Options (Skip if not required)									
				-#	Desired Range / Designator: -2 to +2 **P**; -3 to +3 **A**; -5 to +5 **B**; 50 to 90 °F or 10 to 32 °C **C**; 55 to 85 °F or 13 to 30 °C **D**; 60 to 80 °F or 15 to 27 °C **E**; 65 to 80 °F or 18 to 27 °C **F**; 70 to 74 °F or 21 to 23 °C **L**; 45 to 96 °F or 7 to 36 °C **G**								
					Setpoint Output Value Range (Skip if not required)								
					##	Desired Range / Designator: 674 to 274 Ω **23**; 800 to 1200 Ω **25**; 1800 to 2200 Ω **27**; 0 to 1 kΩ **40**; 500 to 1500 Ω **41**; 2 to 3 kΩ **42**; 0 to 10 kΩ **60**; 15 to 5 kΩ **61**; 0 to 20 kΩ **80**; 4.75 to 24.75 kΩ **81**; 7.87 to 27.87 kΩ **83**; 10 to 30 kΩ **84**; 0 to 100 kΩ **90**; 0 to 5 V* **00***							Any Setpoint	$6.00	$_____
						Additional Setpoint Ranges are Available. See App. Notes Pg.2 for complete list.							
						SETPOINT LEGEND (insert Designator #)							
						Legend Range / Designator: No Legend **L0**; COOL/WARM **L6**							
						Additional Legends are Available. Call BAPI for more information.							
						Sensor Type (If resistive sensor required)							
						-0	100 Platinum RTD, 100Ω @ 0°C, 0.385Ω/°C temp coeff.					RTD's $25.00 or $35 for 1NI	$_____
						-1375	1K Platinum RTD, 1,000Ω @ 0°C, 3.75Ω/°C temp coeff.						
						-1NI	1K Nickel RTD, 1,000Ω @ 21°C, 5Ω/°C temp coeff.						
						-1	1K Platinum RTD, 1,000Ω @ 0°C, 3.85Ω/°C temp coeff.						
						-2	2K Silicon RTD, 2,000Ω @ 20°C, 8Ω/°C temp coeff.						
						-18	1.8K Thermistor, 1,800Ω @ 25°C					Thermistors $18.00	$_____
						-3	3K Thermistor, 3,000Ω @ 25°C						
						-33	3.3K Thermistor, 3,300Ω @ 25°C						
						-102	10K-2 Thermistor, 10,000Ω @ 25°C						
						-103	10K-3 Thermistor, 10,000Ω @ 25°C						
						-10311	10K-3[11K] Thermistor, 5,238Ω @ 25°C, 11KΩ shunt resistor						
						-20	20K Thermistor, 20,000Ω @ 25°C						
						-50	50K Thermistor, 50,000Ω @ 25°C					Semi-conductor $25.00	$_____
						-100	100K Thermistor, 100,000Ω @ 25°C						
						-592	AD592 Semiconductor, 273 µA @ 0°C						
							Override Configuration (Must select one)						
							-J	Override as a Separate Output. (Dry contact only, not intended to switch a load.)				$5.00	$_____
							-N	Override in Parallel (//) with Sensor				$5.00	$_____
							-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models				$5.00	$_____
							-Z	No Override. (Needed if no override is required)				$0.00	
								Optional Communication Jack (Mounted in unit's base)					
								-C11L	RJ11 (4 pin) Style Jack with Leads			$20.00	$_____
								-C11LT	RJ11 (4 pin) Style Jack with Leads and Terminal Block			$20.00	$_____
								-C35L	3.5 mm Phono Jack w/ Leads Attached			$10.00	$_____
								-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block			$10.00	$_____
								-C22L	RJ22 (4 pin) Style Jack with Leads Attached			$25.00	$_____
								-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block			$25.00	$_____
									Optional Test and Balance Switch				
									-TB	Three Position Switch		$7.50	$_____
										Differential Ground – Setpoint & Temp Sensor (Skip if not required)			
										-DF	Differential Ground (Default is Common Ground, Only add -DF if required)		
											CO_2 Level Indication (Must select one)		
											-LED Green/Orange/Red LED on Logo Plate to Indicate CO_2 PPM Level. Includes Legend for Good, Fair and Poor.		
											-ARW Black Arrow on Display to Indicate CO_2 PPM Level. Includes Legend Below Display for Good, Fair and Poor		
											-BNK No LED or Arrow Indicators, No Legend		
EXAMPLE													
BA/	**BS3F**	**-DCD05**	**-H205**	**-A**	**80L6**	**-0**	**-J**	**-C11L**	**-TB**	**-LED**			
Example Part Number: BA/BS3F-DCD05-H205-A80L6-0-J-C11L-TB-LED												**Total =**	$_____
Your Part Number:													

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

*Not available with Differential Ground (-DF) option

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D12 CO_2 Room Sensor, BAPI-Stat 4 Enclosure

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Automatic Air Pressure and Temperature Compensation
- Optimized for Periodically Unoccupied Areas

The BAPI CO_2 Sensor in the BAPI-Stat 4 Enclosure is an accurate and reliable way of incorporating demand controlled ventilation into a building's HVAC strategy. It measures the CO_2 in a range of 0 to 2,000 ppm with a field selectable output of 0 to 5 or 0 to 10 VDC.

The non-dispersive infrared (NDIR) technology has been optimized for periodically unoccupied areas and features automatic background calibration over a long time period to reduce drift.

The BAPI unit also has continuous automatic air pressure compensation. Air pressure changes from altitude or weather patterns can affect the output of CO_2 sensors, even putting them outside of their specified accuracy. The BAPI unit has a built-in barometric sensor that continuously compensates the output for accurate readings despite the weather or the altitude of the installation. Because of this feature, the BAPI CO_2 sensor received a 2012 AHR Expo Innovation Award.

Optional indication of the CO_2 level as "Good, Fair or Poor" is available as a three-color LED on the front of the unit.



CO_2 Sensors in the BAPI-Stat 4 Enclosure

The bottom unit has the CO_2 Level of "Good, Fair or Poor" shown by a 3-color LED.

Specifications

Power:
18 to 28 VAC, 2 VA Max
12 to 32 VDC, 200 mA Max
(12 VDC Recommended)

Sensing Elements:
CO_2: Single Beam Non-Dispersive Infrared (NDIR)

Selectable Output:
0 to 2,000 PPM CO_2 at 0 to 5 or 0 to 10 VDC

Termination: 3 Terminals, 16 to 22 AWG

Wiring: 2 Pair

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

Enclosure Material:
ABS Plastic, Material Rated UL94V-O

CO_2 Detection Range: 0 to 2,000 ppm

Start-Up Time: 10 Minutes

Response Time:
Less Than 5 Minutes (after Start-Up Time)

Mounting: 2"x4" J-Box or drywall – screws provided

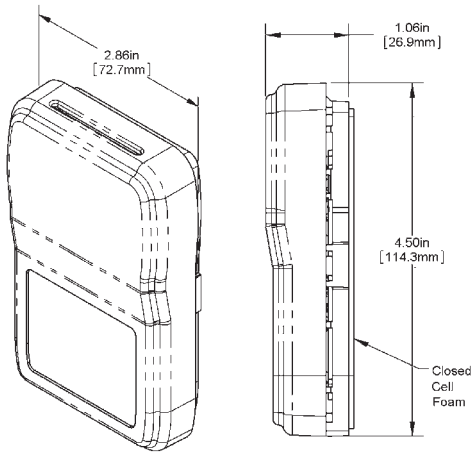
CO_2 Accuracy: (Automatic Background Calibration)
400 to 1,250 ppm: ±30ppm or 3% of reading, whichever is greater

1,250 to 2,000 ppm: ±5% of reading + 30ppm

Optional LED CO_2 Level Indicator:
Good, Green < 1,000 PPM
Fair, Orange = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

Certifications: RoHS

Warranty Period:
2 Years from manufacture date



CO_2 Sensor in the BAPI-Stat 4 Enclosure

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CO_2 Room Sensor, BAPI-Stat 4 Enclosure

Ordering Grids without List Prices are available on our website at www.bapihvac.com

				List Price	Your Order
Ordering Information	**CO2 Room Sensor in the BAPI-Stat 4 Enclosure for Periodically Unoccupied Areas**				
BA/BS4				**$425.00**	**$_____**
	CO_2 Output				
	-ACD05	CO_2 as 0 to 2,000 PPM, 0 to 5 VDC output, Automatic Background Calibration for areas that are periodically unoccupied			
	-ACD10	CO_2 as 0 to 2,000 PPM, 0 to 10 VDC output, Automatic Background Calibration for areas that are periodically unoccupied			
		CO_2 Level Indication (Must select one)			
		-LED	Green/Orange/Red LED on Logo Plate to Indicate CO_2 PPM Level. Includes Legend for Good, Fair and Poor.		
		-BNK	No LED, No Legend		
EXAMPLE					
BA/BS4	**-ACD05**	**-LED**		**Total =**	**$_____**
Example Part Number: BA/BS4-ACD05-LED					
Your Part Number:					

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

"24/7" CO_2 Room Sensor, BAPI-Stat 4 Enclosure

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Automatic Air Pressure and Temperature Compensation
- Optimized for Continuously Occupied Areas

The BAPI "24/7" CO_2 Sensor in the BAPI-Stat 4 Enclosure is an accurate and reliable way of incorporating demand controlled ventilation into a building's HVAC strategy. It measures the CO_2 in a range of 0 to 2,000 ppm with a field selectable output of 0 to 5 or 0 to 10 VDC.

The non-dispersive infrared (NDIR) technology of the "24/7" unit has been optimized for areas that are continuously occupied. It features a dual-channel optical system and three-point calibration process for enhanced stability, accuracy and reliability.

The BAPI unit also has continuous automatic air pressure compensation. Air pressure changes from altitude or weather patterns can affect the output of CO_2 sensors, even putting them outside of their specified accuracy. The BAPI unit has a built-in barometric sensor that continuously compensates the output for accurate readings despite the weather or the altitude of the installation. Because of this feature, the BAPI CO_2 sensor received a 2012 AHR Expo Innovation Award.

Optional indication of the CO_2 level as "Good, Fair or Poor" is available as a three-color LED on the front of the unit.



"24/7" CO_2 Sensors in the BAPI-Stat 4 Enclosure

The bottom unit has the CO_2 Level of "Good, Fair or Poor" shown by a 3-color LED.

Specifications

Power:
18 to 28 VAC, 2 VA Max
12 to 32 VDC, 200 mA Max
(12 VDC Recommended)

Sensing Elements:
CO_2 – Dual Channel Non-Dispersive Infrared (NDIR)

Selectable Output:
0 to 2,000 PPM CO_2 at 0 to 5 or 0 to 10 VDC

Termination: 3 Terminals, 16 to 22 AWG

Wiring: 2 Pair

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

Enclosure Material:
ABS Plastic, Material Rated UL94V-O

CO_2 Detection Range: 0 to 2000 ppm

Start-Up Time: 10 Minutes

Response Time:
Less Than 5 Minutes (after Start-Up Time)

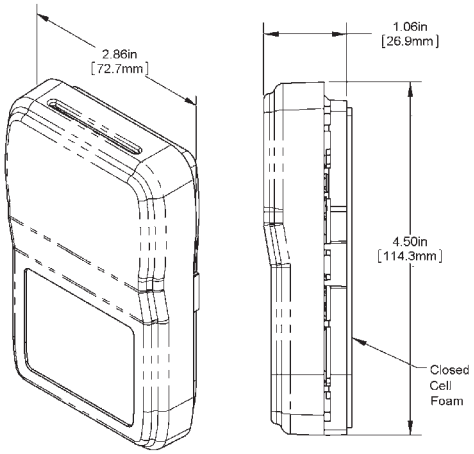
Mounting: 2"x4" J-Box or drywall – screws provided

CO_2 Accuracy: 75ppm

Optional LED CO_2 Level Indicator:
Good, Green < 1,000 PPM
Fair, Orange = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

Certifications: RoHS

Warranty Period:
2 Years from manufacture date



"24/7" CO_2 Sensor in the BAPI-Stat 4 Enclosure

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"24/7" CO_2 Room Sensor, BAPI-Stat 4 Enclosure

Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information			CO2 "24/7" Room Sensor in the BAPI-Stat 4 Enclosure for Continuously Occupied Areas	List Price	Your Order
BA/BS4				$455.00	$_____
	CO_2 Output				
	-DCD05		CO_2 as 0 to 2,000 PPM, 0 to 5 VDC output, Dual Channel Calibration for buildings that are continuously occupied		
	-DCD10		CO_2 as 0 to 2,000 PPM, 0 to 10 VDC output, Dual Channel Calibration for buildings that are continuously occupied		
		CO_2 Level Indication (Must select one)			
		-LED	Green/Orange/Red LED on Logo Plate to Indicate CO_2 PPM Level. Includes Legend for Good, Fair and Poor.		
		-BNK	No LED, No Legend		
EXAMPLE					
BA/BS4	-DCD05	-LED		Total =	$_____
Example Part Number: BA/BS4-DCD05-LED					
Your Part Number:					

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

D16 CO_2 Duct Sensor

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Automatic Air Pressure and Temperature Compensation
- Optimized for Periodically Unoccupied Areas

The BAPI CO_2 Duct Sensor is an accurate and reliable way of incorporating demand controlled ventilation into a building's HVAC strategy. It measures the CO_2 in a range of 0 to 2,000 ppm with a field selectable output of 0 to 5 or 0 to 10 VDC.

The non-dispersive infrared (NDIR) technology has been optimized for periodically unoccupied areas and features automatic background calibration over a long time period to reduce drift.

The BAPI unit also has continuous automatic air pressure compensation. Air pressure changes from altitude or weather patterns can affect the output of CO_2 sensors, even putting them outside of their specified accuracy. The BAPI unit has a built-in barometric sensor that continuously compensates the output for accurate readings despite the weather or the altitude of the installation. Because of this feature, the BAPI CO_2 sensor received a 2012 AHR Expo Innovation Award.



CO_2 Duct Sensor in the BAPI-Box Enclosure

The bottom unit has the CO_2 Level of "Good, Fair or Poor" shown by a 3-color LED.

BAPI's CO_2 Duct Sensor samples duct air using an aspiration tube. Moving air from the duct enters the tube, is forced into the BAPI-Box enclosure and exits through the other half of the tube. As long as there is air movement in the duct, air is continuously exchanged. Optional indication of the CO_2 level as "Good, Fair or Poor" is available as a three-color LED on the front of the unit.

Specifications

Power:
18 to 28 VAC, 2 VA Max
12 to 32 VDC, 200 mA Max
(12 VDC Recommended)

Sensing Elements:
CO_2 – Single Beam Non-Dispersive Infrared (NDIR)

Selectable Output:
0 to 2,000 PPM CO_2 at 0 to 5 or 0 to 10 VDC

Termination: 3 Terminals, 16 to 22 AWG

Wiring: 2 Pair

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

Enclosure Rating:
NEMA 4, IP66

Enclosure Material:
Polycarbonate, UL94 V-O

CO_2 Detection Range: 0 to 2,000 PPM

Start-Up Time: 10 Minutes

Response Time:
Less Than 5 Minutes (after Start-Up Time)

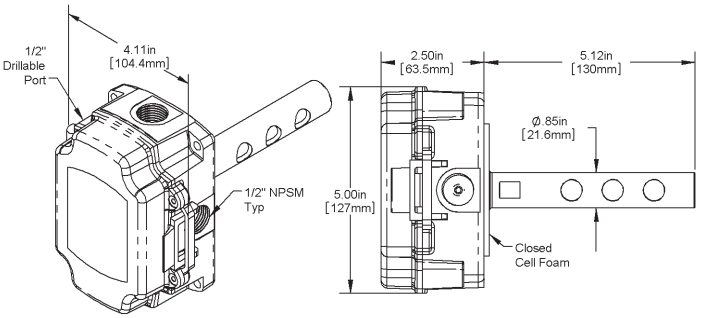
Optional LED CO_2 Level Indicator:
Good, Green < 1,000 PPM
Fair, Orange = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

CO_2 Accuracy: (Automatic Background Calibration)
400 to 1,250 ppm: ±30ppm or 3% of reading, whichever is greater

1,250 to 2,000 ppm: ±5% of reading + 30ppm

Certifications: RoHS

Warranty Period: 2 Years from manufacture date



CO_2 Duct Sensor in the BAPI-Box Enclosure

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Ordering Information				CO2 Duct Sensor in the BAPI-Box Enclosure for Periodically Unoccupied Areas	List Price	Your Order
BA/					$470.00	$_____
	CO_2 Output					
	ACD05			CO_2 as 0 to 2,000 PPM, 0 to 5 VDC output, Automatic Background Calibration for areas that are periodically unoccupied		
	ACD10			CO_2 as 0 to 2,000 PPM, 0 to 10 VDC output, Automatic Background Calibration for areas that are periodically unoccupied		
		Enclosure				
		-D-BB		BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate		
			CO_2 Level Indication (Must select one)			
			-LED	Green/Orange/Red LED on Logo Plate to Indicate CO_2 PPM Level. Includes Legend for Good, Fair and Poor.		
			-BNK	No LED, No Legend		
EXAMPLE						
BA/	ACD05	-D-BB	-LED		Total =	$_____
Example Part Number: BA/ACD05-D-BB-LED						
Your Part Number:						

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

"24/7" CO_2 Duct Sensor

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Automatic Air Pressure and Temperature Compensation
- Optimized for Continuously Occupied Areas

The BAPI "24/7" CO_2 Duct Sensor is an accurate and reliable way of incorporating demand controlled ventilation into a building's HVAC strategy. It measures the CO_2 in a range of 0 to 2,000 ppm with a field selectable output of 0 to 5 or 0 to 10 VDC.

The non-dispersive infrared (NDIR) technology of the "24/7" unit has been optimized for continuously occupied areas. It features a dual-channel optical system and three-point calibration process for enhanced stability, accuracy and reliability.

The BAPI unit also has continuous automatic air pressure compensation. Air pressure changes from altitude or weather patterns can affect the output of CO_2 sensors, even putting them outside of their specified accuracy. The BAPI unit has a built-in barometric sensor that continuously compensates the output for accurate readings despite the weather or the altitude of the installation. Because of this feature, the BAPI CO_2 sensor received a 2012 AHR Expo Innovation Award.



"24/7" CO_2 Duct Sensor in the BAPI-Box Enclosure

The bottom unit has the CO_2 Level of "Good, Fair or Poor" shown by a 3-color LED.

BAPI's CO_2 Duct Sensor samples duct air using an aspiration tube. Moving air from the duct enters the tube, is forced into the BAPI-Box enclosure and exits through the other half of the tube. As long as there is air movement in the duct, air is continuously exchanged. Optional indication of the CO_2 level as "Good, Fair or Poor" is available as a three-color LED on the front of the unit.

Specifications

Power:
18 to 28 VAC, 2 VA Max
12 to 32 VDC, 200 mA Max
(12 VDC Recommended)

CO_2 Sensing Elements:
Dual Channel Non-Dispersive Infrared (NDIR)

Selectable Output:
0 to 2,000 PPM CO_2 at 0 to 5 or 0 to 10 VDC

Termination: 3 Terminals, 16 to 22 AWG

Wiring: 2 Pair

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

Enclosure Rating:
NEMA 4, IP66

Enclosure Material:
Polycarbonate, UL94 V-O

CO_2 Detection Range: 0 to 2000 PPM

Start-Up Time: 10 Minutes

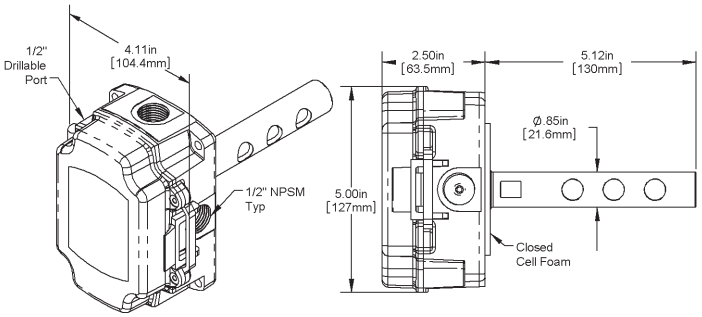
Response Time:
Less Than 5 Minutes (after Start-Up Time)

Optional LED CO_2 Level Indicator:
Good, Green < 1,000 PPM
Fair, Orange = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

CO_2 Accuracy: 75ppm

Certifications: RoHS

Warranty Period: 2 Years from manufacture date



"24/7" CO_2 Duct Sensor in the BAPI-Box Enclosure

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Ordering Information	*"24/7"* CO2 Duct Sensor in the BAPI-Box Enclosure for Continuously Occupied Areas				List Price	Your Order
BA/					$500.00	$_____
	CO_2 Output					
	DCD05	CO_2 as 0 to 2,000 PPM, 0 to 5 VDC output, Dual Channel Calibration for buildings that are continuously occupied				
	DCD10	CO_2 as 0 to 2,000 PPM, 0 to 10 VDC output, Dual Channel Calibration for buildings that are continuously occupied				
		Enclosure				
		-D-BB	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate			
			CO_2 Level Indication (Must select one)			
			-LED	Green/Orange/Red LED on Logo Plate to Indicate CO_2 PPM Level. Includes Legend for Good, Fair and Poor.		
			-BNK	No LED, No Legend		
EXAMPLE						
BA/	DCD05	-D-BB	-LED		Total =	$_____
Example Part Number: BA/DCD05-D-BB-LED						
Your Part Number:						

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

D20 Refrigerant Leak Detector

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Measures All Modern Refrigerants
- Measures Leaks and Spills
- Voltage Output
- Cost Effective

The BAPI Refrigerant Leak Detector measures the amount of R404A, R410A, R22 and/or R134A present. The Leak Detector measures leaks and spills; it is not intended for critical ppm measurements. Voltage trip levels for R22, R404A R410A or R134 leaks and spills are shown in the table. The sensor is temperature compensated for an accurate and reliable measurement.



Refrigerant Leak Detector in a BAPI-Box Enclosure

Ordering Information

Part Number:

BA/RLD .... Refrigerant Leak Detector in a BAPI-Box Enclosure

Specifications

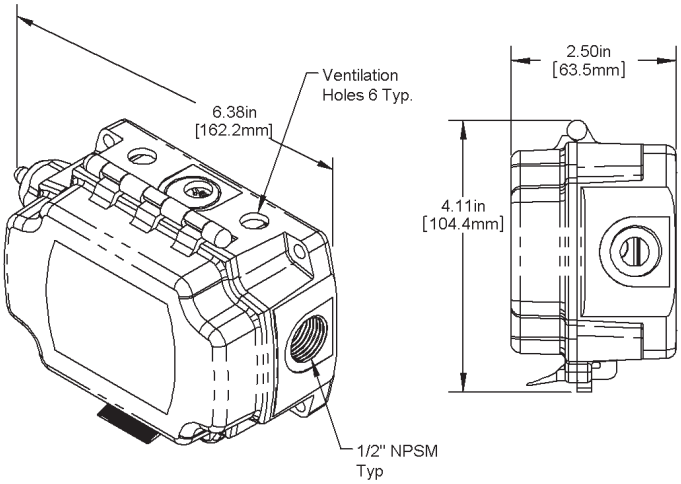
Power:
9 to 40 VDC at 120mA max
19 to 32 VAC at 5 VA

Output Impedance:
680 Ohms

Ambient Temperature:
0 to 70º C (32 to 140º F)

Output Voltage for Specific Refrigerants:

Refrigerant	Voltage Trip Level
R22	2.5 VDC @ 500 ppm
R404A	4.5 VDC @ 500 ppm
R410A	2.5 VDC @ 500 ppm
R134A	1.8 VDC @ 500 ppm



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Ordering Information

PART NUMBER	DESCRIPTION	LIST PRICE
BA/RLD	Refrigerant Leak Detector in a BAPI-Box Enclosure	$465

Carbon Monoxide Sensor

Air Quality Sensors

Rev. 10/16/12

Features & Options

- Long Life Electrochemical Sensor
- High Accuracy at Low Concentrations
- Optional LCD Display
- Rugged Housing with Mounting Tabs for Easy Installation
- Two Year Warranty

BAPI's Carbon Monoxide Sensor offers enhanced, long life electrochemical sensing with outstanding accuracy at low concentrations. The sensor has a range of 1 to 100 PPM or 1 to 300 PPM of Carbon Monoxide with a resolution of 1 PPM and a linear output of 4-20 mA. The unit also features a robust enclosure and is available with or without LCD display.



Carbon Monoxide Sensor with Display



Carbon Monoxide Sensor without Display

Ordering Information:	**Carbon Monoxide Sensor/Transmitter**				
BA/420CO	4 - 20mA output Carbon Monoxide Sensor/Transmitter				
	Carbon Monoxide Concentration				
	-1	1 - 100 ppm Carbon Monoxide			
	-3	1 - 300 ppm Carbon Monoxide			
		LCD Display			
		-ND	No Display		
		-D	LCD Display		
			Case Style		
			-EUO	UV-Resistant Plastic	
				Mounting Kits (Optional)	
				-FM	3/4" Conduit Adapter only
				-PM	Panel Mount
EXAMPLE					
BA/420CO	**-1**	**-D**	**-EUO**	**-FM**	
Example Part Number: BA/420CO-1-D-EUO-FM					
Your Part Number:					

Specifications

Range: 1 to 100 PPM CO (normal range) or 1 to 300 PPM CO (optional)

Voltage requirement: 12 to 27 VDC (non-display) or 14 to 27 VDC (with display)

Signal output: 4 to 20 mA, 2-wire, loop powered

Sensor type: Electrochemical cell

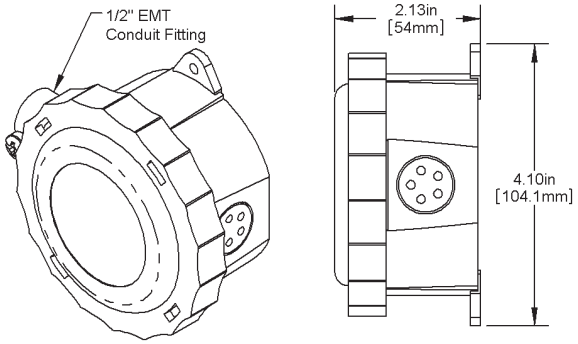
Enclosure Material: UV-resistant plastic

Resolution: 1 PPM on display,
Infinite on 4 to 20 mA loop

Accuracy: ±5 PPM (combination of linearity, temperature, drift and repeatability)

Response time:
90%: Less than 40 seconds @ 25°C

Environmental Operating Range:
Temperature: -20°C to 40°C (non-display)
-10°C to 40°C (with display)
Humidity: 15 to 90% RH (constant)
0 to 98% RH (intermittent)



Carbon Monoxide Sensor

Sensor life expectancy: More than four years

Load Resistance: 500 Ohms max at 24 VDC

* **BAPI** recommends that you do not run wiring for the CO transmitter in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators, and coils.

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Datasheets without List Prices are available on our website at www.bapihvac.com

						List Price	Your Order
Ordering Information: **Carbon Monoxide Sensor/Transmitter**							
BA/420CO	4 - 20mA output Carbon Monoxide Sensor/Transmitter					**$400**	$_____
	Carbon Monoxide Concentration						
	-1	1 - 100 ppm Carbon Monoxide					
	-3	1 - 300 ppm Carbon Monoxide					
		LCD Display					
		-ND	No Display				
		-D	LCD Display			**$90**	$_____
			Case Style				
			-EUO	UV-Resistant Plastic			
				Mounting Kits (Optional)			
				-FM	3/4" Conduit Adapter only		
				-PM	Panel Mount		
EXAMPLE							
BA/420CO	**-1**	**-D**	**-EUO**	**-FM**			
Example Part Number: BA/420CO-1-D-EUO-FM						**Total =**	$_____
Your Part Number:							

Gray shaded items follow the Buy and Resale Multiplier.

CO_2 Sensor Calibration Kit

Air Quality Sensors

Rev. 07/15/13

Features & Options

- Calibrates All BAPI CO_2 Room and Duct Sensors
- Verifies Proper Operation of All BAPI CO_2 Room and Duct Sensors
- Logs CO_2 Measurements

BAPI's CO_2 Sensor Calibration Kit verifies the proper operation and calibrates all of BAPI's room and duct CO_2 sensors.

Two calibration gas concentrations are required to perform a complete calibration*. Purchase the single point gas at a CO_2 concentration of 400 to 800 ppm, and the span gas at 1,000 to 1,200 ppm. Only one regulator is required because it can be swapped between gas cylinders.

BAPI's CO_2 Sensor Calibration Kit consists of the following:

- A software CD containing the test software and cable drivers
- A communications cable that connects a computer to the BAPI CO_2 sensor
- A funnel used as a gas shroud
- A length of tubing to connect the funnel to the test gases
- Rubber bands to secure the funnel to the BAPI CO_2 sensor
- Shunt jumpers to place the BAPI CO_2 sensor into test mode

Equipment supplied by the customer:

- Laptop computer running Windows XP, Vista or 7
- Test gases
- 0.5 liter per minute test gas flow regulator

Test gases and flow regulators can be purchased online or through local HVAC distributors. A few online sources for the test gases are:

- http://www.calibration-gas.com/
- http://www.gasdetectionsolutions.com
- http://www.mercury-instrumentsusa.com



CO_2 Sensor Calibration Kit



CO_2 Sensor Calibration Kit with Optional Case (shown with customer supplied gas cylinders)

*Note: A single point gas may not be required. If the ambient CO_2 concentration is known, stays stable at ±10 ppm for at least 10 minutes and is in the range of 350 to 800 ppm, you may perform the single point accuracy check and calibration without any test gas.

Ordering Information

Part Number	Description	List Price
BA/CO2-KIT	CO_2 Sensor Calibration Kit	$155
BA/CO2-KIT-C	CO_2 Sensor Calibration Kit with Case	$600
BA/CO2-C	Empty Case with Foam Cutouts	$455

Specifications

Customer supplied laptop computer running Windows XP, Vista or 7

CDROM drive

USB 2.0

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VOC Sensor Verification Kit

Overview

The VOC Sensor Verification Kit allows a known VOC sample to be generated and applied to a BAPI room or duct VOC sensor. The sample tests the dynamic range of the sensor to see if the sensor element is working correctly.

The kit consists of a plastic bottle and a 60mL syringe and a comprehensive set of instructions. The customer has to supply 70% minimum Isopropyl Alcohol.

ORDERING INFORMATION

Part Number: BA/VOC-KIT... VOC Sensor Verification Kit.... $18



VOC Sensor Verification Kit

BAPI Volatile Organic Compound (VOC) Sensors

- VOC Alone or Temperature and Humidity Combination
- Indicates Space Occupancy by Detecting Human-Generated VOCs
- Output is Correlated to a CO_2 Value Allowing You to Ventilate Using ASHRAE's Occupancy-Based VRP Algorithm

Humans respirate Volatile Organic Compounds (VOCs) as well as CO_2. The BAPI sensor is able to measure these VOCs, therefore it is as good an indicator of space occupancy as a CO_2 sensor.

The BAPI Sensor is different from other VOC sensors because it has been optimized for Demand Controlled Ventilation (DCV). Using a calibration algorithm, the sensor value is converted to an output with a high correlation to a CO_2 level[1]. This lets you use ASHRAE's occupancy-based VRP schedule to ventilate. ([1]More info on this correlated output is available on our website at www.bapihvac.com)

Besides from respiration, the sensor picks up VOCs from other sources such as building materials, perfumes, colognes and furniture off gassing. Using this sensor to ventilate is a way of acheiving true indoor air quality and not just CO_2 dilution.

The unit is available as a VOC sensor alone or as a combination temperature and humidity sensor. In the room unit, the optional display alternates between the measured values and is field adjustable between °F or °C. An optional three color LED indicates "VOC Level" of Good, Fair or Poor.

The unit is also available as a Duct Sensor. Moving air from the duct enters the aspiration tube, is forced into the BAPI-Box enclosure and exits through the other half of the tube. As long as there is air movement in the duct, air is continuously exchanged.



VOC Sensors with Temp. Setpoint and Override.

The top unit has the VOC Level of "Good, Fair or Poor" shown by an arrow on the display. The bottom unit has the VOC level shown by a 3-color LED.



VOC Duct Sensor

True Blue IEQ FAMILY

Demand Controlled Ventilation with Confidence!

The VOC Sensor is part of BAPI's "True Blue IEQ Family". When used as a combination Temp. and Humidity Sensor, it addresses the Indoor Air Quality and Thermal Comfort portions of ASHRAE's Indoor Environment Quality (IEQ) section of Standard 189.1.

BAPI VOC Sensor Offers an Alternative to CO_2 for Demand Controlled Ventilation



Most system designers use CO_2 sensors to indicate room occupancy as part of their Demand Controlled Ventilation (DCV) setup. One drawback with this method is that it ignores the harmful contaminants that may be present in the air even when the CO_2 levels are low.

BAPI's VOC Sensor offers the best of both worlds. It allows for ventilation based on occupancy as well as air contaminants -- and doesn't require any more work than using a CO_2 sensor.

The BAPI unit does this by measuring Volatile Organic Compounds (VOCs) then outputing a signal that corresponds to a CO_2 level of 0-2,000 ppm. This means system designers can use their existing CO_2-based DCV occupancy algorithms while monitoring both occupancy and VOCs.

One of the keys to the BAPI sensor is the fact that VOCs are as good an indicator of space occupancy as CO_2. That's because a large share of VOCs in an indoor space are generated by humans from our breath, sweat and skin or from colognes and perfumes, etc. (See Table 1.)

Extensive research was conducted on human occupancy, VOC levels and CO_2 levels in 1,500 offices, schools and homes to determine the relationship between these three factors. The research identified a complex correlation algorithm between VOCs and CO_2, and this algorithm was used to create the output of the VOC sensor. The accuracy of this output as compared to CO_2 levels is shown in the chart at right.

The chart shows that the VOC sensor tracks occupancy and that the output has a high correlation to the CO_2 level. The chart also shows that the sensor indicates when additional VOCs or air contaminants are present from cooking or other activities.

More information on the BAPI VOC Sensor including a White Paper and Video are available on our website at ***www.bapihvac.com***

Table 1 – Typical Indoor Contaminants (VOCs) and Their Source

Contamination Source	Emission Source	VOC
Human Being	Breath	Acetone, Ethanol, Isoprene, CO_2
	Skin Respiration & Perspiration	Nonanal, Decanal, alpha-Pinene
	Flatulence	Methane, Hydrogen,
	Cosmetics	Limonene, Eucalyptol
Consumer Products	Household Supplies	Alcohols, Esters, Limonene
Office Equipment	Printers, Copiers, Computers	Benzene, Styrene, Phonole
Combustion	Engines, Appliances, Smoke	Unburnt Hydrocarbons, CO, CO_2
Building Materials	Paints, Adhesives, Carpets	Formaldehyde, Alkanes, Alcohols, Aldehydes, Ketones
Furniture	Poly Vinyl Chloride (PVC)	Toluene, Xylene, Decane

Indicating Occupancy with VOCs

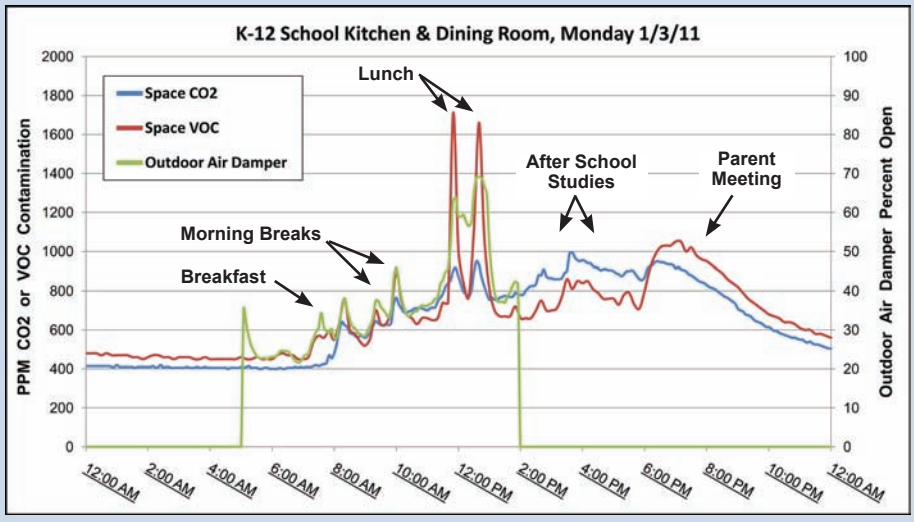
This chart was taken in a kitchen and dining area of a public school in Wisconsin. This is a true multi-purpose area with breakfast, snacks, lunch, and after school studies in the day, and athletic practices, exercise classes and meetings at night.

The open percentage of the outdoor air damper is controlled by the VOC sensor output through a PID control loop from 5 am to 2 pm when the space is considered "occupied". The outside air damper is closed during the unoccupied period, and ventilation is accomplished by diffusion from the adjacent hallways.

At 7 am, the VOC sensor picks up the breakfast cooking aromas and activities. The CO_2 sensor climbs a short time later as the students arrive to eat. The VOC sensor has slightly higher readings than the CO_2 sensor during breakfast and the morning breaks because the VOCs from the food are added to the VOCs generated by the people. This is also seen at lunch as cooking of the sausage pizza generated lots of VOCs which are added to the VOCs from the students and staff. The BAPI sensor will allow these additional VOCs to be ventilated away while the CO_2 sensor will not.

At 2:30 pm, students arrive for "After School Studies" so the VOCs and CO_2 rise a little during this period. There is a community meeting at 6 pm. Notice how the VOCs track slightly below the CO_2 during the "After School Study" period when it is mostly kids in the room. Then the VOCs track slightly above the CO_2 during the community meeting period when it is mostly adults in the room. This is because adults use more perfumes and colognes than kids, and therefore generate more VOCs than kids.

Whether it's kids or adults in the room, and whether they're studying or eating, the chart proves that the VOC sensor output directly correlates to occupancy in the room and can easily be set up for Demand Controlled Ventilation.



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Using the BAPI VOC Sensor for Demand Controlled Ventilation

Overview

This paper will prove that the BAPI's Volatile Organic Compound (VOC) sensor is an accurate and reliable way of incorporating Demand-Controlled Ventilation (DCV) into a building's HVAC strategy. It will also show that the VOC sensor is as good an indicator of space occupancy as a CO_2 sensor while also measuring other air contaminants which affect human comfort and health. The paper will also describe how the VOC sensor output corresponds to the CO_2 level in the space so that system designers can use their existing CO_2-based DCV occupancy algorithms. Finally, it will detail how proper ventilation from the VOC sensor improves occupant comfort, health and productivity, and saves money for building owners.

CO_2 and Demand-Controlled Ventilation

Until now, Indoor Air Quality (IAQ) has been defined as proper temperature, humidity and CO_2 levels. According to tenants however, offensive odors, smoke, carpet off-gassing and other VOCs have just as much or more impact on human comfort, productivity and health.

Then why is IAQ so closely linked to CO_2? This is due to one interpretation of The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 62.1. This standard establishes minimum ventilation rates for proper IAQ, allowing for DCV which saves on heating and cooling costs by bringing in outside air only as it is needed. Standard 62.1 has two procedures for establishing the ventilation rates — one based on IAQ and contaminants and the other based on occupancy. The occupancy procedure, formally called the Ventilation Rate Procedure or VRP, is used most often due to its straightforward math, and the vast majority of system designers who choose VRP also choose CO_2 sensors to determine the occupancy of the space.

The main drawback with this method of DCV is that it ignores the offensive odors, air contaminants and VOCs that may be present even when the CO_2 levels are low[1].

As stated earlier, Standard 62.1 has two procedures, one based on occupancy and the other based on IAQ and air contaminants. The difficulty with the IAQ procedure is that HVAC system designers must use subjective criteria, such as whether the air quality is acceptable to 80% or more of the building's occupants. System designers are not comfortable dealing with these subjective perception-based criteria, so most choose the CO_2 occupancy method, even though it ignores other air contaminants.

BAPI's VOC sensor offers the best of both worlds. It allows for ventilation based on occupancy as well as air contaminants. The BAPI unit does this because it has been optimized for DCV. Using a calibration algorithm, the sensor value is converted to an output with a high correlation to a CO_2 level. This lets you use Ashrae's more popular and straight forward occupany-based VRP schedule.

More information on this correlated CO_2 output is included in the next section, but let's start with the VOCs themselves.

What are VOCs and Where Do They Come From?

Table 1 Typical Indoor Contaminants (VOCs) and Their Source

Contamination Source	Emission Source	VOC
Human Being	Breath	Acetone, Ethanol, Isoprene, CO_2
	Skin Respiration & Perspiration	Nonanal, Decanal, alpha-Pinene
	Flatulence	Methane, Hydrogen,
	Cosmetics	Limonene, Eucalyptol
Consumer Products	Household Supplies	Alcohols, Esters, Limonene
Office Equipment	Printers, Copiers, Computers	Benzene, Styrene, Phonole
Combustion	Engines, Appliances, Smoke	Unburnt Hydrocarbons, CO, CO_2
Building Materials	Paints, Adhesives, Solvents, Carpets	Formaldehyde, Alkanes, Alcohols, Aldehydes, Ketones, Siloxanes
Furniture	**P**oly **V**inyl **C**hloride (PVC)	Toluene, Xylene, Decane

Using the BAPI VOC Sensor for Demand Controlled Ventilation

Rev. 10/16/12

What are VOC's and Where Do They Come From? continued....

VOCs are chemicals that contain carbon and can be emitted as gases at room temperature. Table 1 shows some typical indoor contaminants and their sources. VOCs evaporate from substances, such as cleaning products, adhesives, paints, dry-cleaning fluids and wood preservatives. VOCs are also emitted from humans and animals in their breath, sweat and directly from their skin. In fact, the majority of VOCs in an indoor space are generated by humans. The BAPI sensor is able to measure these VOCs, and that is why the sensor is as good an indicator of occupancy as a CO_2 sensor.

Space Occupancy — VOC Sensing versus CO_2 Sensing

Extensive research was conducted on VOCs and CO_2 in 1,500 offices, schools and homes to determine the correlation between CO_2 levels and VOC levels. This research was used to create correlated CO_2 output for the BAPI VOC sensor. The accuracy of this output as compared to CO_2 levels is shown in the following seven charts.

These charts were taken Jan. 3-9, 2011, in a Kitchen and Dining area of a public school in Wisconsin. This location is a true multi-purpose area. It is used for breakfast, morning snacks, lunch, and after school studies during the day, and athletic practices, exercise classes and occasional meetings in the evenings.

The VOC and CO_2 sensors are located next to each other in the dining room near the kitchen entrance. The open percentage of the outdoor air damper for this area is controlled by the VOC sensor output through a PID control loop from 5 am to 2 pm on weekdays when the space is considered "occupied". The outside air damper is closed during the unoccupied period, and ventilation is accomplished by diffusion from the adjacent hallways.

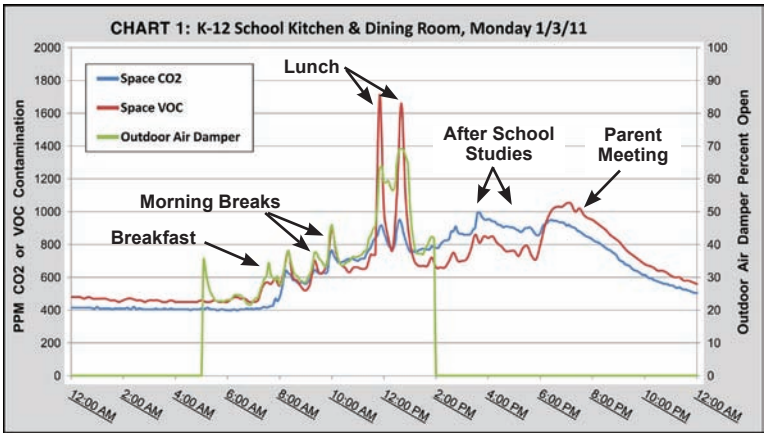
The following charts show the output of the VOC Sensor and CO_2 Sensor and the Outside Air Damper position during a typical week from Monday through Sunday. These charts show that the output of the VOC sensor has a high correlation to CO_2 levels and is reliable, predictable and repeatable.

Chart 1, Monday:

The area goes into occupied mode at 5 am and the outdoor air damper -- the green line -- begins to track the output of the VOC sensor -- the red line. At 7 am, the VOC sensor picks up the breakfast cooking aromas and activities. The CO_2 sensor climbs a short time later as the students arrive to eat. The VOC sensor has slightly higher readings than the CO_2 sensor during breakfast and the morning breaks because the VOCs from the food are added to the VOCs generated by the people. This is also seen at lunch as cooking of the sausage pizza generated lots of VOCs which are added to the VOCs from the students and staff. Additional fresh air is brought in to dilute the VOCs during the lunch period.

The outdoor air damper is closed at 2 pm but the room is still in use for "After School Studies" so the VOCs and CO_2 rise a little during this period from 2:30 to 5 pm.

Interestingly there is a community meeting in the dining room at 6 pm, and the audience is mostly adults. Notice how the VOCs track slightly below the CO_2 during the "After School Study" period when it is mostly kids in the room. Then the two switch and the VOCs track slightly above the CO_2 during the community meeting period when it is mostly adults in the room. That's because adults use more perfumes and colognes than kids, and therefore generate more VOCs than kids.



Whether it's kids or adults in the room, and whether they're studying or eating, the chart shows that the VOC sensor output directly correlates to occupancy in the area. The chart also shows that using the VOC sensor to control the outdoor air damper results in appropriate ventilation for the space.

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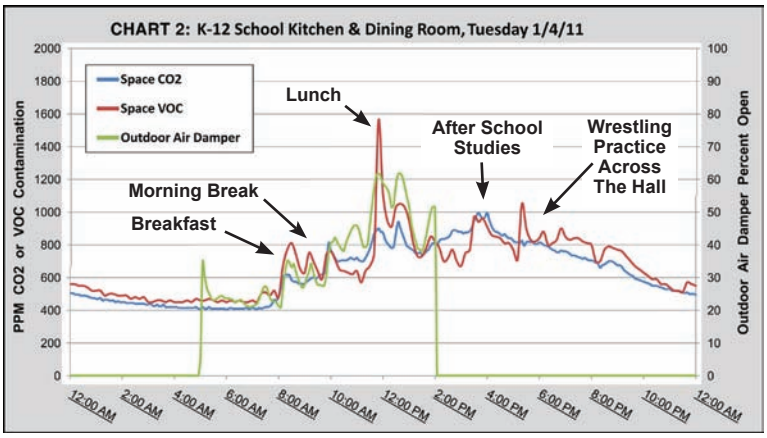


Chart 2, Tuesday:
The area again goes into occupied mode at 5 am and there are increases in VOCs and CO_2 during breakfast, morning break, lunch and after school studies.

There is a small spike in VOCs at about 5:45 due to Pee Wee wrestling practice which takes place in a performance area just across the hall from 6 to 8 pm. The dining room is used as a rest area for parents and as a place for the wrestlers to store their gym bags during practice, which accounts for the increase in VOCs at that time.

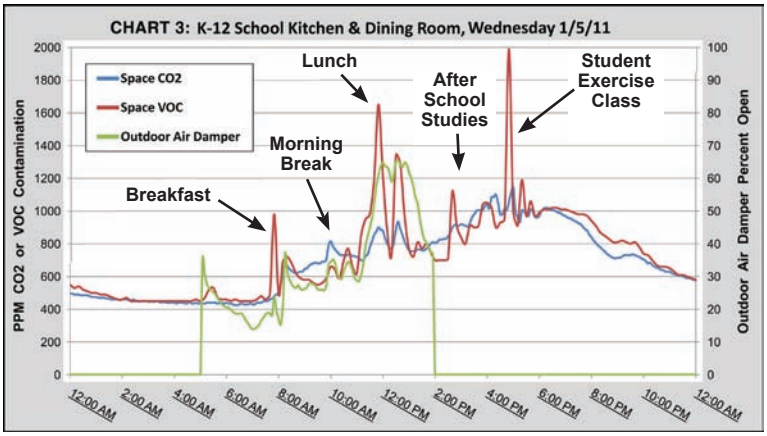


Chart 3, Wednesday:
The daytime portion of Wednesday is similar to Monday and Tuesday with increases in VOCs and CO_2 during breakfast, midmorning break and after school studies, and spikes in VOCs due to cooking at lunch.

There is a large spike in VOCs at about 4:45 pm due to a general exercise class for students. People generate more VOCs when they're exercising, and the students also brought in gym bags and put on exercise clothing which added to the VOCs at that time.

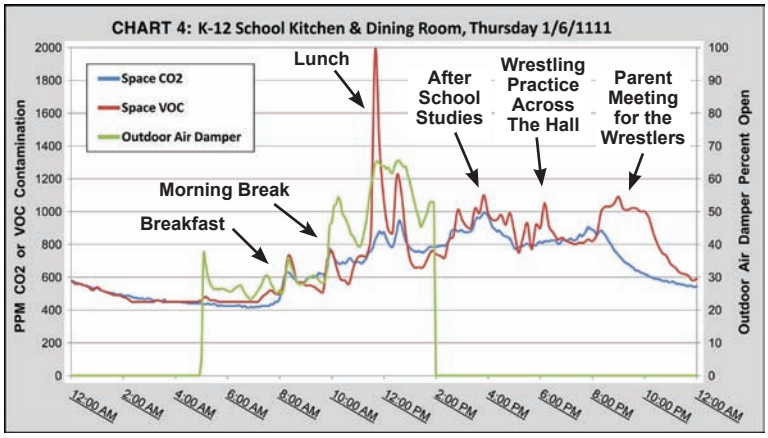


Chart 4, Thursday:
The daytime portion of Thursday is similar to the rest of the week with increases in VOCs and CO_2 during breakfast, midmorning break and after school studies, and spikes in VOCs due to cooking at lunch.

There is an increase in VOCs at 6 pm (similar to Tuesday) due to the Pee Wee wrestling practice in the performance area across the hall. There is another increase in VOCs at 8 to 10 pm due to a parents meeting for the wrestlers in the dining area at that time.

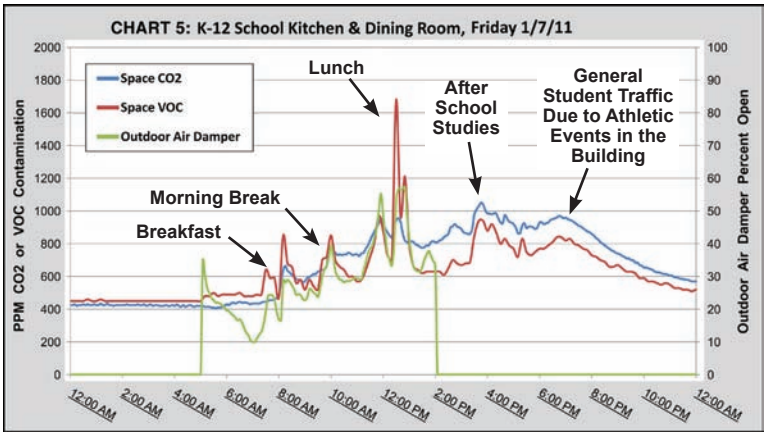


Chart 5, Friday:
The daytime portion of Friday is similar to the rest of the week with increases in VOCs and CO_2 during breakfast, midmorning break and after school studies, and spikes in VOCs due to cooking at lunch.

There is an increase in VOCs from 6:15 to 7:30 pm in the dining room area due to student traffic in the area from an athletic event in another part of the school building.

Using the BAPI VOC Sensor for Demand Controlled Ventilation

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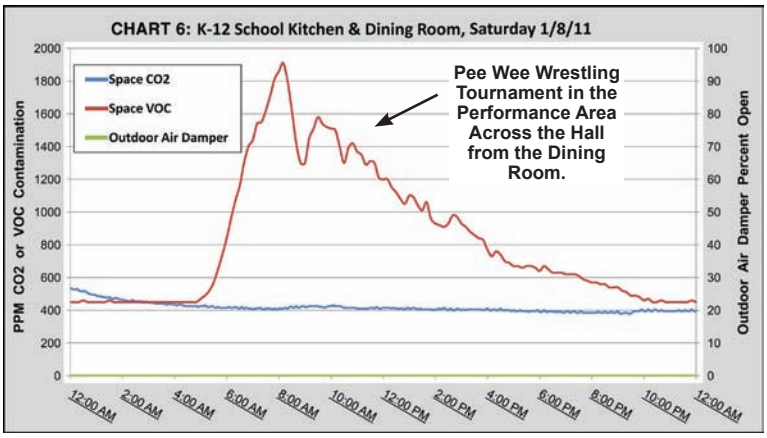


Chart 6, Saturday:
The space is considered unoccupied on Saturday so the Outdoor Air Damper is off.

However, VOCs are being generated in the dining room from about 6 am to noon due to a Pee Wee Wrestling Tournament in the performance center across the hall. Wrestlers store their gym bags and other belongings in the dining area during the tounament, which accounts for the VOCs during that time. A CO_2 sensor would not ventilate away these VOCs and odors.

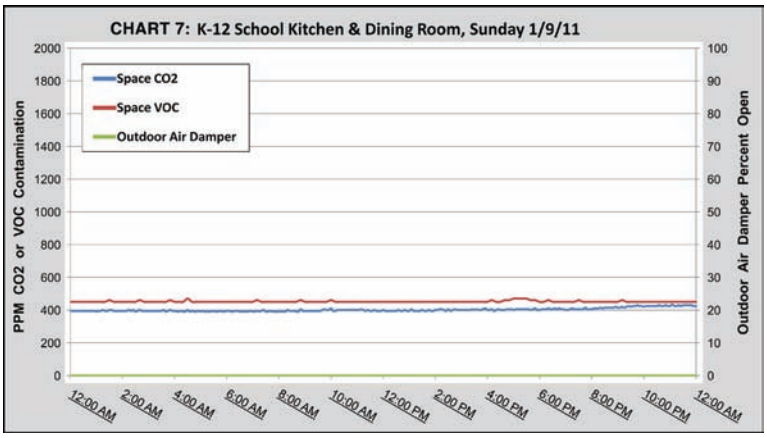


Chart 7, Sunday:
Sunday is the only day with no activity in the kitchen and dining area or the surrounding spaces, so there is only background levels of VOCs and CO_2.

The True Meaning of Air Quality

VOCs are known to cause eye, nose and throat irritations, headache, drowsiness, dizziness, nausea, difficulty concentrating and fatigue; all summarized under the term SBS (Sick Building Syndrome). The importance of detecting the presence of VOCs in indoor air goes beyond these immediate health concerns. People judge the quality of the air not just by how it feels (temperature and humidity), but also by how it smells. Unfortunately, offensive odors in offices, kitchens, gymnasiums and restrooms have no impact on CO_2 levels. A tuna fish sandwich left in a desk drawer over a weekend may not be life threatening, but may smell like it by Monday.

These obnoxious odors reduce everyone's productivity until the odor is eliminated. In retail settings, customers may leave and never come back. Even small amounts can have a very immediate effect. A single person entering or passing through a space may deteriorate the air quality due to heavy amounts of aftershave lotion, cologne, perfume, hand soap, laundry detergent residue, fabric softeners or residual cigarette smoke.

In these cases a CO_2 sensor will not correct the problem. For instance, a Circuit Court Judge in Tennessee was plagued by migraine headaches causing him to suspend proceedings until his headaches went away. A VOC sensor installed in the courtroom discovered that the Judge's headaches were caused by support staff's cosmetics. Proper ventilation reduced the VOCs to acceptable levels and the judge's migraines stopped.

In another example, a plastic injection molding company's staff was plagued by persistent minor upper respiratory ailments. A VOC sensor was installed and the customer thought it was faulty because the output stayed at maximum no matter how much outdoor air was admitted to the building. Subsequent troubleshooting revealed that a recently installed molding machine had its exhaust vented into the building's fresh air intake duct by mistake. Within two weeks of rerouting the exhaust, all occupant respiratory symptoms disappeared. A CO_2 sensor would not have sensed the contaminant from the molding machine.

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The Financial Benefits of Appropriate Ventilation

One of the arguments used against VOC sensors is that because they sense odors and contaminants along with occupancy, that the building will be over-ventilated and therefore wastes energy. According to ASHRAE Standard 62.1 however, VOC sensors allow the building to be appropriately ventilated, not over-ventilated, and this appropriate ventilation will save building owners and tenants money in the long run[2].

The Building Owners and Management Association (BOMA) stated in a 1999 report that typical building operating costs are 83.3% personnel salaries, 13.5% rent, 2.1% repair and maintenance and 1.2% total energy costs (Heat, Air Conditioning, Lighting, Business Equipment Power, Water Heating, etc). Clearly, the cost of employees is by far the greatest expense to the tenant or owner/employer.

"It has now been shown beyond reasonable doubt that poor indoor air quality in buildings can decrease productivity as much as six to nine percent," stated Professor David Wyon of the Technical University of Denmark's International Centre for Indoor Environment and Energy.

Numerous domestic and international studies support Wyon, showing that appropriate ventilation leads to increased worker productivity, increased worker accuracy, higher morale, less absenteeism and lower health insurance costs from fewer and less costly claims. For a tiny increase in total operating costs to ensure appropriate ventilation, owners/occupants can experience significant increases in employee productivity and significant decreases in employee expenses.

Because complaints about comfort are the number one reason tenants choose to leave a space, assuring indoor air quality with appropriate ventilation means that building owners will lose less tenants. They may even be able to increase rents by showing increased tenant productivity and comfort.

Please call a BAPI representative at +1-608-735-4800 for more information on how a VOC sensor can enhance your next DDC installation.

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D32

Common Volatile Organic Compounds Detected by BAPI's VOC Sensor

Rev. 10/16/12

Depending on the source of the information, 5,000 to 10,000 unique Volatile Organic Compounds (VOCs) exist. BAPI's VOC sensor reacts to all of them.

VOCs are chemicals that contain carbon and have boiling points below 100°C. Most can be vapors at room temperature. In their liquid form many VOCs can contaminate ground water.

Families of VOCs detected are:

- CO, CH4, LPG
- Alcohols
- Ketones. Ketones are solvents. The best known are Acetone and Methyl Ethyl Ketone or MEK.
- Organic Acids. Common organic acids are Lactic acid, Acetic acid, Formic acid, Citric acid and Oxalic acid
- Amines. Amines are derivatives of ammonia.
  Wikipedia lists 175 compounds as amines, http://en.wikipedia.org/wiki/Category:Amines
- Aliphatic Hydrocarbons. Aliphatic hydrocarbons are flammable hydrocarbons with little or no odor. Examples are hexane, paraffin, methane and acetylene.
- Aromatic Hydrocarbons. Aromatic hydrocarbons are flammable hydrocarbons with a discernable odor. Examples are benzene, furan, pyridine, toluene, asphaltene and picric acid.

A list of some of the most common VOCs and their sources follows.

VOC	Source
1-hexene	Human metabolism
1-isocyanobutane	Coatings
1,1,1-trichloroethane	Ink, Paint, Photo-resist, Photographic film
1,4-dioxane	Spot removers
2-bromopentane	Prescription drugs
(2-methylcyclohexyl) propanedinitrile	Human metabolism
2,2-dimethylbutane	Human metabolism
2,3,3-trimethylpentane	Human metabolism
2,3-dimethylpentane	Human metabolism
2,3,4-trimetylpentane	Human metabolism
3-methylhexane	Human metabolism
3,4-dimethyl-1-pentene	Human metabolism
4-methyl-1-pentene	Human metabolism
5-methyl-1-hexene	Human metabolism
6-methyl-1-heptanol	Human metabolism
Acetaldehyde	Disinfectants, Adhesives, Coatings, Plastics, Lubricants, Ripening of fruit
Acetic acid esters	Surface cleaners
Acetone	Polyester resins, Vinyl, Adhesives, Human metabolism
bis-(1,1-dimethylethyl)nitroxide	Human metabolism
Benzene	Plastics, Building materials, Furniture, Office equipment
Butoxyethanol	Surface cleaners
Butyl acetate	Surface cleaners
C6 - C10 substituted alkanes	Cleaners, Polishers
Carbon Monoxide	Automobile exhaust, Fuel based heating, Cooking appliances, Smoking
Decanal	Artificial flavors, Perfume, Human metabolism
Dichlorobenzene	Deodorizers

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Volatile Organic Compounds Detected by BAPI's VOC Sensor

A list of some of the most common VOCs and their sources follows, continued from previous page...

VOC	Source
Dipropylene glycol	Surface cleaners
Ethanol	Disinfectants, Human metabolism
Ethyl Alcohol	Cosmetics, Cleaners, Disinfectants, Detergents, Paints, Human Metabolism
Eucalyptol	Cosmetics, Artificial flavors, Insecticides
Formaldehyde	Biocides, Disinfectants
Heptane	Human metabolism
Hydrocarbons	Waxes, Polishes
Isobutane	Aerosol cleaners
Isobutene	Aerosol cleaners
Isoprene	Synthetic rubber, Human metabolism
Limonene	Cosmetics, Cleaners, Artificial flavors, Prescription drugs
Methane	Natural gas, Human metabolism
Methoxyethanol	Surface cleaners
Methoxyethoxyethanol	Surface cleaners
Methylcyclohexane	Human metabolism
Methylethylketone	Adhesives, coatings, Plastics, Lubricants
Methyl methacrylate	Hard surface cleaners
Naphthalene	Disinfectants, Repellants
Nonanal	Artificial flavors, Perfume, Human metabolism
Pentane	Polystyrene foam, Refrigerants
Phenol	Platics, Cosmetics, Disinfectants
Pinene	Perfume, Human metabolism
Propane	Fuel based heating, Cooking appliances, Cleaners
Siloxanes	Waxes, Polishes
Tetrachloroethene	Dry cleaning
Tetrachloroethylene	Spot cleaners
Toluene	Paints, Coatings, Cleaners, Detergents, Smoking, Polyurethane lacquers
Trichloromethane	Human metabolism
r (1-methylethyl)cyclopropane	Adhesives, Coatings, Plastics, Lubricants
Xylene	Plastics, Synthetic Rubber, Polyester clothing

D34

The Effects of Temperature and Barometric Pressure on CO_2 Sensors

Rev. 10/16/12

Carbon Dioxide (CO_2) in air is normally measured in Parts Per Million (ppm). At 1,000 ppm CO_2, a volume or air containing one million air molecules would contain a mixture of 999,000 air molecules and 1,000 CO_2 molecules.

The volume of air necessary to contain one million air molecules is affected by air temperature and air pressure, also called Barometric Pressure. As the pressure decreases, the volume needed to contain one million air molecules increases. The opposite is true of temperature. As the temperature decreases, the volume of air needed to contain one million molecules decreases. Although the volume of air is affected by temperature and pressure, the concentration of CO_2 is not affected. If you started with 1,000 ppm of CO_2, then you finish with 1,000 ppm of CO_2 despite the changes in the air volume.

The most common CO_2 sensors are known by the engineering term Non-Dispersive InfraRed, or NDIR. An NDIR CO_2 sensor shines infrared light through a gas sample in a sample chamber. Sensitive photo-detectors measure the intensity of the infrared light after it passes through the gas sample. CO_2 molecules are opaque to 4.26 micron infrared light while the rest of the air molecules are not. So the intensity of the infrared light is diminished proportionally to the number of CO_2 molecules that are present. Measuring the resultant light intensity measures the number of CO_2 molecules present.

The size of the NDIR sampling chamber is fixed and is open to the atmosphere so that air can move in and out. As explained above, the number of air molecules in a given volume is affected by temperature and air pressure but not the concentration of CO_2. At low pressures or high temperatures, there will be fewer air molecules in the sample chamber, so there will also be fewer CO_2 molecules, even though the ppm of CO_2 hasn't changed. Fewer CO_2 molecules "fools" the sensor into thinking that the CO_2 concentration is lower than it really is. At high pressures or low temperatures, there are more air molecules in the sample chamber and more CO_2 molecules, even though the CO_2 concentration hasn't changed. More CO_2 molecules "fools" the sensor into thinking that the CO_2 concentration is higher than it really is. Therefore a CO_2 sensor calibration will only be accurate at one temperature and one air pressure.

Calculating Temperature and Barometric Pressure Effects on CO_2 Measurement

The following formula derived from the Ideal Gas Law relates changes in air volume to temperature, pressure and the number of molecules present:

$$ppm\ CO_{2\ corrected} = ppm\ CO_{2\ measured} * ((T_{measured} * p_{ref}) / (p_{measured} * T_{ref}))$$

- $p_{measured}$ = Current pressure, in the same units as reference pressure (not corrected to sea level)
- T_{ref} = reference temperature, usually 25°C, 77°F, converted to absolute (298.15 for °C, 536.67 for °F)
- $T_{measured}$ = Current absolute temperature, °C + 273.15, °F +459.67
- p_{ref} = reference Barometric Pressure, usually sea level, 29.92 in Hg, 760 mm Hg, 1013.207 hPa or 14.6959 psi

Table 1: CO_2 Measurement Change With Temperature

Temp. in °F	CO_2 Measured in PPM	Temp. in °F	CO_2 Measured in PPM	Temp. in °F	CO_2 Measured in PPM
32	1092	60	1033	85	985
35	1085	65	1023	90	976
40	1074	70	1013	95	968
45	1063	75	1004	100	959
50	1053	77	**1000**	105	950
55	1043	80	994	110	942

Table 1 uses the Ideal Gas Law formula above to show how the uncompensated CO_2 measurement would change with temperatures from 32 °F to 110 °F. Initial conditions are 1,000 ppm CO_2, 77°F and sea level Barometric Pressure. As seen in Table 1, the CO_2 concentration varies by 150 ppm.

Barometric Pressure is directly affected by altitude, and **Table 2** uses the Ideal Gas Law formula to show how the uncompensated CO_2 measurement would change with altitudes of -1,000 to 10,000 feet. Initial conditions are 77°F and 1,000 ppm CO_2 at sea level. As seen in Table 2, the CO_2 concentration varies by 349 ppm.

Table 2: CO_2 Measurement Change with Altitude and Barometric Pressure

Altitude in Feet	Barometric Pressure in inches Hg	CO_2 Measured in PPM
-1000	31.02	1037
0	29.92	**1000**
1000	28.85	964
2000	27.82	930
3000	26.82	896
4000	25.84	864
5000	24.9	832
6000	23.98	801
7000	23.09	772
8000	22.23	743
9000	21.39	715
10000	20.58	688

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The Effects of Temperature and Barometric Pressure on CO_2 Sensors

Weather Effects on Barometric Pressure and CO_2 Measurement

Heat entering our atmosphere creates weather patterns, and these patterns affect the Barometric Pressure by forming high pressure systems and low pressure systems. Fast moving storms can dramatically change the atmospheric pressure and effective altitude in only a few minutes.

About 15 miles from BAPI's headquarters is an internet enabled weather station on the Mississippi River bluffs above the small town of DeSoto. Looking at historical data from that weather station from 2003 to 2011, the highest pressure, the lowest pressure and the biggest one-day pressure swing are shown in Table 3.

If the actual CO_2 level was 1,000 ppm at sea level, then Table 3 shows what the measured CO_2 concentration would be in DeSoto on those days. From January 15, 2005 until October 26, 2010, weather patterns alone changed the CO_2 measurement by 75 ppm, which is the entire accuracy specification for a typical NDIR CO_2 sensor.

On the single day of January 18, 2005, weather patterns changed the CO_2 measurement by 35 ppm, which is almost 50% of the specified accuracy specification of a typical NDIR CO_2 sensor.

Table 3: CO_2 Measurement Change with Weather Patterns

Date	Barometric Pressure in inches Hg	Measured CO_2 in PPM
1/18/2005	30.71	1026
1/18/2005	29.64	991
1/15/2005	30.78	1029
10/26/2010	28.53	954

The Combined Effect of Temperature and Barometric Pressure on CO_2 Measurement

Temperature and Barometric Pressure affect CO_2 measurement individually as well as in combination. **Table 4** shows the measured CO_2 concentration for the range of Barometric Pressures recorded in DeSoto from 2005 to 2010 along with temperatures from 50 to 90°F.

If the actual CO_2 concentration was 1,000 ppm at 77°F and sea level, the measured CO_2 concentration would vary by 161 ppm across the various temperature and Barometric Pressure ranges. That variance is more than the specified accuracy of the NDIR CO_2 sensor.

Table 4: CO_2 Measurement Change with Temperature and Barometric Pressure Combined

		Barometric Pressure in Inches Hg						
		28.5	29	29.5	29.92	30	30.5	31
Temperature in °F	50	1003	1021	1038	1053	1056	1073	1091
	55	993	1011	1028	1043	1046	1063	1080
	60	984	1001	1018	1033	1035	1053	1070
	65	974	991	1009	1023	1026	1043	1060
	70	965	982	999	1013	1016	1033	1050
	75	956	973	990	1004	1006	1023	1040
	77	953	969	986	**1000**	1003	1019	1036
	80	947	964	980	994	997	1014	1030
	85	939	955	971	985	988	1004	1021
	90	930	946	963	976	979	995	1012

Dynamic CO_2 Measurement Compensation

Due to the constantly changing nature of Barometric Pressure and temperature and their effect on CO_2 measurement, the only way to get an accurate CO_2 measurement with an NDIR sensor is through temperature and Barometric Pressure compensation. That's why all BAPI CO_2 sensors have a built in Barometric Pressure sensor and temperature sensor.

Every eight seconds the BAPI sensor takes a CO_2 reading then compensates that value based on the current temperature and Barometric Pressure. That's one reason why BAPI's CO_2 sensors are the most accurate in the HVAC/R industry. There is also no need for an HVAC technician to spend valuable time manually entering the altitude value for the location into each and every sensor when it is installed. This makes the BAPI CO_2 sensor one of the easiest to install, saving time and money.

Calibration Methods for Single and Dual Channel CO_2 Sensors

Rev. 10/16/12

Carbon Dioxide (CO_2) in air is normally measured in Parts Per Million (ppm). At 1,000 ppm CO_2, one million air molecules would contain a mixture of 999,000 air molecules and 1,000 CO_2 molecules. The most common CO_2 sensors are known by the engineering term Non-Dispersive InfaRed, or NDIR. An NDIR CO_2 sensor shines infrared light through a gas sample in a sample chamber (see Figure 1). Sensitive photo-detectors measure the intensity of the infrared light after it passes through the gas sample. CO_2 molecules are opaque to 4.26 micron infrared light while the rest of the air molecules are not. So the intensity of the infrared light is diminished proportionally to the number of CO_2 molecules that are present. Measuring the resultant light intensity measures the number of CO_2 molecules present.

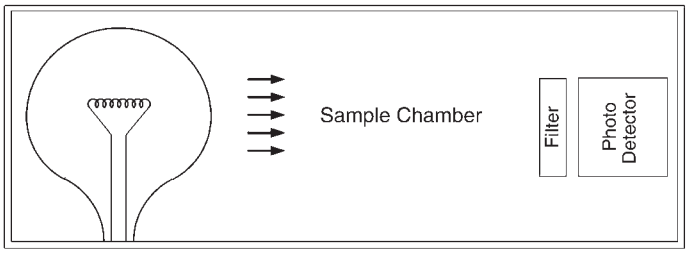


Figure 1: Single Channel CO_2 Sensor

Sensor Drift

The most common light source for NDIR sensors is an incandescent light bulb. In these bulbs, an electric current passes through a metal filament and heats it until it starts to glow. The glowing filament is extremely hot and some of the metal atoms boil off the filament and fly around inside the bulb. Most of these atoms re-adhere to the filament when the power is turned off, but some move far enough away from the filament that they condense onto the glass envelope. Over time, this thin metal coating slightly reduces the amount of light emitted by the bulb. This reduction is perceived by the sensor as an increase in CO_2 concentration. Also, when the metal atoms condense back onto the filament, they can slowly shift the spectrum of the emitted light which can affect the perceived infrared light intensity and CO_2 concentration.

Automatic Background Calibration

One way to compensate for sensor drift is through automatic background calibration. Outdoor levels of CO_2 are generally around 400 ppm. Since people are the main source of CO_2 inside a building, when a building is unoccupied for 4 to 8 hours the CO_2 levels tend to drop to the outside level. Automatic background calibration uses the sensor's on-board microprocessor to remember the lowest CO_2 concentration that occurs every 24 hours. The sensor assumes this low point is the outside CO_2 level. The sensor is also smart enough to discount periodic elevated readings that occur if a space is occupied for 24 hours a day over a few days. Once the sensor has collected 14 days worth of low CO_2 concentration periods, it performs a statistical analysis to see if there has been any small changes in the background levels readings that could be attributable to sensor drift. If the analysis concludes there is drift, a small correction factor is made to the sensor calibration to adjust for this change. This automatic calibration requires that at least three of the last 14 days have space CO_2 levels that reach 400 ppm for an hour or more.

Reference Channel Calibration

Another way to compensate for sensor drift is through a dual channel design. In this setup, one photo-detector and filter is used for CO_2 measurement and works the same as in a single channel design. The second photo-detector and filter is a reference and uses a wavelength that is not affected by air molecules. About once a day, the sensor takes a reading using the reference channel. Any change in this reference measurement indicates a change in the optics of the sensor which can lead to drift. The sensor then automatically corrects the CO_2 measurement from the first channel to prevent the drift.

While the reference channel corrects for changes over time, a field calibration using nitrogen gas will immediately restore the highest level of accuracy. BAPI recommends a 5-year calibration interval for the average office environment.

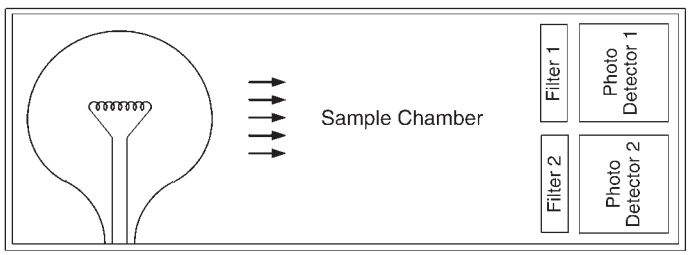


Figure 2: Dual Channel CO_2 Sensor

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The industry's most accurate CO_2 sensor.

BAPI's CO_2 sensors are the only sensors on the market to include automatic barometric pressure compensation, providing unmatched accuracy and ease of installation.



Also available without display and as duct unit.

For videos & information on the BAPI CO_2, visit **www.bapihvac.com/co2**!

Complete your installation faster and easier with genuine BAPI accessories.



View all genuine BAPI accessories at **www.bapihvac.com/accessories**!

Voltage Converters - pgs 2-3



350 mA "EZ" Enclosure - pg. 2



350 mA Snaptrack Unit - pg. 3

2.7 Amp Converter - pgs 4-5

VC2700 Voltage Convert. - pg 4



VC2700 Accessories - pg 5



PS17 & PDM - pgs 6-7

PS17 3 Amp Power Supply - pg 6





PDM - Distributes power to multiple circuits - pg 7

BAPI-Guard - pg 8

Prevents Tampering, Physical Damage and Unauthorized Adjustment



Flexible Probe Bracket - pg 9

FPB - Flexible Probe Bracket for Averaging Sensors



PMPB5, TS1 & TS2 - pg 10

PMPB5 - Provides electrical isolation from the pulse output of electrical, water or gas meters.

TS1 & TS2 - Protects HVAC control systems from electrical transients.



Screwdriver/Allen Wrench - pg 11

Works on Delta, PreCon, Powers and all BAPI-Stat Room Unit Enclosures



BAPI-Boxes - pgs 12-13

Watertight Plastic Enclosures



Clean Cut & Trim Ring - pgs 14-15



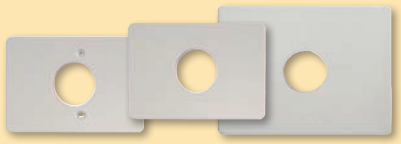
BAPI-Box Knockout Cutter - pg 14



BAPI-Stat 4 Trim Ring - pg 15

Adaptor Plates - pgs 16-17

Adaptor Plates for Retrofit Installations



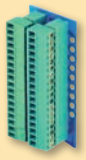
Custom Logo Plates - pgs 18-19

If you would like to personalize the look of your temperature, humidity or pressure sensor, BAPI's units are available with your company's individual logo printed on the front.



TB18, FMK & VC3000B - pgs 20-21

TB18 - Pluggable Terminal Block, pg 20





Field Mounting Kit, pg 20

VC3000B Voltage Converter, pg 21



Water Leak Detector - pgs 24-25

- Water Detection Within 5 Secs
- Local LED Alarm Indication
- Adjustable Water Level Detection with Bottom or Pan Edge Mounting



Insulators, Keys and Misc. - pgs 22-23



Foamback Insulators to isolate the sensor from the wall

RJ11 Adaptor





Security Screws

Replacement Humidity Filter and Filter Cap



Replacement Keys for Wall Plates or BAPI-Guards



Sealant Filled Connectors - pg 26

Connectors with a moisture-excluding sealant to protect the electrical terminations.



VC350A EZ Voltage Converter

Accessories for HVAC/R

Rev. 10/16/12

Overview

- EZ Mount Enclosure
- Compact & Cost-Effective 350 mA Unit
- Self-resetting Thermal Fuse
- Operation & Fault LED Indicators
- Fixed or Adjustable Outputs
- Output Protected Against Overload and Accidental Short Circuit

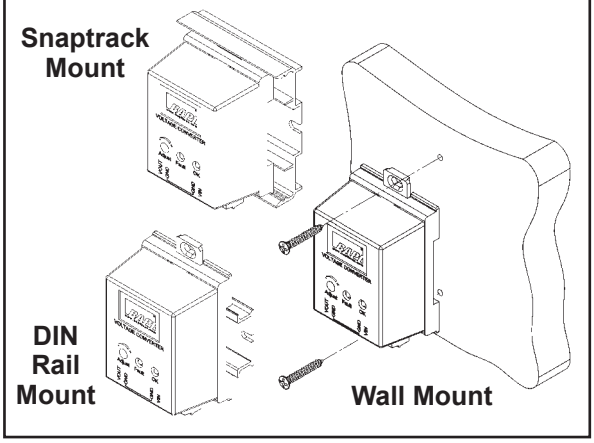


VC350A EZ mounted on DIN Rail

BAPI's EZ Voltage Converter is a cost-effective way of converting 24 VAC or VDC to 5, 12, 15 or 24 VDC for use on peripheral devices that require DC voltage. The converter is available with a 350 mA output. The revolutionary mounting system allows for 2.75" snaptrack, DIN rail or surface mounting.

Although most BAPI room units can run on 24 VAC power, converting to DC power eliminates the AC power "noise" which can affect the room sensor readings. BAPI's tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same cable as the signal lines. To minimize the AC voltage noise, the DC converter must be mounted as close to the controller as physically possible. Do not mount the converter at the sensor end of the wire, the AC will still couple into the sensor signal if you do. All fixed outputs of 5, 10, 12 or 15 VDC are adjustable ±10%. The adjustable model (-ADJ) has an output of 5-24 VDC.

Mounting Methods



Ordering Information

Part Number	Description
BA/VC350A-EZ-5	5 VDC at 350 mA
BA/VC350A-EZ-10	10 VDC at 350 mA
BA/VC350A-EZ-12	12 VDC at 350 mA
BA/VC350A-EZ-15	15 VDC at 350 mA
BA/VC350A-EZ-ADJ	5-24 VDC (adj.) at 350 mA

See end of Section E for list pricing.

Specifications

Output Voltage: 5 to 24 VDC @ 350 mA

Recommended Input Voltage: 18 to 28 VAC, 24 VDC

Input Voltage Limits:

Model of Unit	Minimum (VAC/VDC)	Maximum (VAC/VDC)	Input Current@ Min Input Volts (AC/DC)
5V	5.0/9.0	28.0/35.0	5.2 VA/305 mA
10V	10.0/14.7	28.0/35.0	8.3 VA/315 mA
12V	12.0/16.9	28.0/35.0	9.5 VA/318 mA
15V	15.0/20.5	28.0/35.0	11.2 VA/320 mA
ADJ (24V)	24.0/31.0*	28.0/35.0	16.7 VA/325 mA

*Depends on output voltage

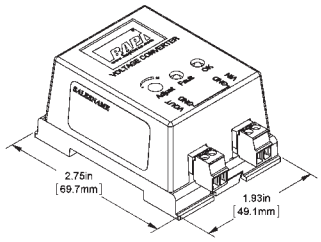
Environmental Operation Range:
0 to 95% RH non-condensing
-40 to 149°F (-40 to 65°C) 350 mA @ any output voltage
-40 to 158°F (-40 to 70°C) 350 mA @ 5 VDC
330 mA @10 VDC
280 mA @ 12 VDC
224 mA @ 15 VDC
140 mA @ 24 VDC

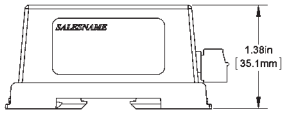
Environmental Storage Range:
-40 to 176°F (-40 to 80°C)

Wiring: 4 wires, 16 to 22 gauge

Rectification: Half-Wave Rectified

Grounding:
AC & DC Ground are Common

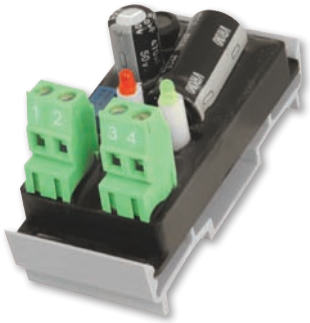




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Overview

- Compact & Cost-Effective 350 mA Unit
- Self-resetting Thermal Fuse
- Operation & Fault LED Indicators
- Ruggedized Circuitry
- Fixed or Adjustable Outputs
- Output Protected Against Overload and Accidental Short Circuit



VC350A mounted in optional snaptrack

BAPI's voltage converter is a cost-effective way of converting 24 VAC or VDC to 5, 12, 15 or 24 VDC for use on peripheral devices that require DC voltage. The converter is available with a 350 mA output. The converter is very compact and designed to fit into standard 2.75" snaptrack.

Although most BAPI room units can run on 24 VAC power, converting to DC power eliminates the AC power "noise" which can affect the room sensor readings. BAPI's tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same cable as the signal lines. To minimize the AC voltage noise, the DC converter must be mounted as close to the controller as physically possible. Do not mount the converter at the sensor end of the wire, the AC will still couple into the sensor signal if you do. All fixed outputs of 5, 10, 12 or 15 VDC are adjustable ± 10%. The adjustable model (-ADJ) has an output of 5-24 VDC.

Part Number	Description
BA/VC350A-5.....	5 VDC at 350 mA
BA/VC350A-10.....	10 VDC at 350 mA
BA/VC350A-12.....	12 VDC at 350 mA
BA/VC350A-15.....	15 VDC at 350 mA
BA/VC350A-ADJ	5-24 VDC (adj.) at 350 mA

Note: Add **-TRK** to the end of the part number (**BA/VC350A-5-TRK**) to include a 1.25" length of 2.75" snaptrack

See end of Section E for list pricing.

350mA EZ Voltage Converter

BAPI also makes a 350mA EZ Voltage Converter. The revolutionary mounting system allows for DIN Rail, Snaptrack or surface mounting. (See page E2 of this section.)



Specifications

Output Voltage: 5 to 24 VDC @ 350 mA

Recommended Input Voltage: 18 to 28 VAC, 24 VDC

Input Voltage Limits:

Model of Unit	Minimum (VAC/VDC)	Maximum (VAC/VDC)	Input Current@ Min Input Volts (AC/DC)
5V	5.0/9.0	28.0/35.0	5.2 VA/305 mA
10V	10.0/14.7	28.0/35.0	8.3 VA/315 mA
12V	12.0/16.9	28.0/35.0	9.5 VA/318 mA
15V	15.0/20.5	28.0/35.0	11.2 VA/320 mA
ADJ (24V)	24.0/31.0*	28.0/35.0	16.7 VA/325 mA

*Depends on output voltage

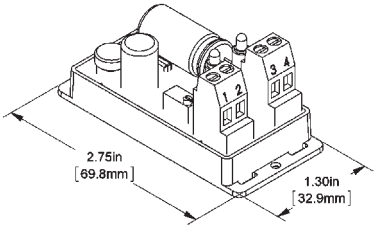
Environmental Operation Range:
0 to 95% RH non-condensing
-40 to 149°F (-40 to 65°C) 350 mA @ any output voltage
-40 to 158°F (-40 to 70°C) 350 mA @ 5 VDC,
330 mA @10 VDC,
280 mA @ 12 VDC,
224 mA @ 15 VDC,
140 mA @ 24 VDC

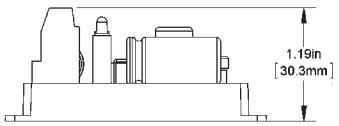
Environmental Storage Range:
-40 to 176°F (-40 to 80°C)

Wiring: 4 wires, 16 to 22 gauge

Rectification: Half-Wave Rectified

Grounding:
AC & DC Ground are Common



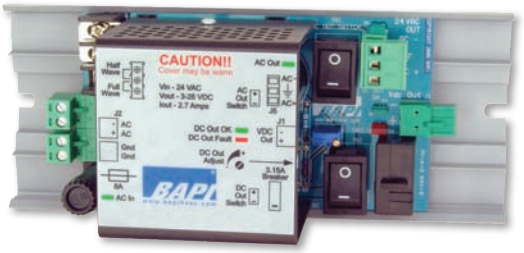


VC2700-STM - 2.7 Amp Voltage Converter

Accessories for HVAC/R

Rev. 10/16/12

Overview



VC2700-STM - Voltage Converter with included 8" piece of 2.75" Snaptrack

The VC2700-STM is a 2.75" snaptrack-mountable 2.7 amp voltage converter. The unit takes a 24 VAC input and converts it to a regulated and adjustable output of 3-26 VDC.

The unit also has a filtered, unregulated 24 VAC output tap drawn from the 24 VAC input. Both the 24 VAC and the VDC outputs are routed through independent ON-OFF rocker switches. The switches allow you to remove power from the AC or DC loads without disturbing the other circuit.

There are status LEDs for 24 VAC IN, 24 VAC OUT, VDC OUT and VDC FAULT (indicating that the resettable circuit breaker has tripped). The user can determine at a glance whether there is a problem with the HVAC system power and where the problem exists. The resettable circuit breaker eliminates the need for fuses.

This unit has removable terminal block plugs at all inputs and outputs to simplify wiring. The unit can also be plugged directly into the BP2, BP4 or BP8 Backplanes of the ETA line to provide power to a variety of ETA modules or other peripherals, and features a user-selectable full wave or half wave rectification. The unit comes with an 8" piece of 2.75" snaptrack.

Part Number	Description
BA/VC2700-HW-STM	2.7 Amp Voltage Converter, Half-Wave, Snaptrack Mountable
BA/VC2700-FW-STM.....	2.7 Amp Voltage Converter, Full-Wave, Snaptrack Mountable

See end of Section E for list pricing.

VC2700 Accessories

BAPI makes three accessories for the VC2700 which are shown on the opposite page. The LVTM simplifies connecting an external transformer to the VC2700-STM, while the TB4 and TB4-VC100 provide additional depluggable terminals for the VC2700 output voltage or an additional system voltage.

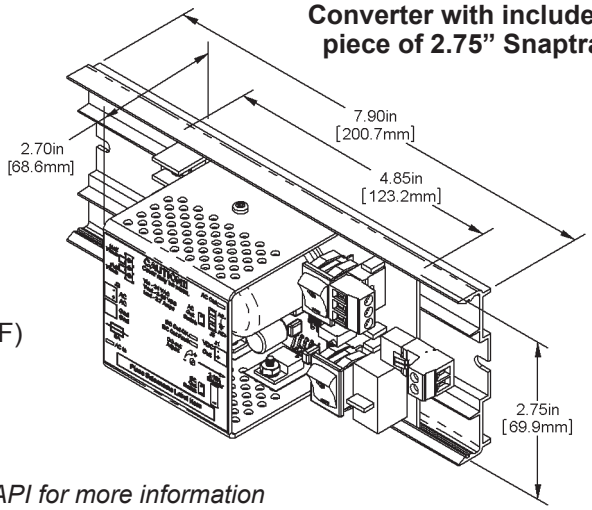


VC2700-STM with LVTM and TB4-VC100 Module and Power Cord

Specifications

Voltage Input..... 18 to 30 VAC
Current Output ..... 2.7A DC (100 VA Input)
Current Input..... 4 Amp AC (100VA)
Output Ripple..... 50mV p-p, Full Wave
100mV p-p, Half Wave
AC Voltage Output..... Same as Input
Min DC Output Voltage.... 3 VDC
Max Output voltage ..... 26 VDC, Full Wave
25.5 VDC Half Wave
Ambient Temperature .... -40 to 60ºC (-40 to 140ºF)
Max Output Current .... 2.7 Amps* DC
Min Input Voltage.... 5 or 15 VDC Output: 18 VAC
24 VDC Output: 23 VAC

VC2700-STM - Voltage Converter with included 8" piece of 2.75" Snaptrack



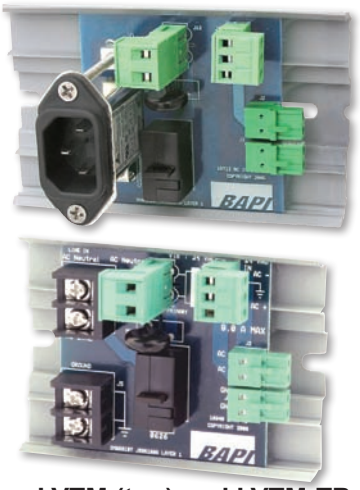
**Other current output ranges are available, contact BAPI for more information*

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Overview

BAPI offers two styles of Line Voltage Transformer Module (LVTM) to simplify connecting an external transformer to the VC2700-STM Voltage Converter. The LVTM can sit side-by-side with the VC2700-STM in an 8" long piece of industry standard 2.75" snaptrack (TRK08).

The LVTM takes 120/240 VAC power and protects the input with a 3.15 amp resettable circuit breaker. Pluggable terminals provide a convenient way to terminate the primary and secondary windings of the transformer. Connectors on the end of the LVTM plug directly into the VC2700's inputs for a clean connection without interconnecting wires.



LVTM (top) and LVTM-TB (below) in an accessory Snaptrack (TRK18)

Part Numbers

BA/LVTM..... Line Voltage Transf. Module with power cord connector
BA/LVTM-TB.... Line Voltage Transf. Module with Terminal Block

BA/PWR-CORD-18" .... 18" Power Cord
BA/PWR-CORD-36" .... 36" Power Cord

See end of Section E for list pricing.

LVTM Specifications

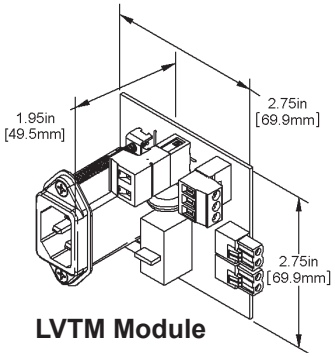
Input: 120/240 VAC at 3.15 Amps Max.
24 VAC input: 9 Amps Max.

Power Cord Specifications

Input: 125 VAC at 10 Amps Max.
Wire: 3 Wire, 18 AWG
Ratings: NEMA 5-15P, UL817, CSA22.2



18" Power Cord shown above



LVTM Module

TB4 & TB4-VC100

Overview

Power supplies and voltage converters in large HVAC/R systems sometimes do not have enough output terminals. Also some systems need a small amount of power at a 2nd voltage. BAPI'S TB4 and TB4-VC100 are accessories for the VC2700 that answer these problems.

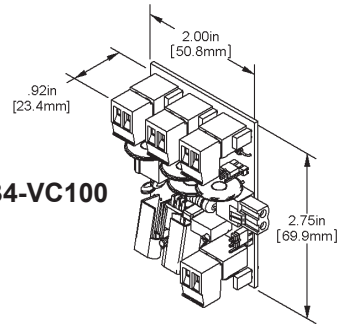
The TB4 plugs directly into the VC2700 and provides four sets of depluggable terminals for the VC2700's output voltage. These additional outputs can be used to power BP8, BP4 and BP2 ETA backplanes.

The TB4-VC100 plugs directly into the VC2700 and adds a 100 mA adjustable voltage converter for a second system voltage of 5-20 VDC. Additional TB4-VC100's may be plugged in for 3rd and 4th system voltages. The adjustable voltage must be 6 VDC or more below the VC2700 voltage.



TB4-VC100 Module in an accessory Snaptrack

Part Number	Description
BA/TB4.....	Four Terminal Output Board
BA/TB4-VC100	TB4 w/ adjustable 100 mA Voltage Converter



TB4-VC100

Specifications

Input: BA/VC2700

Output: *VC2700 terminals,* 3-26 VDC Adjustable (from VC2700) 2.7 Amps DC Max at each terminal

VC100 section: 5-20 VDC adjustable, 100 mA Max.

PS17 & PS17CB - Power Supplies

Accessories for HVAC/R

Rev. 10/16/12

Overview

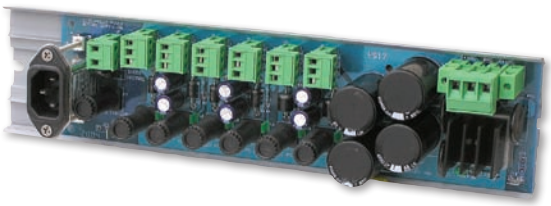
The PS17 and PS17CB Power Supplies provide up to six 33 VDC, 3 Amp power supplies each. The PS17 features a 3 Amp fuse on each output while the PS17CB features a 3.15 Amp circuit breaker on each output. Each output has a green LED, which lights to show normal power.

Both power supplies use a 120 VAC to 24 VAC transformer with a rating of 75VA to 400 VA depending upon current consumption. Total your current consumption and pick the appropriate transformer from the table at right.

The PS17CB provides a transient line filter for the 120 VAC input to the transformer. Screw terminals on the PS17CB allow convenient termination of the input and output of the transformer. Plug a standard computer power cord into a duplex outlet and then into the line filter to power the PS17CB. A green LED lights when 120 VAC is applied and the circuit breaker is not tripped. Comes with an 11.9" piece of 2.75" Snaptrack.

Part Number	Description
BA/PS17	Power Supply Fuse Block
BA/PS17CB	Power Supply w/ Circuit Breakers
BA/PWR-CORD-18"	18" Power Cord
BA/PWR-CORD-36"	36" Power Cord

See end of Section E for list pricing.



PS17 - Power Supply Fuse Block with included Snaptrack

TRANSFORMER TABLE

Total Current Consumption	Transformer Power
1.875 amps or less	75 VA
2.500 amps or less	100 VA
3.750 amps or less	150 VA
5.000 amps or less	200 VA
6.250 amps or less	250 VA
7.500 amps or less	300 VA
12.00 amps or less	400 VA

Note: The customer supplies the power transformer.



18" Power Cord shown at left

Specifications

PS17 & PS17CB Input Power
120 VAC at 0.7 to 3.5 Amps depending on transformer selected. Standard IEC Line Filter

PS17 & PS17CB Output
Nominal 33 VDC.

Four Outputs rated at 2.25 Amps - 3 Amp Fuse or 3.15 Amp Circuit Breaker (Typically for controllers)

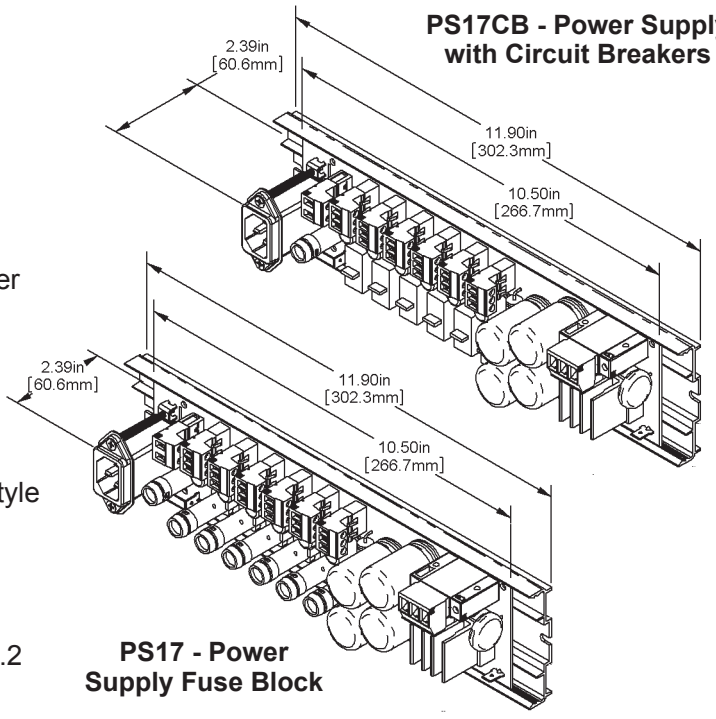
Ambient Temperature: -40 to 60º C (-40 to 140º F)

Two Outputs rated at 3 Amps - 4 Amp Circuit Breaker or Fuse

Circuit Breakers are all push-to-reset style

Power Cord Specs
Input: 125 VAC at 10 Amps Max.
Wire: 3 Wire, 18 AWG
Ratings: NEMA 5-15P, UL817, CSA22.2

PS17CB - Power Supply with Circuit Breakers

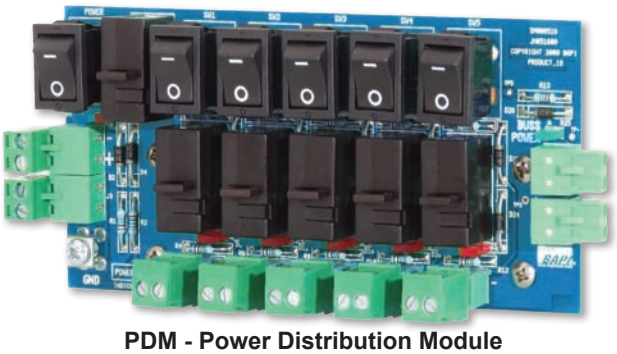


PS17 - Power Supply Fuse Block

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Features & Options

- 3 or 5 Circuit Power Distribution
- Expandable by Cascading Additional PDM's
- 12-30V AC/DC operation
- Master Power Switch w/ 10 Amp Breaker
- Individual Circuit Power Switches
- Individual 3 Amp Circuit Protection
- Power and Fault LED's
- Snap track or Din rail mount



PDM - Power Distribution Module
BA/PDM-5-B

The PDM - Power Distribution Module is a low voltage (12-30V AC/DC) power distribution module designed to take a single power source and distribute that power to multiple circuits. It comes in 3 or 5 circuit models which can be linked together to achieve multiple circuits with a minimum of panel space to customize your circuit needs. A common module On/Off switch and 10 amp breaker powers the distributed circuits. Each circuit has an individual On/Off switch and individual field connection terminals. The BA/PDM has individual circuit protection with either a 3 amp fuse or 3 amp breaker with an individual power LED and fault LED per circuit.

Part Number	Description
BA/PDM-5-B	Five circuit Power Distribution Module, w/ breaker
BA/PDM-3-B	Three circuit Power Distribution Module, w/ breaker
BA/PDM-5-F	Five circuit Power Distribution Module, w/fuse
BA/PDM-3-F	Three circuit Power Distribution Module, w/fuse
BA/PDM-5-B-DIN	Five circuit Power Distribution Module, w/ breaker, DIN mount
BA/PDM-3-B-DIN	Three circuit Power Distribution Module, w/ breaker, DIN mount
BA/PDM-5-F-DIN	Five circuit Power Distribution Module, w/fuse, DIN mount
BA/PDM-3-F-DIN	Three circuit Power Distribution Module, w/fuse, DIN mount

See end of Section E for list pricing.

Specifications

Supply Voltage: 12 to 30V AC/DC 10 amps max

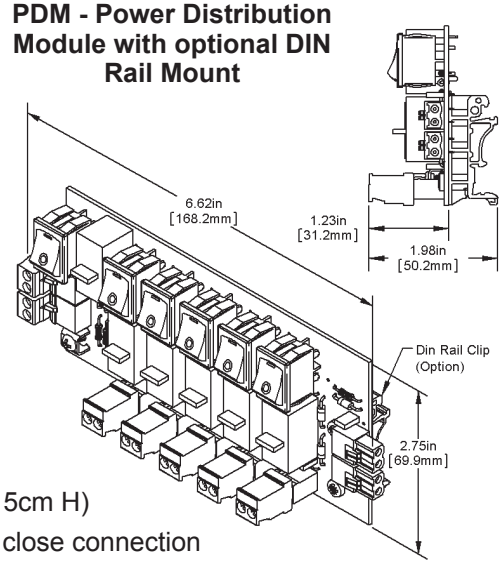
Circuit Distribution: .....BA/PDM-3 3 circuits
BA/PDM-5 5 circuits

Circuit Protection:
Master Breaker..... 10 amp, push to reset
Individual Fused .... 3 amp, slow blow 20mm fuse
Individual Breaker.. 3 amp, push to reset

Visual Indicators:
Power .....Green LED, master & individual
Fault.....Red LED, master & individual

On/Off Switching:
Master.....Common rocker switch
Circuit .....Individual rocker switch

PDM - Power Distribution Module with optional DIN Rail Mount



Connection: Plug in terminal strip, Cage clamp, 28-12 AWG

Dimension: 6.62" L x 2.75" W x 2" H (16.9cm L x 7cm W x 5cm H)

Mounting: 2.75" snap track or DIN rail, Module to module close connection

Ambient: -40 to 158ºF (-40 to 70ºC)

Warranty: 2 years

Weight: 0.3lb (0.13kg)

BAPI-Guard™ Thermostat Protector

Accessories for HVAC/R

Rev. 10/16/12

Features & Options

- Prevents Tampering, Damage and Unauthorized Adjustment
- Exceptional Airflow for Proper Thermostat Operation
- Made from Thick, Durable Polycarbonate
- Key Lock Protected
- Low Profile Design with Two Sizes to Fit Most Thermostats
- Horizontal or Vertical Mounting with Hardware Included

The BAPI-Guard prevents tampering, physical damage and unauthorized adjustment of thermostats. The attractive, low-profile design is available in two sizes to fit most thermostats. It is made of thick, durable polycarbonate and features exceptional airflow, key lock protection, horizontal or vertical mounting and easy installation with hardware included.



BAPI-Guard 2 Mounted Over a Thermostat

PART NUMBERS

BA/BG.....Larger BAPI-Guard Thermostat Protector
BA/BG2.....Smaller BAPI-Guard 2 Thermostat Protector
BA/KEY16187.....Replacement Key for BAPI-Guard and BAPI-Guard 2

See end of Section E for list pricing.

Specifications

Material: Polycarbonate

Material Rating: UL 94, V-0

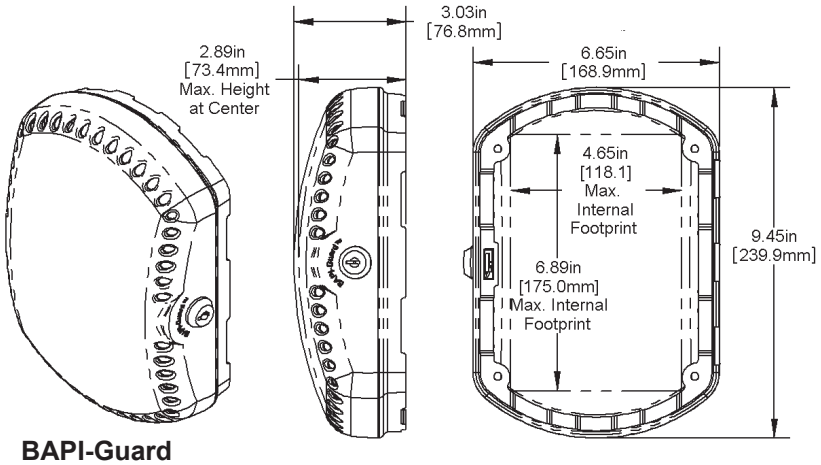
The BAPI-Guard fits these common thermostats

BAPI-Stat and BAPI-Stat 3
Honeywell T7300, T7350, T7560, T7770 and T7790 Series
Johnson Controls Metastat

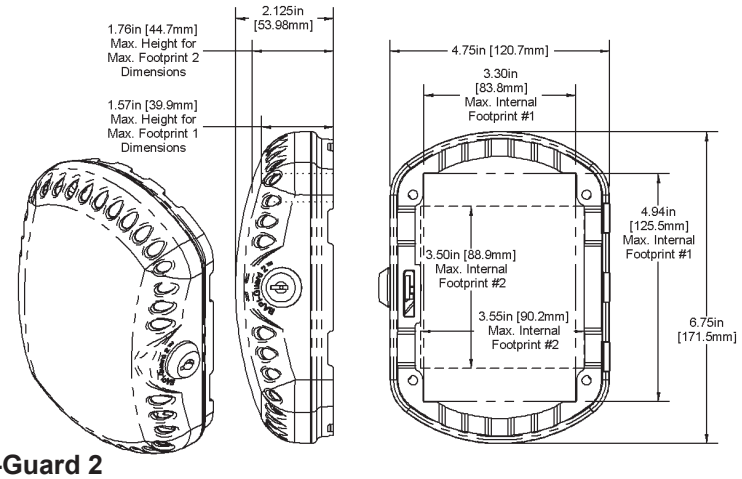
The BAPI-Guard 2 fits these common thermostats

Delta Style Enclosure
BAPI-Stat 2 and BAPI-Stat 4
Powers & PreCon
Automated Logic RS Series
York Zone Sensor
Invensys MN series

If you have a question about whether the BAPI-Guard or BAPI-Guard 2 will fit a specific thermostat, please call BAPI.



BAPI-Guard



BAPI-Guard 2

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Features & Options

- Makes mounting of averaging sensors quick and easy
- Eliminates risk of kinking and damaging the probe
- Scored break off for 1/4” rigid probe mounting
- Nylon material limits heat/cold conduction to the probe

The Flexible Probe Bracket (FPB) is used to mount averaging sensors, low limit thermostats, or liquid fill thermostats in duct applications for probe diameters from 1/8”, 1/4” and 3/8”.

The bracket is used to reverse the direction of the flexible probe with a smooth arc to eliminate the risk of kinking the sensor and damaging the probe.

A fixed 1/4” probe may also be mounted as part of the bracket design using the scored break-off. The FPB is made out of tough UL94V Nylon which limits heat/cold conduction to the probe and has multiple mounting holes to make mounting quick and easy.

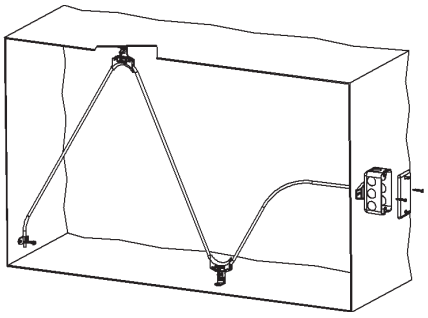


FPB - Flexible Probe Bracket

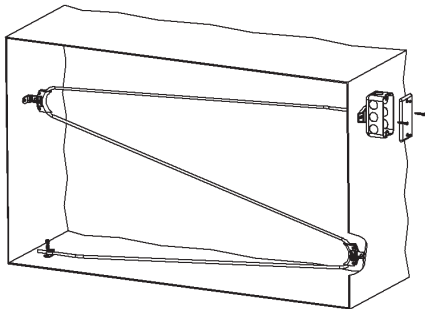
ORDERING INFORMATION

Part Number	Description
BA/FPB-50	50 Flexible Probe Brackets
BA/FPB-100	100 Flexible Probe Brackets
BA/FPB-500	500 Flexible Probe Brackets

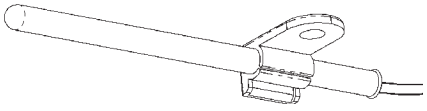
See end of Section E for list pricing.



Vertical Mounting of the Averaging Sensor



Horizontal Mounting of the Averaging Sensor



1/4” Rigid Probe Mounting (using scored break off)

Specifications

Material: Nylon

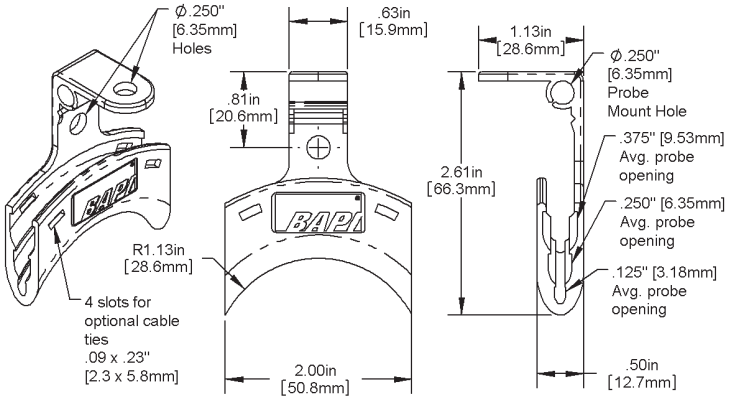
Rating: UL94V-2 (plenum rated), RoHS Compliant

Mounting: Two ¼” holes, on the top and side.

Probe Size: 1/8”, 1/4”, and 3/8” flexible probes
1/4” rigid probe holder, w/break off score

Bracket Arc: 1.125” radius

Operational Temp: -22 to 167ºF, (-30 to 75ºC)



PMPB5 - Pulse Meter Pulse Buffer

Accessories for HVAC/R

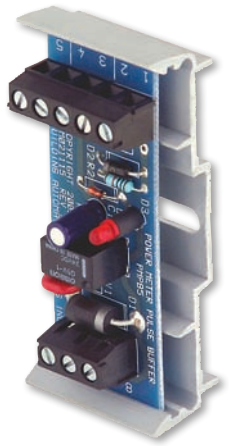
Rev. 10/16/12

Overview

Many electrical, water or gas meters provide a pulse output with each pulse representing a specific quantity of the media being measured. These pulse outputs often need to be electrically isolated from the controller's input by a buffer. The PMPB5 provides that buffer by receiving the pulses from the meter and recreating them as dry contact closures. An LED lights whenever the buffer contacts are closed. The PMPB5 fits standard 2.75" snaptrack.

Part Number	Description
BA/PMPB5	Pulse Meter Pulse Buffer
BA/PMPB5-TRK	Pulse Meter Pulse Buffer w/ 1.25" piece of 2.75" Snaptrack

See end of Section E for list pricing.



PMPB5 mounted in the optional 2.75" snaptrack

Specifications

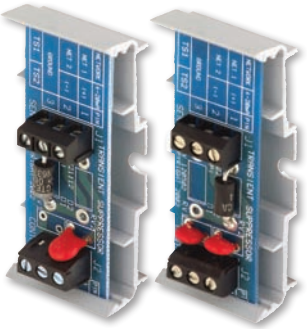
Power ..... 24VAC 50/60HZ @ 25mA (0.6VA)
Contact rating ..... 1A @ 24VAC maximum, 1mA @ 5VDC minimum)
Contact repetition rate ..... 2 seconds per pulse maximum

TS1 & TS2 - Transient Suppressor

Rev. 12/20/10

Overview

HVAC control systems can be subjected to electrical transients (temporary excess voltage) from various sources. Damage to control systems can occur if static electricity, lightning or contactors produce transients of sufficient magnitude and duration to overwhelm the protection built into the control system components. The TS1 and TS2 can significantly increase the transient protection and reduce the possibility of damage to the control system. Both modules fit in standard 2.75" snaptrack



TS1 & TS2 - Transient Suppressors with optional 2.75" snaptrack

The TS1 is specifically designed for network communications between control system components. The TS1 clamps voltages to 10 VAC or ±14 VDC Line to ground and 7.5 VDC line to line. *Please Note: The added capacitance of the TS1 may be unsuitable for some combinations of communications line length and high speed data. For best operation you may have to reduce line lengths and add data repeaters.*

The TS2 is designed to protect 4 to 20 mA current loops. The TS2 clamps the signal return line to 5 volts above ground and 1 volt below ground. The voltage supply line is clamped to ±39 VDC Line to ground.

Part Number	Description
BA/TS1	Transient Suppressor (voltage)
BA/TS2	Transient Suppressor (current)
BA/TS1-TRK	Transient Suppressor (voltage) with 1.25" piece of 2.75" Snaptrack
BA/TS2-TRK	Transient Suppressor (current) with 1.25" piece of 2.75" Snaptrack

See end of Section E for list pricing.

Specifications

TS1 Clamping Voltage..... 10 VAC or ±14 VDC Line to Ground, ±7.5 VDC Line to Line

TS2 Clamping Voltage..... 5 VDC Above Ground, Signal Return Line
1 VDC Below Ground, Signal Return Line
±39 VDC Line to Ground, Power Supply Line

BAPI Screwdriver & Allen Wrench

Features & Options

- Small Flathead Screwdriver for Terminal Block screws
- 1/16” Allen Wrench for Cover Locking Screws
- Works on Delta, PreCon, Powers and all BAPI-Stat Room Unit Enclosures



BAPI 6.75” Screwdriver & Allen Wrench Combination (top) and the 6” Screwdriver & Allen Wrench Combination (bottom)

BAPI Screwdriver & Allen Wrench Combinations are especially useful for installing BAPI Room Units. The small, flathead screwdriver can be used to turn the screws on the circuit board terminal block while the 1/16” Allen wrench is used for the locking screws on the removable cover (See figures below).

One 6” screwdriver (BA/116) is included with every 25 room units ordered. This model is not designed for prolonged use. The 6.75” model (BA/116W) is designed for prolonged use.

ORDERING INFORMATION

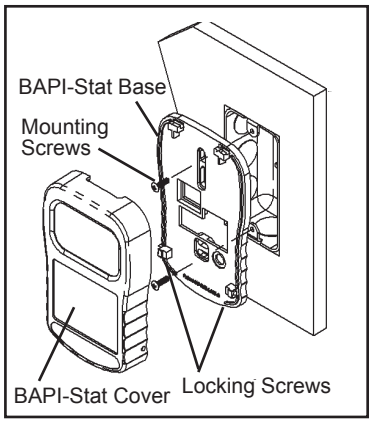
Part Number: BA/116W - BAPI 6.75” Screwdriver & Allen Wrench Combination

Part Number: BA/116 - BAPI 6” Screwdriver & Allen Wrench Combination

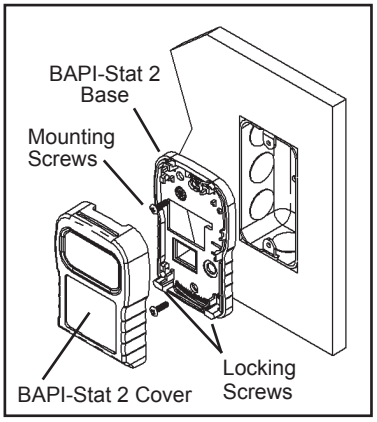
See end of Section E for list pricing.

Allen Wrench Locking Screw Locations for BAPI Room Units

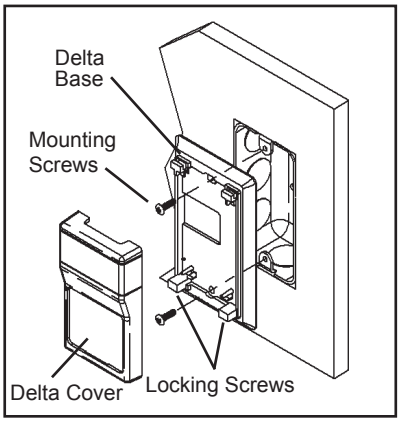
The figures below show the location of the locking screws on 5 of BAPI’s room unit enclosures. The BAPI Screwdriver can be used with all of them. Simply snap the cover in place and turn the locking screws counterclockwise with the allen wrench, backing them out to lock the cover in place.



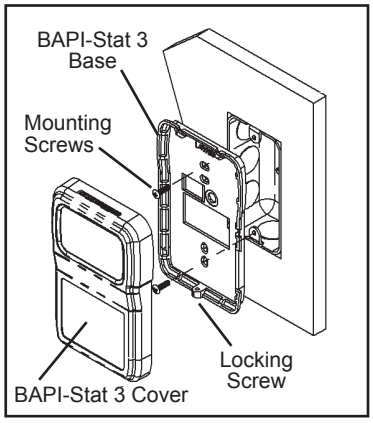
BAPI-Stat Stye Enclosure



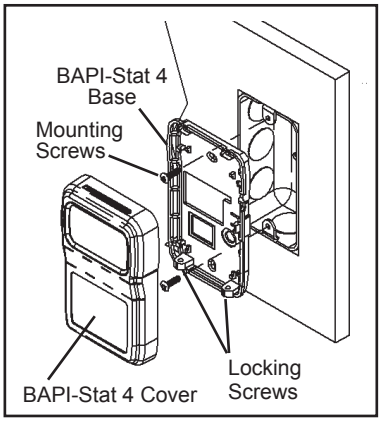
BAPI-Stat 2 Stye Enclosure



Delta Style Enclosure



BAPI-Stat 3 Stye Enclosure



BAPI-Stat 4 Stye Enclosure

BAPI-Box Style Enclosures

Accessories for HVAC/R

Rev. 06/06/13

Features & Options

- Plastic with UL94V-0 Flame Rating
- Hinged Cover with Latch
- NEMA 4 and IP66 Rating for BB & BB2
- Multiple ½" NPSM and Drill Out Conduit Hubs
- Accepts All ½" Conduit Connectors

The BAPI-Box, BAPI-Box 2 and BAPI-Box 4 enclosures are made especially for HVAC probes and transmitters. The through holes come out in all directions to accommodate duct, averaging, immersion and strap-on probe sensors. The rest of the through holes provide ½" threaded or thin wall conduit connectors for wiring.

The plastic is flame rated for plenum applications, and corrosion proof from common chemicals present in any HVAC application. The hinged door makes wiring easy and the cover is impossible to lose or drop. The clear door cover of the BAPI-Box and BAPI-Box 2 make digital displays or custom logos practical.

The BAPI-Box and BAPI-Box 2 are watertight with a rating of NEMA 4 or IP66 and UV resilient for outside air use. The external mounting tabs maintain enclosure integrity and make securing with screw guns easy.

The BAPI-Box 4 is small and made of plastic with an opaque, hinged cover. It carries an IP44 rating for indoor use and is perfect for duct, immersion, averaging, remote and strap-on temperature sensors.

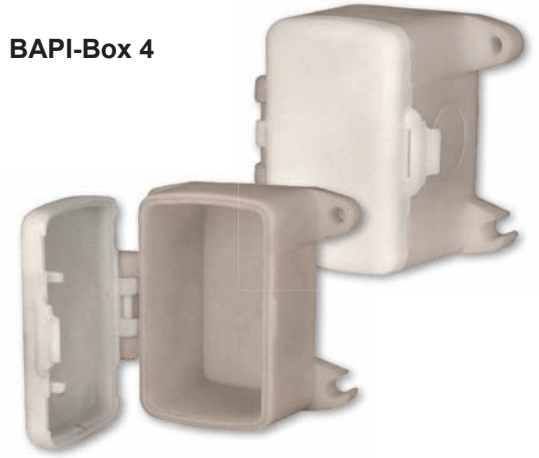
BAPI-Box



BAPI-Box 2



BAPI-Box 4



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Ordering Information

PART NUMBERS

BA/BB ..... Plastic BAPI-Box, 5” x 4.2” x 2.5”

BA/BB2 ..... Plastic BAPI-Box 2, 4.9” x 2.8” x 2.35”

BA/BB4 ..... Plastic BAPI-Box 4, 2.8” x 2.8” x 2.1”

BA/BB4-D ..... Plastic BAPI-Box 4, duct configuration with foam backing and 1/4” probe hole, 2.8” x 2.8” x 2.1”

BA/CLN-CUT-50 ..... ½” threaded knockout cutting tool for BAPI-Box and BAPI-Box 2 (see pg E14)

BA/CLN-CUT4-50 .... ½” unthreaded knockout cutting tool for BAPI-Boxes (see pg E14)

See end of Section E for list pricing.

Specifications

Case Material:
- BB, BB2 — Polycarbonate, UV Resistant
- BB4 — Nylon for indoor use

Flame Rating: UL94 V-0

Color: Warm White

Cover: Polycarbonate, UV Resistant
- BB BB2 — Clear with continuous gasket
- BB4 — Opaque without gasket

Door:
- BB BB2 — Hinged with latch tab & two securing screws
- BB4 — Hinged with latch tab

Enclosure Rating:
- BB, BB2 — NEMA 4, IP66 (securing screws required)
- BB4 — IP44

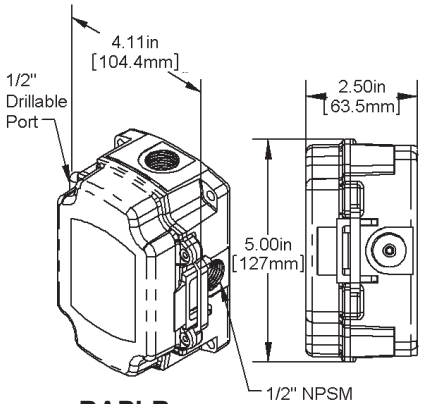
PCB Mounting Rails: BB and BB2 (No PCB rails in BB4)
- Rail Dimensions — 2.75” (69.8mm) wide, 1.25” (38mm) height
- BAPI-Box (BB) — 4 possible rails (only 2 at once)
- BAPI-Box 2 (BB2) — 2 possible rails (only 1 used at a time recommended)

Environmental Operating Range:
- Temperature — -40 to 85ºC (-40 to 185ºF)
- Humidity — 0 to 100% RH, Condensing (no submerging) (BB4 Non-Condensing)

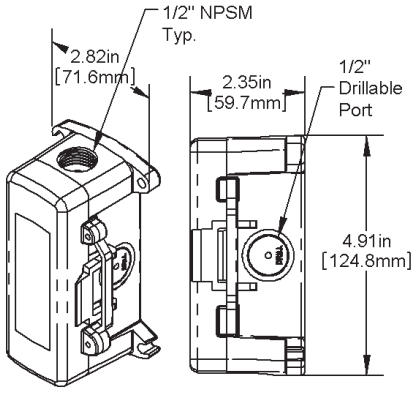
Box Entry:
- BB, BB2 — Threaded or EMT with connector
- BAPI-Box (BB) — Four 1/2” NPSM & One 1/2” drill out ports
- BAPI-Box 2 (BB2) — Three 1/2” NPSM & Three 1/2” drill out ports
- BAPI-Box 4 (BB4) — Four 1/2” drill out ports

Mounting: Four external tabs

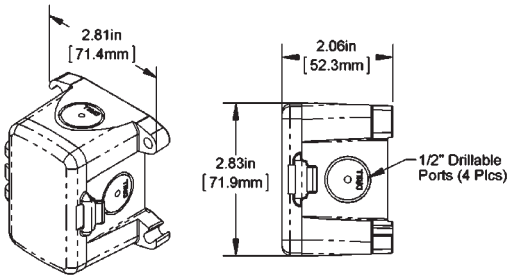
Weight:
- BAPI-Box (BB) — 0.44lb, (0.2Kg)
- BAPI-Box 2 (BB2) — 0.28lb, (0.13Kg)
- BAPI-Box 4 (BB4) — 0.18lb, (0.082Kg)



BAPI-Box



BAPI-Box 2



BAPI-Box 4

Clean-Cut Tools

Accessories for HVAC/R

Rev. 04/10/13

Features & Options

- Quick, Easy and Professional Looking Knockouts for the BAPI-Box, BAPI-Box 2 & BAPI-Box 4 Enclosures
- One Step Cutting Bit
- Standard Hex Drill Bit Shaft
- Quick Disconnect Shaft
- Built in Rim Stop Prevents Damage to Internal Components
- Stainless Steel Construction
- Comes with Blade Sheath



Clean-Cut
(BA/CLN-CUT-50)

The Clean-Cut hole cutters are designed to cut out the plastic plugs in the ½" NPSM threaded ports of the BAPI-Box and BAPI-Box 2 polycarbonate enclosures and the BAPI-Box 4 ABS plastic enclosure. These tools make removing the plastic plug fast and easy and produce a professional-looking .65" diameter hole.

A built-in stop prevents the tools from pushing through and possibly damaging sensitive electronics within the box, so there's no need to remove the items to drill the hole. The Stainless Steel construction keeps its edge and lasts for over 1,000 operations in both directions. The tool can be sharpened with a hand grinder or file and comes with a protective sheath to protect the blades and user.



Clean-Cut 4
(BA/CLN-CUT4-50)

Ordering Information

BA/CLN-CUT-50 ..... Clean-Cut - ½" threaded knockout cutting tool for BAPI-Box and BAPI-Box 2

BA/CLN-CUT4-50 ..... Clean-Cut 4 - ½" unthreaded knockout cutting tool for BAPI-Boxes

See end of Section E for list pricing.

Specifications

Material ..... 316 Stainless Steel

Rim Stop..... 0.04" (1mm), in from edge

Shaft Stem..... 0.95" (24.1mm) long with quick disconnect shaft

Drill Chuck..... Quarter inch Hex

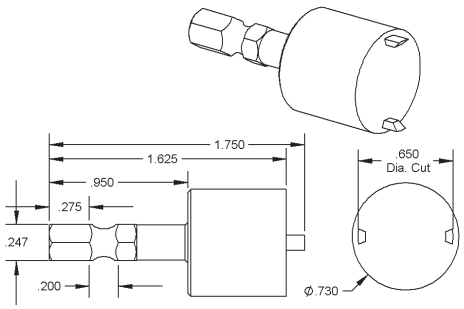
Sharpening..... Hand grinder or file (As needed)

Weight: 0.11lb (50.0g)

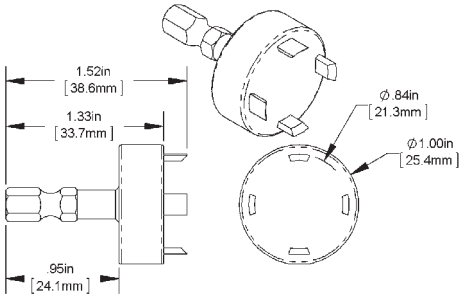
Outer Diameter
BA/CLN-CUT-50 .....Smooth 0.73" (18.5mm)
BA/CLN-CUT4-50 ....Smooth 1.00" (25.4mm)

Cutting Blades
BA/CLN-CUT-50 .....0.125" (3.175mm) long, 0.05" (1.27mm) wide
BA/CLN-CUT4-50 ....0.2" (5.1mm) long, 0.18" (4.5mm) wide

Hole Cut
BA/CLN-CUT-50 .....0.65" (16.51mm)
BA/CLN-CUT4-50 ....0.84" (21.3mm)



Clean Cut Dimensions



Clean Cut 4 Dimensions

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Overview

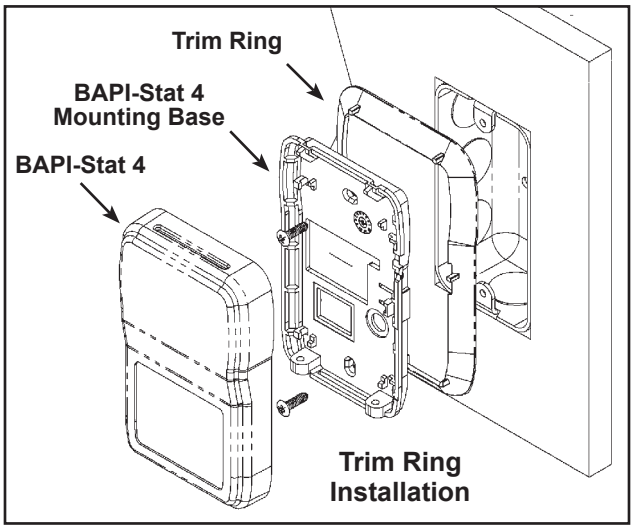
The BAPI-Stat 4 Trim Ring provides a professionally finished appearance for the BAPI-Stat 4 Room Enclosures. If you are using back boxes, the trim ring covers any wall imperfections between the back box and the wall.

To install, place the trim ring on the wall, nest the BAPI Stat 4 mounting base into the ring and attach everything to the wall with the BAPI-Stat 4 mounting screws. The BS4 trim ring only adds 0.07 inches (1.7 mm) to the depth of the BAPI Stat 4.



ORDERING INFORMATION

BA/BS4-TR ...BAPI-Stat 4 Trim Ring *See end of Sect. E for list pricing.*



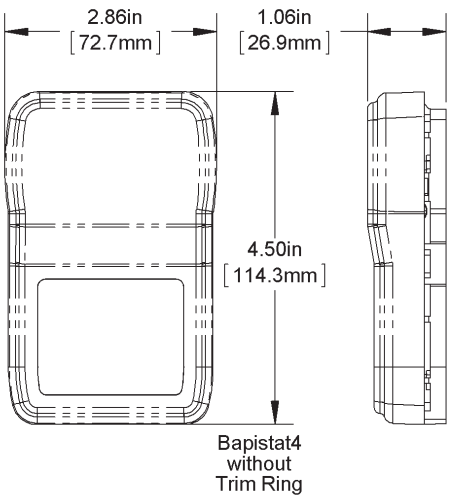


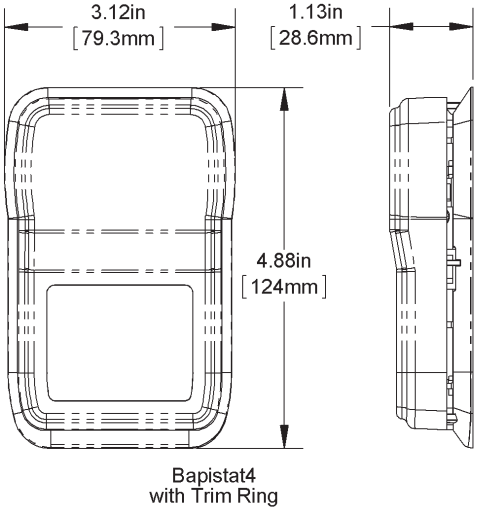
BAPI-Stat 4 Unit with and without Trim Ring

Specifications

Material: ABS plastic, Flame-retardant, UL 94, V-0

Temperature: 32 to 122°F (0 to 50°C)
Humidity: 0 to 95%, non-condensing





Adaptor Plates for Retrofits

Accessories for HVAC/R

Rev. 10/16/12

Features & Options

- Covers Wall Imperfections during Retrofits
- Different Colors and Sizes, Horizontal or Vertical Mounting

BAPI Adaptor Plates are designed to cover wall imperfections when installing wall sensors or thermostats. They are made in three different sizes and four different colors to match the sensor. The Adaptor Plates can be painted or wall papered in place if architecturally required.

PART NUMBERS

BA/ADP-525-7-WMW .....Adaptor Plate, 5.25 x 7” Warm White
BA/ADP-525-7-OFW.....Adaptor Plate, 5.25 x 7” Off White
BA/ADP-525-7-CPW.....Adaptor Plate, 5.25 x 7” Copla White
BA/ADP-525-7-CDW.....Adaptor Plate, 5.25 x 7” Cloud White

BA/ADP-53-53-WMW .....Adaptor Plate, 5.3 x 5.3” Warm White
BA/ADP-53-53-OFW.....Adaptor Plate, 5.3 x 5.3” Off White
BA/ADP-53-53-CPW.....Adaptor Plate, 5.3 x 5.3” Copla White
BA/ADP-53-53-CDW.....Adaptor Plate, 5.3 x 5.3” Cloud White

BA/ADP-37-55-WMW .....Adaptor Plate, 3.75 x 5.5” Warm White
BA/ADP-37-55-OFW.....Adaptor Plate, 3.75 x 5.5” Off White
BA/ADP-37-55-CPW.....Adaptor Plate, 3.75 x 5.5” Copla White
BA/ADP-37-55-CDW.....Adaptor Plate, 3.75 x 5.5” Cloud White

BA/ADP-37-55-WMW-UK...Adaptor Plate (Europe), 3.75 x 5.5” Warm White
BA/ADP-37-55-OFW-UK .... Adaptor Plate (Europe), 3.75 x 5.5” Off White
BA/ADP-37-55-CPW-UK ....Adaptor Plate (Europe) , 3.75 x 5.5” Copla White
BA/ADP-37-55-CDW-UK ....Adaptor Plate (Europe) , 3.75 x 5.5” Cloud White

See end of Section E for list pricing.



BA/ADP-525-7-WMW



BA/ADP-53-53-WMW



BA/ADP-37-55-WMW



BA/ADP-37-55-WMW-UK

Color Reference

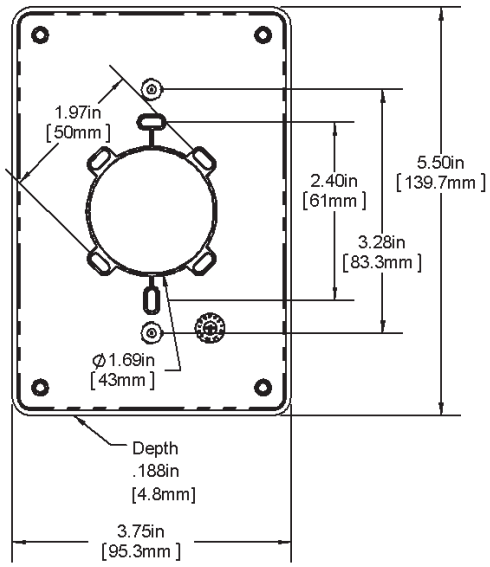


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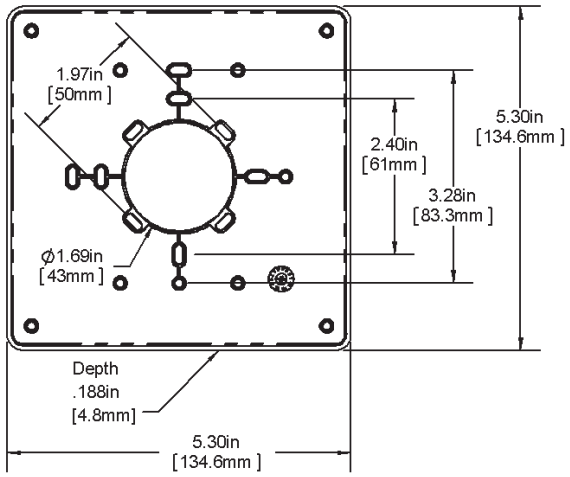
Specifications

Material ABS plastic, Flame-retardant, UL 94, V-0
Application Horizontal or Vertical
Mounting Drywall, US back box or European back box
Dimensions W x H x D
ADP-525-7 5.25” x 7” x 0.188”, (133.4 x 177.8 x 4.8 mm)
ADP-37-55 3.75” x 5.5” x 0.188”, (95.3 x 139.7 x 4.8 mm)
ADP-53-53 5.3” x 5.3” x 0.188”, (134.6 x 134.6 x 4.8 mm)
Color Match
WMW Warm White – Delta, BAPI-Stat 2, EU, BAPI-Box (Approximately Pantone Warm Gray 2)
OFW Off White – BAPI-Stat (Approximately Pantone Warm Gray 1)
CPW Copla White – Delta, BAPI-Stat 2 (Approximately Pantone Cool Gray 2)
CDW Cloud White – Delta, BAPI-Stat 2 (Approximately Pantone Cool Gray 1)

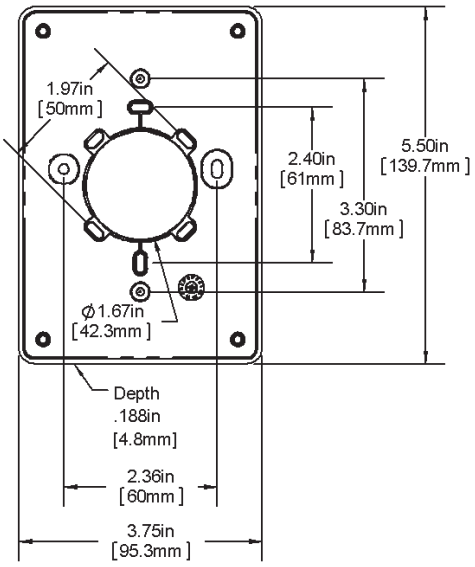
BA/ADP-37-55-WMW



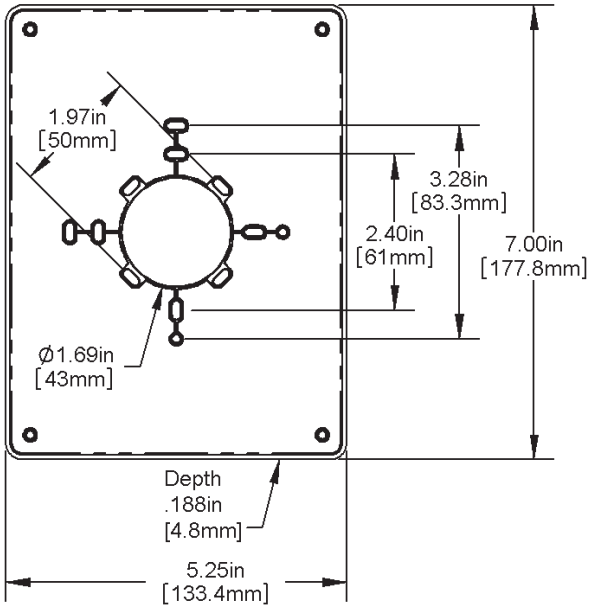
BA/ADP-53-53-WMW



BA/ADP-37-55-WMW-UK



BA/ADP-525-7-WMW



Custom Logo Plates, Non-Room Units

Accessories for HVAC/R

Rev. 10/16/12

Weather Tight (EU)

Weather Tight (EU) Enclosure Template
(Shown actual size)

Outside Air Sensor in an EU Enclosure
(Use the same template for all EU units)



BAPI-Box 2 (BB2)

BAPI-Box 2 (BB2) Enclosure Template
(Shown actual size)



Outside Air Sensor in a BAPI-Box 2 Enclosure
(Use the same template for all BB2 units)

Call BAPI for pricing information on Custom Logo Plates.

BAPI-Box 4 (BB4)

BAPI-Box 4 (BB4) Enclosure Template
(Shown actual size)

BAPI-Box 4 Enclosure
(Use the same template for all BB4 units)



Duct, Outside Air or Immersion Sensor in a BAPI-Box (BB) Enclosure Template
(Shown actual size)

BAPI-Box (BB) Custom Logo Plates



Outside Air Sensor in a BAPI-Box (BB) Enclosure
(Use the same template for Duct and Immersion units in a BAPI-Box)

Zone Pressure Sensor in a BAPI-Box (BB) without Display Template
(Shown actual size)

ON

Zone Pressure Sensor in a BAPI-Box (BB) with Display Template
(Shown actual size)

ON



Zone Pressure Sensor in a BAPI-Box Enclosure with and without Display

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Overview

If you'd like to personalize the look of your temperature, humidity or pressure sensor, BAPI's Delta Style and BAPI-Stat Style Room Enclosures as well as the Weathertight (EU) and BAPI-Box (BB, BB2 & BB4) Enclosures are available with your company's individual logo printed on the front.

To create the custom logo plate, you will need to provide BAPI with a digital version of your logo, preferably in Adobe Illustrator or another vector-based program format. You will also need to provide your company's Pantone® (PMS) colors if you desire a color match.

Lead time and logo plate costs vary with the style of enclosure, the number of colors and the quantity of logo plates ordered.

Call BAPI for pricing information and lead times on Custom Logo Plates.



Delta Style Enclosure



BAPI-Stat 2 Style Enclosure



BAPI-Stat 4 Style Enclosure



BAPI-Stat 3 above BAPI-Stat below









Delta Style and BAPI-Stat 2 Style Enclosures

No Button Template
(Shown actual size)

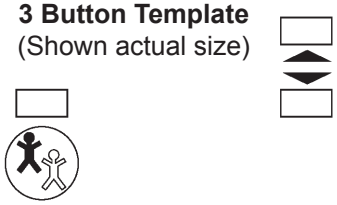
Delta Style Enclosure

2 Button Template
(Shown actual size)



BAPI-Stat 2 Enclosure

3 Button Template
(Shown actual size)



Field Mounting Kit

Accessories for HVAC/R

Rev. 10/16/12

Features & Options

- Makes Installation Quick & Easy
- Attached Location and Unit Label for Field Annotation
- Inexpensive & Convenient

The BAPI Field Mounting Kit (FMK) provides the extra room that is sometimes necessary to make a proper field wiring connection. The FMK can be attached to any sensor or device that has a 1/2-inch conduit hole in it.

The FMK consists of a 2 x 4 electrical box with screw-on cover, a two-inch piece of 1/2-inch conduit, three 1/2-inch conduit fittings, appropriate mounting screws, three sealant filled connectors and two foam plugs to seal the conduit after the wires have been run.



Field Mounting Kit Components



Zone Pressure Sensor with attached Field Mounting Kit

Ordering Information

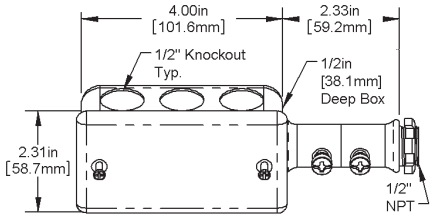
Part Number	Description
BA/FMK	Field Mounting Kit

See end of Section E for list pricing.

Specifications

Operating Ranges:
Temperature: -32 to 122 °F (0 to 50 °C)
Humidity: 0 to 95% RH, non-condensing

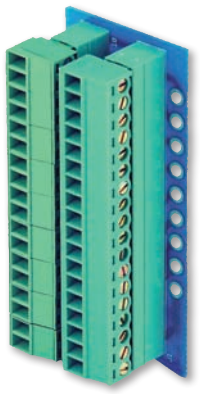
Material: Galvanized Steel



TB18 - Pluggable Terminal Block

The TB18 - Pluggable Terminal Block is a small circuit board designed to simplify the task of wire termination. The TB18 is easier to apply and troubleshoot than a bunch of wires under a large wire nut or the typical barrier strip.

The TB18 board fits into the ETA line TRK Snaptrack or any other industry standard 2.75” snaptrack, and provides a straight through connection for nine pairs of wire on individual plugs.



TB18 Pluggable Terminal Block

Part Number	Description
BA/TB18	Pluggable Terminal Block (NEC Class 2 Circuits, 4 Amp max.)
BA/TB18C	Pluggable Terminal Block (NEC Class 2 Circuits, 4 Amp max.) All odd numbered terminals are common
BA/TB18C2	Pluggable Terminal Block (NEC Class 2 Circuits, 4 Amp max.) All odd numbered terminals are common and all even numbered terminals are common

See end of Section E for list pricing.

Features & Options

- Compact and Cost-Effective
- Regulated and Adjustable 1.2 VDC to 24 VDC Output
- Output Protected Against Overload and Accidental Short Circuit

BAPI's VC3000 Voltage Converters are accurate, rugged and reliable power sources designed for commercial energy management applications.

The 2.5 Amp Voltage Converter accepts a 24 VAC input which can be field adjusted to a regulated output of 1.2 VDC to 24 VDC (factory set for 24 VDC). The input can be configured for full or half wave rectification. The unit includes an output fuse to protect against overload and short circuits, a power indication LED, and is available with or without a backplate on the steel mounting bracket. Self-resetting or cartridge fuses may be specified at the time of order.



VC3000B Voltage Converter (The "B" model includes the Backplate)

Ordering Information

Part Number	Description
BA/VC3000A-HW	Converter without backplate, half wave rectification, cartridge fuse
BA/VC3000A-FW	Converter without backplate, full wave rectification, cartridge fuse
BA/VC3000B-HW	Converter with backplate, half wave rectification, cartridge fuse
BA/VC3000B-FW	Converter with backplate, full wave rectification, cartridge fuse
BA/VC3000A-HW-RF	Converter without backplate, half wave rectification, self-resetting fuse
BA/VC3000A-FW-RF	Converter without backplate, full wave rectification, self-resetting fuse
BA/VC3000B-HW-RF	Converter with backplate, half wave rectification, self-resetting fuse
BA/VC3000B-FW-RF	Converter with backplate, full wave rectification, self-resetting fuse

See end of Section E for list pricing.

Specifications

Input Voltage Range:
24 VAC

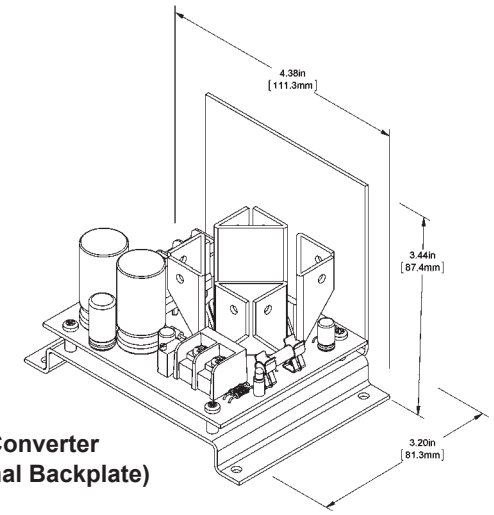
Fuse Protection:
4 Amp, output side

Output Voltage Range:
1.2 VDC to 24 VDC

Maximum Output Current:
2.5 Amps

Operating Range:
40 to 158 °F

Wiring:
16 to 22 AWG



VC3000B Voltage Converter (shown with optional Backplate)

RJ22 Communications Adaptor

Accessories for HVAC/R

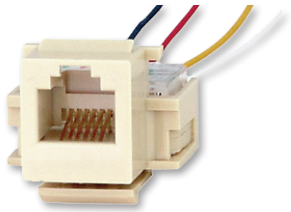
Rev. 10/16/12

Overview

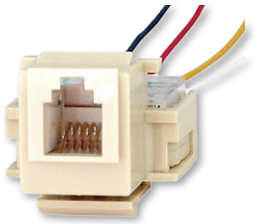
Some automation providers use the smaller RJ22 (telephone handset connector) instead of the RJ11 (telephone wall connector) for their in-the-zone network communications devices. The BAPI RJ22 Communications Adapter converts the standard RJ11 jack used in BAPI sensors to the smaller RJ22 dimensions.



RJ22 Communications Adaptor



RJ11 Connector



RJ22L Connector (RJ11 with RJ22 Adaptor)

ORDERING INFORMATION

Part Number	Description
BA/RJ22	Communications Adaptor
BA/RJ22L	Communications Connector

See end of Section E for list pricing.

Spanner Security Screws & Spanner Bit

Overview

Spanner Security Screws add an extra level of protection for Wall Plate Units. The Security Screws and associated Spanner Bit are available for any Stainless Steel Wall Plate Unit.



Spanner Security Screws



Spanner Bit

ORDERING INFORMATION

Part Number	Description
BA/SP632x1	Spanner Security Screws, 6-32x1” (box 50)
BA/SPBIT	Spanner Bit for Spanner Security Screws

See end of Section E for list pricing.

Hex Head & Pan Head Screws & Wall Anchors

Overview

These 1.5” stainless steel #10 screws and nylon wall mounting anchors are used to attach the BAPI-Box or BAPI-Guards to the wall. The Pan Head Screws and Anchors are used for drywall. The Pan Head Screws alone can be used for sheet metal or wood surfaces. The Hex Head Concrete Screws and Anchors are used for concrete walls. The screws and anchors are sold in packs of 100.



Pan Head Screws



Hex Head Screws



Wall Mounting Anchors

ORDERING INFORMATION

Part #: BA/Screw-Pan-1.5x10-SS-100
1.5” Stainless Steel #10 Pan Head Screw, Pack of 100

Part #: BA/Screw-Hex-Concrete-1.5x10-SS-100
1.5” Stainless Steel #10 Hex Head Concrete Screw, Pack of 100

Part #: BA/Anchor-10-100
1.36” Nylon Anchor for #10 Screws, Pack of 100

See end of Section E for list pricing.

Replacement Keys

Description

Replacement keys are available for Wall Plate sensors with Keyswitch Occupant Override (Temp. Section pg. A40-43), and the BAPI-Guard and BAPI-Guard 2 thermostat protectors (Accessories Section pg. E7).

PART NUMBER Description

BA/KEY12718 ..... Key for Wall Plate with Keyswitch Override (pg. A40-43)

BA/KEY16187 ..... Replacement Key for BAPI-Guard and BAPI-Guard 2 (pg. E8)

See end of Section E for list pricing.



Replacement Key

BAPI Foamback Insulator

Description

Made of medical grade, closed cell foam, the Foamback Insulator ensures that room sensors are reading the temperature of the room, not the temperature of the wall. They also guard against condensation from mixing of room air and wall air around the room unit. The foamback features an adhesive backing and is available in a thickness of .25” or .125”.

PART NUMBERS

BA/FOAMBACK .....White Foamback Insulator
(2.6” wide, 4.4” high, .25” thick)

BA/FOAMBACK-ROOM .....White Foamback
(2.6” wide, 4.4” high, .125” thick)



Foamback Insulator

Note: Several BAPI products come standard with foambacks including wall plates and duct units.

See end of Section E for list pricing.

Replacement Parts for Humidity Units

Description

Replacement Filters for Duct and Outside Air Humidity Sensors

The 100 micron sintered stainless steel filters protect the sensor from contamination while allowing airflow. Note: The flush and regular versions are not interchangeable. The humidity filter must be replaced with the same version.

PART NUMBER: BA/HDOFS - Stainless Steel Replacement Filter
BA/HDOFS2 - Flush Stainless Steel Replacement Filter



Flush Stainless Steel Filter

Filter Cap for Vivarium Combo Units

The cap protects the sintered filter during washdown cleaning.

PART NUMBER: BA/VFC - Vivarium Filter Cap

See end of Section E for list pricing.



Filter Cap



Stainless Steel Filter

E24 Water Leak Detector

Accessories for HVAC/R

Rev. 03/26/13

Features & Options

- Detection Within 5 Seconds with Local LED Alarm Indication
- 5 Amp or 0.5 Amp Relays @ 30VAC/DC
- One Piece, Rope or Remote Sensor Design
- Adjustable Detection Level with Bottom or Pan Edge Mounting
- 15 to 30VDC or 24 to 30VAC Power
- NEMA 4 Enclosure

The Water Leak Detector is designed to sense the presence of water and alert a central monitoring system of the potentially destructive situation. Upon water detection, the alarm relays change state, and a local red LED illuminates. The transmitter can be set for latching or non-latching alarm, and normally energized or normally de-energized operation.



Detector with Attached Sensor



Detector with Rope Sensor



Detector with Remote Sensor

Specifications

Power: 15 to 30VDC or 24 to 30VAC, ~100 mA or ~4 VA

Wiring:
- Relays: Up to 6 wires for Alarm Contacts
- Transmitter: 2 wires for Power

Mounting: Lays in the pan with industrial adhesive tape or attached to the pan edge with screws

Sensor:
- Standard: Attached SS probe w/ adjustable depth screw from .063" to .84"
- Optional: Remote Sensor w/ adjustable depth from 0.062 to 0.5", Mounting to pan with industrial adhesive tape or 0.172" mounting holes
- Optional: Remote Long Line Wire Sensor (Rope), Plenum Rated. Detects 1/8" of water over the full length. Comes in 10, 25, 50 or 100 ft lengths.

Detector Transmitter:
- Alarm Contacts:
  - LDT1: One SPST, 0.5A relay output, 10W max.
  - LDT2: Two SPST, 0.5A relay outputs, 10W max.
  - LDT3: One SPDT, 5A relay output
  - LDT4: Two SPDT, 5A relay outputs
- Indication: 1 Green Power LED, 1 Red Alarm LED
- Reset Action: If latching, local push button or power interrupt

Termination: Terminal strip, 12 to 24 AWG

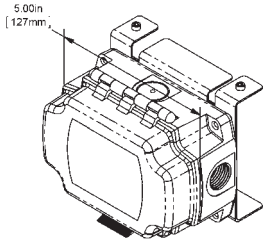
Latching and Supervised Relay Options:
- Latching: Relay stays in alarm until manually reset or power is cycled
- Non-Latching: Relay automatically resets after water has dried up (default)
- Unsupervised: Relay energizes on water detection
- Supervised: Relay de-energizes on water detection (default)
  Note: Relay de-energizes on loss of power

Enclosure Ratings:
- Remote Sensor: Submersible, with FEP plenum-rated, waterproof cable
- Detector: BAPI-Box, NEMA 4

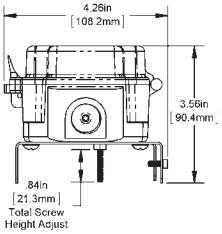
Ambient:
- Remote Sensor: -40 to 185ºF (-40 to 85ºC), 0 to 100%RH, Condensing
- Rope Sensor: 32 to 167ºF (0 to 75ºC), 0 to 95%RH, Non-condensing
- Detector (BB): -40 to 185ºF (-40 to 85ºC), 0 to 95%RH, Non-condensing

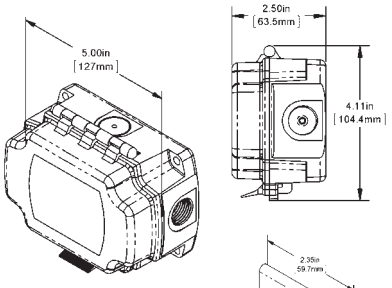
Materials: Sensor: Stainless Steel
BAPI-Box: Polycarbonate

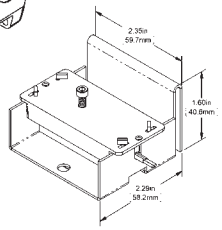
Agency: RoHS, UL94V-0 , UV-rated in Enclosure



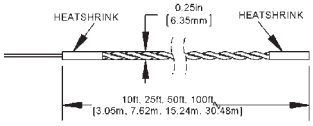
Water Leak Detector with Attached Sensor







Water Leak Detector with Remote Pan Sensor or Rope Sensor



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Ordering Grids without List Prices are available on our website at www.bapihvac.com

Ordering Information				Water Leak Detector	List Price	Your Order
BA/	BAPI Product Design					
	Leak Detector Transmitter			Must select one		
	LDT1			Water leak detector transmitter w/ one 0.5A SPST contacts	$114.00	$_____
	LDT2			Water leak detector transmitter w/ two 0.5A SPST contacts	$124.00	$_____
	LDT3			Water leak detector transmitter w/ one SPDT 5A contacts	$120.00	$_____
	LDT4			Water leak detector transmitter w/ two SPDT 5A contacts	$130.00	$_____
		Probe Sensor		Must select one		
		-PS		Probe Sensor built into the enclosure	$32.00	$_____
		-RS5		Remote Spot Sensor with 5 foot FEP cable	$36.00	$_____
		-RS10		Remote Spot Sensor with 10 foot FEP cable	$41.00	$_____
		-RS25		Remote Spot Sensor with 25 foot FEP cable	$56.00	$_____
		-RR10		Remote Rope Sensor with 10 foot Plenum Rated Sensor Cable	$174.00	$_____
		-RR25		Remote Rope Sensor with 25 foot Plenum Rated Sensor Cable	$423.00	$_____
		-RR50		Remote Rope Sensor with 50 foot Plenum Rated Sensor Cable	$839.00	$_____
		-RR100		Remote Rope Sensor with 100 foot Plenum Rated Sensor Cable	$1,671.00	$_____
			Enclosure and Fitting Options	Must select one		
			-BB	BAPI-Box enclosure, IP66 rated	$12.00	$_____
			-BB-LTF	BAPI-Box enclosure, IP66 rated, w/ Liquid tight fitting	$22.00	$_____
			-BB-GFF	BAPI-Box enclosure, IP66 rated, w/ flex connector	$13.00	$_____
EXAMPLE						
BA/	LDT4	-PS	-BB		Total =	$_____
BA/LDT4-PS-BB				Water leak detector w/ two SPDT 5A contacts		
Your Part Number:						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Replacement Remote Water Sensors

For use as updates to existing systems or built-in (-PS) probe transmitters

Ordering Information		Replacement Remote Water Sensors	List Price	Your Order
BA/	BAPI Product Design			
	Remote Spot Water Sensor	Must select one		
	RS5	Remote Spot Water Sensor with 5 foot FEP cable	$36.00	$_____
	RS10	Remote Spot Water Sensor with 10 foot FEP cable	$41.00	$_____
	RS25	Remote Spot Water Sensor wtih 25 foot FEP cable	$56.00	$_____
	-RR10	Remote Rope Sensor with 10 foot Plenum Rated Sensor Cable	$174.00	$_____
	-RR25	Remote Rope Sensor with 25 foot Plenum Rated Sensor Cable	$423.00	$_____
	-RR50	Remote Rope Sensor with 50 foot Plenum Rated Sensor Cable	$839.00	$_____
	-RR100	Remote Rope Sensor with 100 foot Plenum Rated Sensor Cable	$1,671.00	$_____
EXAMPLE				
BA/	RS10		Total =	$_____
BA/RS10		Remote Spot Water Sensor w/ 10foot FEP cable		
Your Part Number:				

Sealant Filled Connectors

Accessories for HVAC/R

Rev. 10/16/12

Features & Options

- Creates a Weatherproof Wire Connection
- Accommodates 18 to 26 AWG Wire
- Crimp-On & Twist-On Styles Available

BAPI's Sealant Filled Connectors (**SFC**) contain a moisture-excluding sealant which encapsulates the electrical connection protecting it from moisture and oxidation. This encapsulation also reduces the potential for fire, electrocution and flashover. BAPI offers two types of **SFC**s—a Twist-On Style and a Crimp-On Style. The Crimp-On Style (**SFC1000**) is used for factory terminations, while the Twist-On Style (**SFC2000**) is used for quick and safe field terminations. The **SFC2000** accepts up to two 22 AWG wires or one 22 AWG and one 16 or 18 AWG wire. The **SFC2000** has a voltage rating of 300 volts and a temperature rating of 105 ºC, and it is not UL listed.

Incorporating a "J-Loop" (see figures below) in all terminations adds an additional level of protection against moisture and oxidation. Used in conjunction with BAPI's double encapsulated sensors and etched Teflon leadwires, **SFC**s and "J-Loop" terminations ensure a watertight package that can withstand high humidity and condensation and perform under real world conditions.



Crimp-On Sealant Filled Connectors



Twist-On Sealant Filled Connectors

ORDERING INFORMATION

Part Number	Description
BA/SFC1000-100	..... 100 Crimp-On Style SFCs
BA/SFC1000-500	..... 500 Crimp-On Style SFCs
BA/SFC1000-1000	... 1,000 Crimp-On Style SFCs

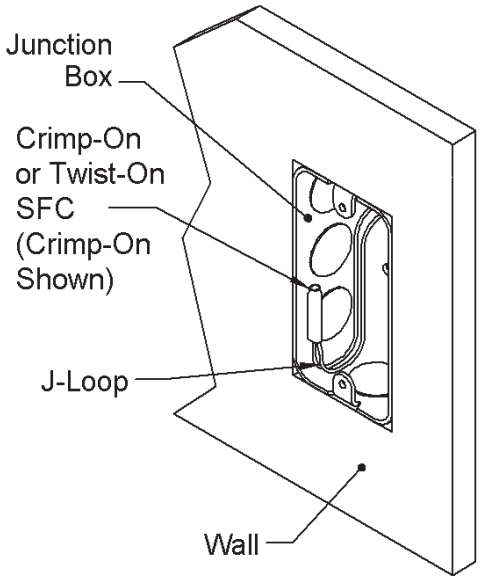
Part Number	Description
BA/SFC2000-100	..... 100 Twist-On Style SFCs
BA/SFC2000-500	..... 500 Twist-On Style SFCs
BA/SFC2000-1000	... 1,000 Twist-On Style SFCs

See end of Section E for list pricing.

J-Loop Termination Technique

Incorporating a "J-Loop" (also known as a drip loop) into all terminations adds an additional layer of protection against moisture and oxidation by directing moisture away from the connection.

The idea is to place the wire junction as high as possible and form a "J" with the leadwires. The bottom of this "J" should be below the junction point. Any moisture that collects on the leadwires is pulled downward by gravity to the bottom of this loop and away from the junction.



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Pg	Part Number	Description	List Price
		350mA "EZ" VOLTAGE CONVERTERS	
E2	**BA/VC350A-EZ-5**	5 VDC at 350 mA EZ Voltage Converter	$33
	BA/VC350A-EZ-10	10 VDC at 350 mA EZ Voltage Converter	$33
	BA/VC350A-EZ-12	12 VDC at 350 mA EZ Voltage Converter	$33
	BA/VC350A-EZ-15	15 VDC at 350 mA EZ Voltage Converter	$33
	BA/VC350A-EZ-ADJ	5-24 VDC (adj.) at 350 mA EZ Voltage Converter	$33
		350mA SNAPTRACK MOUNTABLE VOLTAGE CONVERTERS	
E3	**BA/VC350A-5**	5 VDC at 350 mA EZ Voltage Converter	$25
	BA/VC350A-10	10 VDC at 350 mA EZ Voltage Converter	$25
	BA/VC350A-12	12 VDC at 350 mA EZ Voltage Converter	$25
	BA/VC350A-15	15 VDC at 350 mA EZ Voltage Converter	$25
	BA/VC350A-ADJ	5-24 VDC (adj.) at 350 mA EZ Voltage Converter	$25
	BA/VC350A-5-TRK	5 VDC at 350 mA with a 1.25" wide piece of 2.75" snaptrack	$30
	BA/VC350A-10-TRK	10 VDC at 350 mA with a 1.25" wide piece of 2.75" snaptrack	$30
	BA/VC350A-12-TRK	12 VDC at 350 mA with a 1.25" wide piece of 2.75" snaptrack	$30
	BA/VC350A-15-TRK	15 VDC at 350 mA with a 1.25" wide piece of 2.75" snaptrack	$30
	BA/VC350A-ADJ-TRK	5-24 VDC (adj.) at 350 mA with a 1.25" wide piece of 2.75" snaptrack	$30
		VC2700-STM - 2.7 AMP VOLTAGE CONVERTER	
E4	**BA/VC2700-HW-STM**	2.7 Amp Voltage Converter, Half-Wave, Snaptrack Mountable	$220
	BA/VC2700-FW-STM	2.7 Amp Voltage Converter, Full-Wave, Snaptrack Mountable	$220
		LVTM & LVTM-TB	
E5	**BA/LVTM**	Line Voltage Transformer Module with power cord connector	$110
	BA/LVTM-TB	Line Voltage Transformer Module with terminal block	$90
	BA/PWR-CORD-18"	18" Power Cord	$5.25
	BA/PWR-CORD-36"	36" Power Cord	$5.25
		TB4 & TB4VC100 MODULES	
E5	**BA/TB4**	Four Terminal Output Board	$40
	BA/TB4-VC100	TB4 w/ adjustable 100 mA Voltage Converter	$65
		PS17 & PS17CB - POWER SUPPLIES	
E6	**BA/PS17**	Power Supply Fuse Block	$300
	BA/PS17CB	Power Supply w/ Circuit Breakers	$350
	BA/PWR-CORD-18"	18" Power Cord	$5.25
	BA/PWR-CORD-36"	36" Power Cord	$5.25

Gray shaded items follow the Buy and Resale Multiplier.

Accessories List Pricing

Accessories for HVAC/R

Rev. 05/16/13

Pg	Part Number	Description	List Price
		PDM - POWER DISTRIBUTION MODULE	
E7	**BA/PDM-5-B**	Five circuit Power Distribution Module, w/ breaker	$364
	BA/PDM-3-B	Three circuit Power Distribution Module, w/ breaker	$277
	BA/PDM-5-F	Five circuit Power Distribution Module, w/fuse	$218
	BA/PDM-3-F	Three circuit Power Distribution Module, w/fuse	$182
	BA/PDM-5-B-DIN	Five circuit Power Distribution Module, w/ breaker, DIN mount	$364
	BA/PDM-3-B-DIN	Three circuit Power Distribution Module, w/ breaker, DIN mount	$277
	BA/PDM-5-F-DIN	Five circuit Power Distribution Module, w/fuse, DIN mount	$218
	BA/PDM-3-F-DIN	Three circuit Power Distribution Module, w/fuse, DIN mount	$182
		BAPI-GUARD THERMOSTAT PROTECTOR	
E8	**BA/BG**	Larger BAPI-Guard Thermostat Protector	$45
	BA/BG2	Smaller BAPI-Guard 2 Thermostat Protector	$35
	BA/KEY16187	Replacement Key for BAPI-Guard and BAPI-Guard 2 (*Net Price, no multiplier)	$2*
		FPB - FLEXIBLE PROBE BRACKETS	
E9	**BA/FPB-50**	50 Flexible Probe Brackets	$157
	BA/FPB-100	100 Flexible Probe Brackets	$314
	BA/FPB-500	500 Flexible Probe Brackets	$1,443
		PMPB5 - PULSE METER PULSE BUFFER	
E10	**BA/PMPB5**	Pulse Meter Pulse Buffer	$27.50
	BA/PMPB5-TRK	Pulse Meter Pulse Buffer with a 1.25” wide piece of 2.75” snaptrack	$32.50
		TS1 & TS2 - TRANSIENT SUPPRESSORS	
E10	**BA/TS1**	Transient Suppressor (voltage)	$7.50
	BA/TS2	Transient Suppressor (current)	$7.50
	BA/TS1-TRK	Transient Suppressor (voltage) with a 1.25” wide piece of 2.75” snaptrack	$12.50
	BA/TS2-TRK	Transient Suppressor (current) with a 1.25” wide piece of 2.75” snaptrack	$12.50
		SCREWDRIVER AND ALLEN WRENCH COMBINATION	
E11	**BA/116W**	BAPI 6.75” Screwdriver & Allen Wrench Combination	$20
	BA/116	BAPI 6” Screwdriver & Allen Wrench Combination	$5
		BAPI-BOX, BAPI-BOX 2 and BAPI-BOX 4 ENCLOSURES	
E12	**BA/BB**	BAPI-Box, 5” x 4.2” x 2.5”	$20
	BA/BB2	BAPI-Box 2, 4.9” x 2.8” x 2.35”	$20
	BA/BB4	BAPI-Box 4, 2.8” x 2.8” x 2.1”	$10
		CLEAN-CUT TOOL	
E14	**BA/CLN-CUT-50**	Clean-Cut - ½” threaded knockout cutting tool for the BAPI-Box & BAPI-Box 2	$100
	BA/CLN-CUT4-50	Clean-Cut 4 - ½” unthreaded knockout cutting tool for BAPI-Boxes	$100
		BAPI-STAT 4 TRIM RING	
E15	**BA/BS4-TR**	BAPI-Stat 4 Trim Ring	$4.00

Gray shaded items follow the Buy and Resale Multiplier.

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Pg	Part Number	Description	List Price
		ADAPTOR PLATES	
E16	BA/ADP-525-7-WMW	Adaptor Plate, 5.25 x 7" Warm White	$18
	BA/ADP-525-7-OFW	Adaptor Plate, 5.25 x 7" Off White	$18
	BA/ADP-525-7-CPW	Adaptor Plate, 5.25 x 7" Copla White	$21
	BA/ADP-525-7-CDW	Adaptor Plate, 5.25 x 7" Cloud White	$21
	BA/ADP-53-53-WMW	Adaptor Plate, 5.3 x 5.3" Warm White	$18
	BA/ADP-53-53-OFW	Adaptor Plate, 5.3 x 5.3" Off White	$18
	BA/ADP-53-53-CPW	Adaptor Plate, 5.3 x 5.3" Copla White	$21
	BA/ADP-53-53-CDW	Adaptor Plate, 5.3 x 5.3" Cloud White	$21
	BA/ADP-37-55-WMW	Adaptor Plate, 3.75 x 5.5" Warm White	$18
	BA/ADP-37-55-OFW	Adaptor Plate, 3.75 x 5.5" Off White	$18
	BA/ADP-37-55-CPW	Adaptor Plate, 3.75 x 5.5" Copla White	$21
	BA/ADP-37-55-CDW	Adaptor Plate, 3.75 x 5.5" Cloud White	$21
	BA/ADP-37-55-WMW-UK	Adaptor Plate (Europe), 3.75 x 5.5" Warm White	$18
	BA/ADP-37-55-OFW-UK	Adaptor Plate (Europe), 3.75 x 5.5" Off White	$18
	BA/ADP-37-55-CPW-UK	Adaptor Plate (Europe) , 3.75 x 5.5" Copla White	$21
	BA/ADP-37-55-CDW-UK	Adaptor Plate (Europe) , 3.75 x 5.5" Cloud White	$21
		CUSTOM LOGO PLATES	
E18	XX	Custom Logo Plates for Room Sensors and Enclosures	Call for Pricing
		FIELD MOUNTING KIT	
E20	BA/FMK	Field Mounting Kit	$15
		TB18 - PLUGGABLE TERMINAL BLOCK	
E20	BA/TB18	Pluggable Terminal Block (NEC Class 2 Circuits, 4 Amp max.)	$55
	BA/TB18C	Pluggable Terminal Block (NEC Class 2 Circuits, 4 Amp max.) All odd numbered terminals are common	$90
	BA/TB18C2	All odd numbered terminals are common and all even numbered terminals are common	$125
		VC3000 VOLTAGE CONVERTER	
E21	BA/VC3000A-HW	Converter w/o backplate, half wave rectification, cartridge fuse	$120
	BA/VC3000A-FW	Converter w/o backplate, full wave rectification, cartridge fuse	$120
	BA/VC3000B-HW	Converter with backplate, half wave rectification, cartridge fuse	$120
	BA/VC3000B-FW	Converter with backplate, full wave rectification, cartridge fuse	$120
	BA/VC3000A-HW-RF	Converter w/o backplate, half wave rectification, self-resetting fuse	$120
	BA/VC3000A-FW-RF	Converter w/o backplate, full wave rectification, self-resetting fuse	$120
	BA/VC3000B-HW-RF	Converter with backplate, half wave rectification, self-resetting fuse	$120
	BA/VC3000B-FW-RF	Converter with backplate, full wave rectification, self-resetting fuse	$120
		RJ22 COMMUNICATIONS ADAPTOR	
E22	BA/RJ22	Communications Adaptor	$8
	BA/RJ22L	Communications Connector	$25

Gray shaded items follow the Buy and Resale Multiplier.

Accessories List Pricing

Accessories for HVAC/R

Rev. 10/16/12

Pg	Part Number	Description	List Price
		SPANNER SECURITY SCREWS AND BIT	
E22	BA/SP632x1	Spanner Security Screws, 6-32x1" (box 50)	$40.00
	BA/SPBIT	Spanner Bit for Spanner Security Screws	$6.50
		HEX HEAD SCREWS, PAN HEAD SCREWS AND WALL ANCHORS	
E22	BA/Screw-Pan-1.5x10-SS-100	1.5" Stainless Steel #10 Pan Head Screw, Pack of 100	$12
	BA/Screw-Hex-Concrete-1.5x10-SS-100	1.5" Stainless Steel #10 Hex Head Concrete Screw, Pack of 100	$12
	BA/Anchor-10-100	1.36" Nylon Anchor for #10 Screws, Pack of 100	$8
		REPLACEMENT KEYS	
E23	BA/KEY12718	Key for Wall Plate with Keyswitch Override (A26)	$2.00
	BA/KEY16185	Key for Wall Plate with Keyswitch & Light Sensor (A30)	$4.30
	BA/KEY16187	Replacement Key for BAPI-Guard and BAPI-Guard 2 (E6)	$2.00
		FOAMBACK INSULATOR	
E23	BA/FOAMBACK	White Foamback Insulator (2.6" wide, 4.4" high, .25" thick)	$1
	BA/FOAMBACK-ROOM	White Foamback (2.6" wide, 4.4" high, .125" thick)	$1
		REPLACEMENT HUMIDITY FILTER AND CAP	
E23	BA/HDOFS	Stainless Steel Humidity Filter for Duct, Outside Air or Vivarium Combo Units	$30
	BA/HDOFS2	Flush Stainless Steel Humidity Filter for Duct or Outside Air Units	$5.75
	BA/VFC	Vivarium Filter Cap	$1.75
		WATER LEAK DETECTOR	
E24	BA/LDTx	Water Leak Detector	See Datasheet
		SEALANT FILLED CONNECTORS	
E26	BA/SFC1000-100	100 Crimp-On Style SFCs	$10
	BA/SFC1000-500	500 Crimp-On Style SFCs	$50
	BA/SFC1000-1000	1,000 Crimp-On Style SFCs	$100
	BA/SFC2000-100	100 Twist-On Style SFCs	$120
	BA/SFC2000-500	500 Twist-On Style SFCs	$600
	BA/SFC2000-1000	1,000 Twist-On Style SFCs	$1200

Gray shaded items follow the Buy and Resale Multiplier.

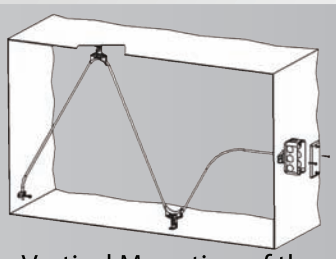
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One Bracket, Multiple uses.

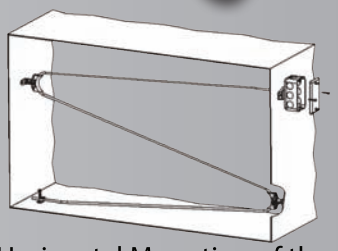
The Flexible Probe Bracket

- Makes mounting of averaging sensors quick and easy
- Eliminates risk of "kinking" and damaging the probe
- Scored break off for 1/4" rigid probe mounting
- Nylon material limits heat/cold conduction to the probe





Vertical Mounting of the Averaging Sensor



Horizontal Mounting of the Averaging Sensor

1/4" Rigid Probe Mounting (using scored break off)

For videos & information on the Flexible Probe Bracket, visit **www.bapihvac.com/fpb**!



Forget about cords and meters…

Wirelessly test temperature & humidity with a device that's already in your pocket!

Blü-Test™

Bluetooth™

BAPI

For more information on Blü-Test, visit
www.bapihvac.com/blutest!

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Wireless Temperature and/or Humidity Sensors

Room Transmitters - pgs 2-3

- Temperature Only or Combination Temp and Humidity Transmitter
- Setpoint and Override Optional
- 100 Foot In-Building Range, Extendable to 1,000 feet with Repeater



Duct Transmitters - pgs 4-5

- Temp. Only or Combination
- 100 Foot In-Building Range, Extendable to 1,000 feet with Repeater



Immersion Transmitter - pg 6

- 100 Foot In-Building Range, Extendable to 1,000 feet with Repeater



Remote Transmitter - pg 7

- Plenum Rated Cable or FEP Jacketed Cable



Outside Air Trans. - pgs 8-9

- Temp Only or Combination
- 100 Foot In-Building Range, Extendable to 1,000 feet with Repeater



Thermobuffer Trans. - pgs 10-11

- Reduces Temperature "Spikes" Caused By Opening the Cooler or Freezer Door



BAPI-Slim Trans. - pgs 12-13

Monitors temperature inside refrigerators and freezers.



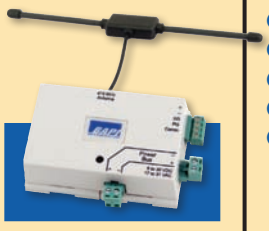
Universal Transmitter - pg 14

Monitor an analog or digital signal and transmit that value to the receiver.



Receivers & Repeaters - pgs 15-17

- 418 & 900 MHz Receivers
- 418 to 900 MHz Repeater



Antennas, Pg 23



Output Modules - pgs 18-22

- Resistance Output (ROM)
- Voltage Output (VOM)
- Current Output (COM)
- Setpoint Output (SOM)
- Relay Output (RYOM)

Converts the wireless data into a Resistance, Voltage or Current.



Field Verifiers - pg 24

- Validates RF operation with a simple site visit
- Identifies radio positions before installation
- 30 Day Loaner



WAM System - pgs 25-27

Monitor freezer and cooler temperatures with a smart phone, tablet or computer.

WAM Receiver pg. 25

WAM Website pgs. 26-27



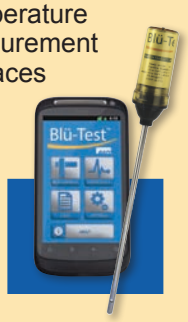
Food Probes - pgs 28-29

The Wireless Food Temperature Probes remain in the food trays to measure and transmit the temperature every 30 seconds to a receiver up to 100 feet away.



Blü-Test Probe - pg 30

A handheld temperature & humidity measurement probe that interfaces via wireless Bluetooth to the user's enabled Android Smart Phone or Tablet display.



Temperature Transmitter

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- Optional Setpoint and Occupant Override
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller



Transmitter with optional Setpoint & Override

The BAPI Wireless Transmitter measures the room temperature and transmits the data through 418MHz RF to a receiver. The transmitter is mounted in a BAPI-Stat 2 style enclosure and has an in-building range of 100 feet*. It is available with optional Setpoint and Override.

The unit has an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller.

PART NUMBER: BA/BS2-WT - Wireless Temperature Transmitter
PART NUMBER: BA/BS2-WT-O - Wireless Temperature Transmitter with Occupant Override
PART NUMBER: BA/BS2-WT-S - Wireless Temperature Transmitter with Setpoint Adjustment
PART NUMBER: BA/BS2-WT-SO - Wireless Temperature Transmitter with Setpoint & Override
PART NUMBER: BA/LI3620 - Lithium Battery 3.6V

See end of Section F for list pricing.

Associated Products

• 418 or 900 MHz Receivers
Receives the RF signal from one or more transmitters or repeaters and outputs the values to up to 127 Analog Output Modules.

• Analog Output Modules:
Converts the signal from the Receiver into a Resistance, Voltage or Current for sending to the controller.

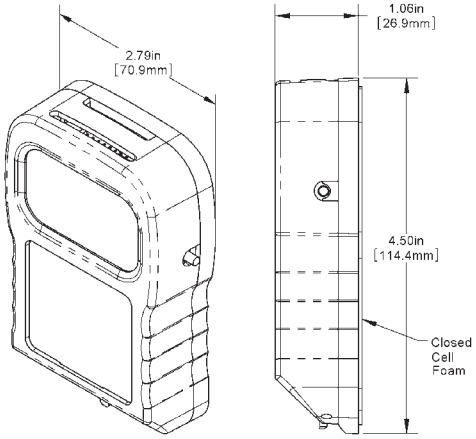
• Repeater
Extends the range of the Transmitter up to 1,000 feet.



Receiver with two Analog Output Modules

Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate
Inputs: Built in thermistor
Accuracy: ±0.36°F (±0.2°C)
Transmitted Range: -40 to 185°F (-40 to 85°C)
Environmental Operation Range:
Temp: 32 to 140°F (0 to 60°C)
Humidity: 5% to 95% RH non-condensing
Material: ABS Plastic
Material Rating: UL94 V-0
Radio Frequency: 418 MHz
Transmitter Interval: ~10 seconds
Antenna: Built inside the enclosure
FCC Approval: FCC ID# T4F061213RSO



*Actual in-building transmission distances will vary depending upon building construction and other factors.

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Temperature and Humidity Transmitter

Wireless Temperature and/or Humidity

Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- Optional Temperature Setpoint and Occupant Override
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller



Transmitter with optional Temperature Setpoint & Override

The BAPI Wireless Transmitter measures the room temperature and Humidity and transmits the data through 418MHz RF to a receiver. The transmitter is mounted in a BAPI-Stat 2 style enclosure and has an in-building range of 100 feet*. It is available with optional Temperature Setpoint and Occupant Override.

The unit has an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal for the controller.

PART #: BA/BS2-WTH - Wireless Temp. and Humidity Transmitter
PART #: BA/BS2-WTH-O - Wireless Temp. and Humidity Transmitter with Override
PART #: BA/BS2-WTH-S - Wireless Temp. and Humidity Transmitter with Temp. Setpoint Adjustment
PART #: BA/BS2-WTH-SO - Wireless Temp and Humidity Transmitter w/ Temp. Setpoint & Override
PART #: BA/LI3620 - Lithium Battery 3.6V

See end of Section F for list pricing.

Associated Products

• 418 or 900 MHz Receivers
Receives the RF signal from one or more transmitters or repeaters and outputs the values to up to 127 Analog Output Modules.

• Analog Output Modules:
Converts the signal from the Receiver into a Resistance, Voltage or Current for sending to the controller.

• Repeater
Extends the range of the Transmitter up to 1,000 feet.



Receiver with two Analog Output Modules

Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Sensing Elements:
Temp. - Semiconductor Band Gap, Proportional to Absolute Temperature, ±0.54°F (±0.3°C) @ 25°C
Humidity - Capacitive Polymer, ±2% RH Accuracy, 10 to 90% @ 25°C

Transmitted Range: -40 to 185°F (-40 to 85°C) • 0 to 100% RH

Environmental Operation Range:
Temp: 32 to 140°F (0 to 60°C)
Humidity: 5% to 95% RH non-condensing

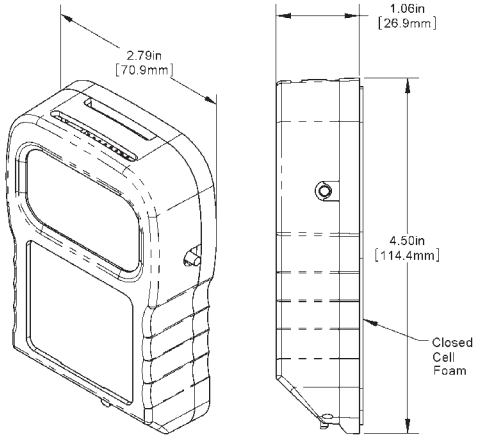
Material & Rating: ABS Plastic, UL94 V-0

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F061213RSO



*Actual in-building transmission distances will vary depending upon building construction and other factors.

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Duct Temperature Transmitter

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Probe Lengths: 4”, 8”, 12” and 18”
- Watertight BAPI-Box Enclosure and Stainless Steel Probes
- Etched Teflon Leadwires & Double Encapsulated Sensors
- 2 Year Warranty



Wireless Duct Temperature Transmitter

BAPI Wireless Duct Temperature Transmitters feature closed cell foam to seal the probe insertion hole and to absorb vibration. Mounting feet allow for easy installation directly to the wall of the duct. The Duct Units come with etched teflon leadwires, double encapsulated sensors and a watertight BAPI-Box enclosure to withstand high humidity and condensation and perform under real world conditions. The units are available with probe lengths from 4” to 18” to accommodate most duct shapes and sizes. Custom probe lengths are also available.

The Wireless Duct Temperature Transmitter measures the duct temperature and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller.

PART NUMBER: BA/WT-D-4” - Wireless Duct Temperature Transmitter, 4” Probe Length
PART NUMBER: BA/WT-D-8” - Wireless Duct Temperature Transmitter, 8” Probe Length
PART NUMBER: BA/WT-D-12” - Wireless Duct Temperature Transmitter, 12” Probe Length
PART NUMBER: BA/WT-D-18” - Wireless Duct Temperature Transmitter, 18” Probe Length
PART NUMBER: BA/WT-D-XX* - Wireless Duct Temperature Transmitter, Custom Probe Length
PART NUMBER: BA/LI3620 - Lithium Battery 3.6V

See end of Section F for list pricing.

**Custom Lengths of 1/4” Diameter Stainless Steel Probe are Available. Call BAPI for more information.*

Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Inputs: Built in thermistor

Accuracy: ±0.36°F (±0.2°C)

Transmitted Range: -40 to 185°F (-40 to 85°C)

Environmental Operation Range:
Temp: -40 to 185°F (-40 to 85°C)
Humidity: 0% to 100% RH, non-condensing

Enclosure Rating: IP66

Enclosure Material: UV-Resistant Polycarbonate

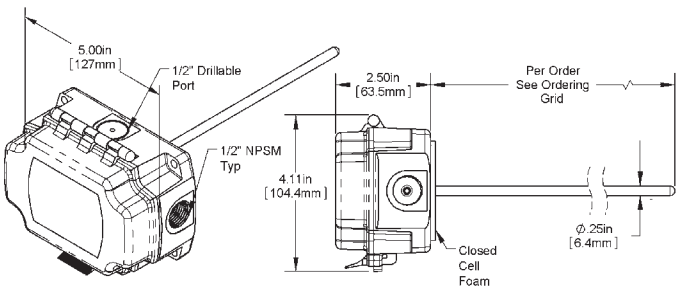
Material Rating: UL94 V-0

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811TEMP



*Actual in-building transmission distances will vary depending upon building construction and other factors.

Duct Temp. & Humidity Transmitter

Wireless Temperature and/or Humidity

Features & Options

- 8 Year Battery Life
  (with two 3.6 volt lithium batteries, full AA size)
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater*
- Temperature and Humidity signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Watertight BAPI-Box Enclosure
- Closed Cell Foam Padding
- 2 Year Warranty



Wireless Duct Temperature and Humidity Transmitter

BAPI Wireless Duct Temp. and Humidity Transmitters feature closed cell foam to seal the probe insertion hole and to absorb vibration. Mounting feet allow for easy installation directly to the wall of the duct. The wireless Duct Units come with a watertight BAPI-Box enclosure to withstand high humidity and condensation and perform under real world conditions.

The Wireless Duct unit measures the duct temperature and humidity and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller.

PART #: BA/WTH-D - Wireless Duct Temp. & Humidity Transmitter, 5” Probe Length

PART #: BA/LI3620 - Lithium Battery 3.6V

See end of Section F for list pricing.

Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Sensing Elements:
Temp. - Semiconductor Band Gap, Proportional to Absolute Temperature, ±0.54°F (±0.3°C) @ 25°C
Humidity - Capacitive Polymer, ±2% RH Accuracy, 10 to 90% @ 25°C

Transmitted Range: -40°F to 185°F (-40°C to 85°C)

Environmental Operation Range:
Temp: -40 to 185°F (-40 to 85°C)
Humidity: 0% to 100% RH, non-condensing

Enclosure Rating: IP66

Enclosure Material:
UV-Resistant Polycarbonate

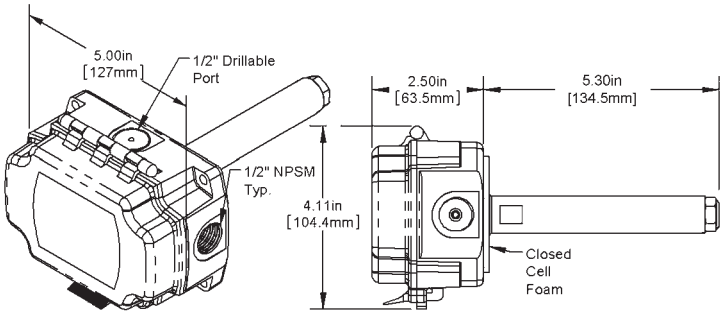
Material Rating: UL94 V-0

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811RH



*Actual in-building transmission distances will vary depending upon building construction and other factors.

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Immersion Temperature Transmitter

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- 8 Year Battery Life (with two 3.6V lithium batteries, full AA size)
- 100 In-Building Foot Range, Extendable to 1,000 Feet with Repeater*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Probe Lengths: 2", 4" and 8" (fit standard BAPI Thermowells)
- Watertight BAPI-Box Enclosure and Stainless Steel Probes
- Etched Teflon Leadwires & Double Encapsulated Sensors
- 2 Year Warranty



Wireless Immersion Temperature Transmitter

BAPI Wireless Immersion Units are available in 2", 4" and 8" probe lengths. The sensor is potted inside a 1/4" stainless steel probe with thermally conductive epoxy. The Immersion Units come with etched teflon leadwires, double encapsulated sensors and a BAPI-Box enclosure to withstand high humidity and condensation and perform under real world conditions.

The Wireless Immersion Temperature Transmitter measures the temperature and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller.

BAPI Thermowells

Immersion Unit Probes are designed to be inserted into a Thermowell. BAPI Thermowells are available in machined stainless steel or brass, or welded stainless steel, in lengths to match our Immersion Unit Probe Lengths. For more info, see the Temp section.



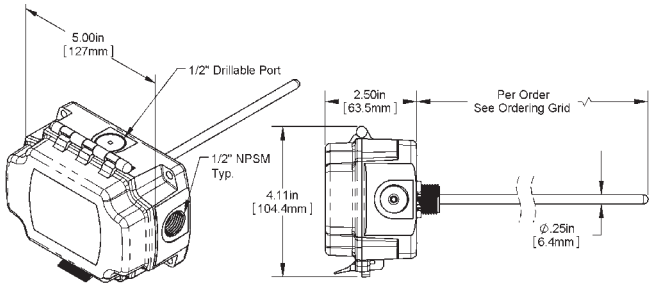
PART #: BA/WT-I-2" - Wireless Immersion Temperature Transmitter, 2" Probe Length
PART #: BA/WT-I-4" - Wireless Immersion Temperature Transmitter, 4" Probe Length
PART #: BA/WT-I-8" - Wireless Immersion Temperature Transmitter, 8" Probe Length
PART #: BA/LI3620 - Lithium Battery 3.6V

See end of Section F for list pricing.

**Custom Lengths of 1/4" Diameter Stainless Steel Probe are Available. Call BAPI for more information.*

Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate
Inputs: Built in thermistor
Accuracy: ±0.36°F (±0.2°C)
Transmitted Range: -40 to 185°F (-40 to 85°C)
Environmental Operation Range:
Temp: -40 to 185°F (-40 to 85°C)
Humidity: 0% to 100% RH, non-condensing
Enclosure Rating: IP66
Enclosure Material: UV-Resistant Polycarbonate
Material Rating: UL94 V-0
Radio Frequency: 418 MHz
Transmitter Interval: ~10 seconds
Antenna: Built inside the enclosure
FCC Approval: FCC ID# T4F060811TEMP



*Actual in-building transmission distances will vary depending upon building construction and other factors.

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Features & Options

- 8 Year Battery Life (with two 3.6V lithium batteries, full AA size)
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater*
- Transmitted signals can be converted to a Voltage, Current or Resistance
- Plenum Rated Cable or FEP Jacketed Cable
- Double Encapsulated Probe Sensor
- 2 Year Warranty



Wireless Remote Probe Transmitter

BAPI Wireless Remote Probes feature a 1.75" long stainless steel probe with either Plenum-Rated Cable or FEP-Jacketed Cable and a watertight BAPI-Box Enclosure. Standard lead lengths are 18", 5', 10', 15', 20', and 25'. Remote Probes are commonly used in refrigerated case or strap-on applications. They are ideal for hard-to-access areas or for applications where the usual Immersion or Duct Sensors do not fit well. Additional cable options, lead lengths and probe styles are available upon request.

The Wireless Remote Probe Transmitter measures the temperature and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller.

PART #: BA/WT-RPP-5' - Remote Probe, Plenum Rated Cable - 5' Leads
PART #: BA/WT-RPP-10' - Remote Probe, Plenum Rated Cable - 10' Leads
PART #: BA/WT-RPP-15' - Remote Probe, Plenum Rated Cable - 15' Leads
PART #: BA/WT-RPP-20' - Remote Probe, Plenum Rated Cable - 20' Leads
PART #: BA/WT-RPP-25' - Remote Probe, Plenum Rated Cable - 25' Leads

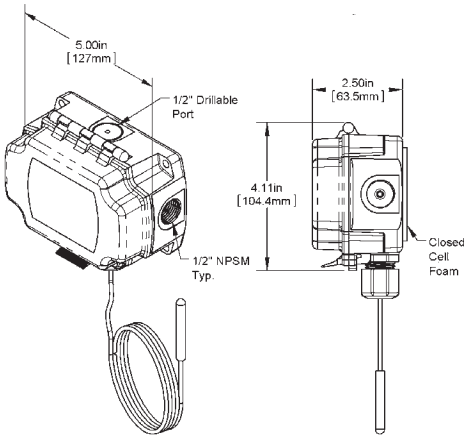
PART #: BA/WT-RPFEP-5' - Remote Probe with FEP Jacketed Cable - 5' Leads
PART #: BA/WT-RPFEP-10' - Remote Probe with FEP Jacketed Cable - 10' Leads
PART #: BA/WT-RPFEP-15' - Remote Probe with FEP Jacketed Cable - 15' Leads
PART #: BA/WT-RPFEP-20' - Remote Probe with FEP Jacketed Cable - 20' Leads
PART #: BA/WT-RPFEP-25' - Remote Probe with FEP Jacketed Cable - 25' Leads

PART #: BA/LI3620 - Lithium Battery, 3.6 Volt (for Wireless Transmitters)

See end of Section F for list pricing.

Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate
Inputs: Built in thermistor
Accuracy: ±0.36°F (±0.2°C)
Transmitted Range: -40 to 185°F (-40 to 85°C)
Environmental Operation Range:
Temp: -40 to 185°F (-40 to 85°C)
Humidity: 0% to 100% RH, non-condensing
Enclosure Rating: IP66
Enclosure Material: UV-Resistant Polycarbonate
Material Rating: UL94 V-0
Radio Frequency: 418 MHz
Transmitter Interval: ~10 seconds
Antenna: Built inside the enclosure
FCC Approval: FCC ID# T4F060811TEMP



*Actual in-building transmission distances will vary depending upon building construction and other factors.

Outside Air Temperature Transmitter

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- 100 Foot In Building Range, Extendable to 1,000 Feet with Repeater*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Watertight BAPI-Box Enclosure
- Quick Response Sensor
- Light-Colored Sensor Guard
- Etched Teflon Leadwires
- 2 Year Warranty



Wireless Outside Air Temperature Transmitter

BAPI Wireless Outside Air Temperature Transmitters are designed to be mounted outdoors. The UV-resistant plastic shield keeps the sensor out of the sunlight and allows for excellent air circulation.The Outside Air Units come with a watertight BAPI-Box enclosure which is made of UV-resistant polycarbonate and carries an IP66 rating.

The Outside Air unit measures the temperature and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller.

PART #: BA/WT-O-BB - Wireless Outside Air Temperature Transmitter
PART #: BA/LI3620 - Lithium Battery 3.6V

See end of Section F for list pricing.

Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Inputs: Built in thermistor

Accuracy: ±0.36°F (±0.2°C)

Transmitted Range: -40 to 185°F (-40 to 85°C)

Enclosure Rating: IP66

Enclosure Material:
UV-Resistant Polycarbonate

Material Rating: UL94 V-0

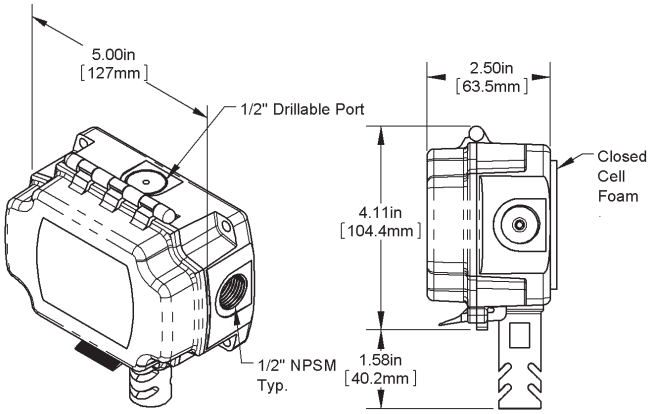
Environmental Operation Range:
Temp: -40 to 185°F (-40 to 85°C)
Humidity: 0 to 100% RH

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811TEMP



*Actual in-building transmission distances will vary depending upon building construction and other factors.

Outside Air Temp./Humidity Transmitter

Wireless Temperature and/or Humidity

Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater*
- Temperature and Humidity signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Watertight BAPI-Box Enclosure
- Quick Response Sensor
- 2% RH Accuracy
- 2 Year Warranty



Wireless Outside Air Temperature and Humidity Transmitter

BAPI Wireless Outside Air Temperature and Humidity Transmitters are designed to be mounted outdoors. The UV-resistant plastic shield keeps the sensor out of the sunlight and allows for excellent air circulation.The Outside Air Units come with a watertight BAPI-Box enclosure which is made of UV-resistant polycarbonate and carries an IP66 rating.

The Wireless Outside Air Temperature and Humidity Transmitter measures the temperature and humidity and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller.

PART #: BA/WTH-O-BB - Wireless Outside Air Temperature and Humidity Transmitter
PART #: BA/LI3620 - Lithium Battery 3.6V

See end of Section F for list pricing.

Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Sensing Elements:
Temp. - Semiconductor Band Gap, Proportional to Absolute Temperature, ±0.54°F (±0.3°C) @ 25°C
Humidity - Capacitive Polymer, ±2% RH Accuracy, 10 to 90% @ 25°C

Transmitted Range: -40 to 185°F (-40 to 85°C)

Enclosure Rating: IP66

Enclosure Material:
UV-Resistant Polycarbonate

Material Rating: UL94 V-0

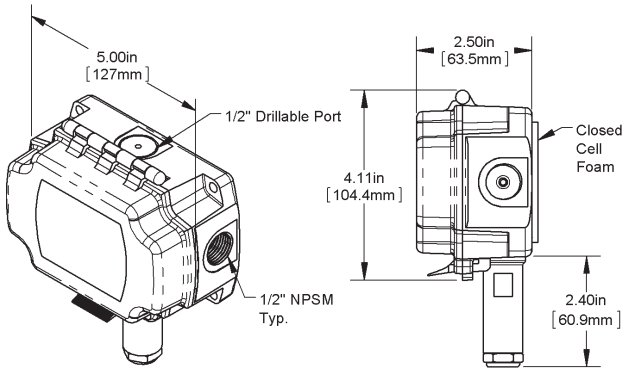
Environmental Operation Range:
Temp: -22 to 158°F (-30 to 70°C)
Humidity: 0 to 100% RH

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811RH



*Actual in-building transmission distances will vary depending upon building construction and other factors.

F10 Thermobuffer Freezer Transmitter

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- Reduces Temperature "Spikes" Caused By Opening the Cooler or Freezer Door
- Wirelessly Transmits the Temperature
- 100 Foot In-Building Range, Extendable to 1,000 Feet with a Repeater*
- Receiver & Output Modules Convert the Wireless Data to Voltage, Current or Thermistor Resistive
- Buffer Chamber is 304 Stainless or Aluminum
- 8 Year Battery Life
- 2 Year Warranty



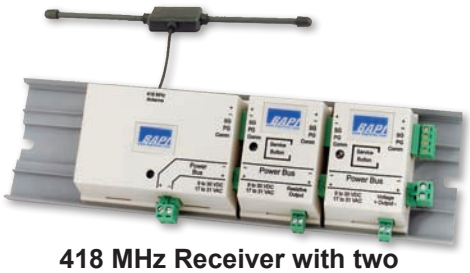
Thermobuffer temperature sensor (2 inch probe shown)

The BAPI Wireless Thermobuffer wirelessly transmits the temperature of walk-in freezers or coolers to a receiver within 100 feet*. The Thermobuffer slows the temperature reaction of a freezer door opening to prevent false alarms or short cycling the compressor.

The Thermobuffer features a watertight BAPI-Box enclosure and is designed to be mounted to the wall of the cooler or freezer saving valuable shelf space. It is available with a two-inch or four-inch stainless steel buffer chamber (optional aluminum) which is sealed with customer provided oil, or a 50/50 glycol solution to approximate the temperature reaction of the refrigerated contents in the freezer or cooler.

Associated Products

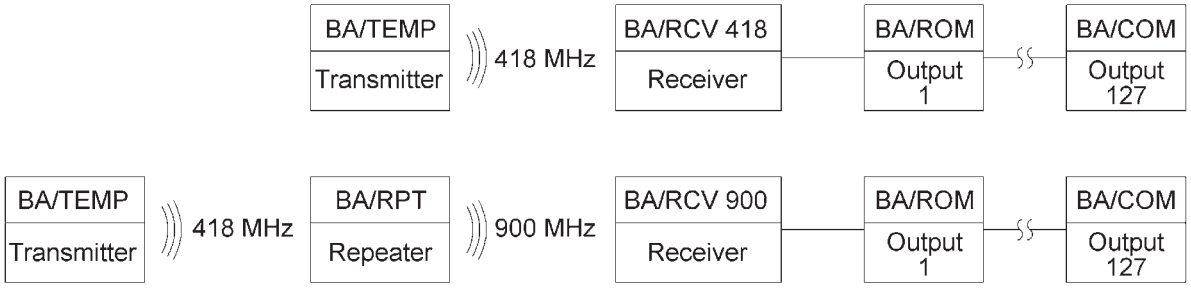
- **418 or 900 MHz Receiver**
  Receives the RF signal from the transmitter or repeater and outputs the values to up to 127 different Analog Output Modules.
- **Repeater:**
  Extends the range of the Transmitter up to 1,000 feet.
- **Analog Output Modules:** Converts the signal from the Receiver into a Resistance, Voltage or Current for the DDC controller.



418 MHz Receiver with two Analog Output Modules

Wireless Operation

The Wireless Thermobuffer measures the temperature through the buffer chamber and transmits the temperature approximately once every 10 seconds to a receiver which in-turn sends the signal to an analog output module. These output modules come in all the standard BAS analog inputs including Voltage, Current or Thermistor Resistance.



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Thermobuffer Freezer Transmitter

F11

Wireless Temperature and/or Humidity

Ordering Information

PART NUMBERS:

BA/WT-TB-M304-2-BB
Wireless Thermobuffer, 304 Stainless Steel Chamber, 2 inch probe, BAPI-Box Enclosure

BA/WT-TB-M304-4-BB
Wireless Thermobuffer, 304 Stainless Steel Chamber, 4 inch probe, BAPI-Box Enclosure

BA/WT-TB-MAL-2-BB
Wireless Thermobuffer, Machined Aluminum Chamber, 2 inch probe, BAPI-Box Enclosure

BA/WT-TB-MAL-4-BB
Wireless Thermobuffer, Machined Aluminum Chamber, 4 inch probe, BAPI-Box Enclosure

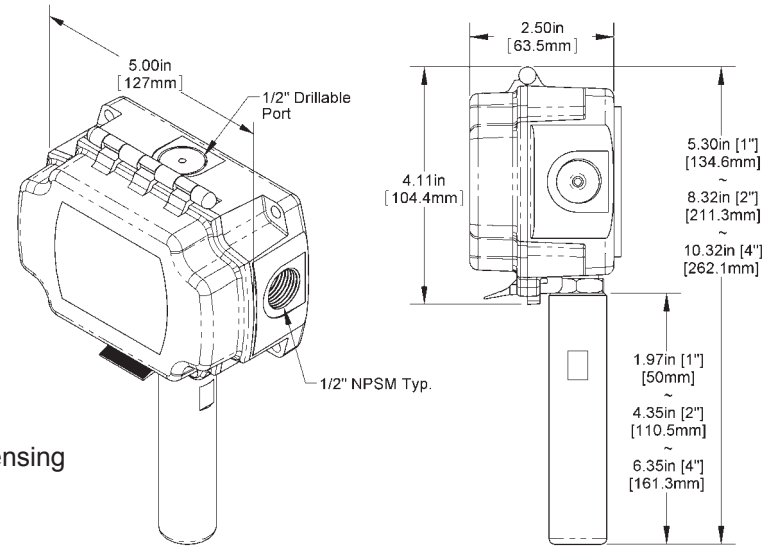
BA/LI3620
Replacement Battery, Lithium 3.6V

See end of Section F for list pricing.

Specifications

Supply Power: Two 3.6V Lithium batteries
Battery Life: 8 years at 10 second transmit rate
Battery capacity: 2.25 AH
Sensor: Built in thermistor
Accuracy: ±0.36°F (±0.2 °C)
Temperature Range: -40°F to 185°F (-40°C to 85°C)
Radio Frequency: 418 MHz
Transmit Power: 1.5mW
Transmit Time: 20ms
Modulation: Amplitude Modulation (AM)
A/D Resolution: 12 Bit
Transmitter Interval: ~10 seconds
Antenna: Built inside the enclosure
Error checking:
CRC 16, Cyclic Redundancy Check 16 bit
Agency: FCC ID#T4F060811TEMP
Weight: 2 lb (0.9kg)
Environmental Operation Range:
Temp: -22°F to 158°F (-30°C to 70°C)
Humidity: 0% to 100% RH, Non-condensing

Enclosure Rating: NEMA 4, IP66
Enclosure Material: UV-Resistant Polycarbonate
Material Rating: UL94 V-0
Probe: 2 or 4 inch, ¼" 304 Stainless Steel
Buffer chamber: 2 or 4" 304 Stainless Steel (Optional machined aluminum)
Warranty: 2 Years



Note: Unit requires food grade glycol antifreeze for proper operation.

*Actual in-building transmission distances will vary depending upon building construction and other factors.

BAPI-Slim™ Wireless Temp. Transmitter

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- Wireless 100 Foot Open Field Range
- Built in or Remote Temperature Sensor
- Four Year Battery Life
- Slim Unobtrusive Design That Is Easy To Mount
- Two Year Warranty

The BAPI-Slim Wireless Temperature Transmitter is designed to monitor temperature inside refrigerator and freezer cases. The BAPI-Slim mounts on the outside of freezer units and can be mounted either inside or outside of refrigerator units. The unit is available with an internal sensor or an RJ11 jack external sensor.

The external sensor's ribbon cable can easily fit between the door seal or through hole with FEP cable without affecting appliance efficiency. The temperature is then transmitted at 30-second intervals to the receiver with a measurement range of -40 to 185˚F (-40 to 85˚C).



BAPI-Slim Wireless Temperature Transmitter with Remote Probe Sensor

Specifications

Supply Power: One 3.6 VDC Lithium Battery (included)
4 Year Replaceable, 1/2 AA, (3.6 VDC)

LED: LED Transmit Lamp Inside Cover

Sensor: Thermistor, 10K-2
Internal: Located at Bottom of Case
External: RJ11 Jack
1.75" SS Sensor with Ribbon Cable
2" Thermobuffer with Ribbon Cable

Measurement Range: -40 to 185˚F (-40 to 85˚C)

Accuracy: ±0.5ºF (±0.28ºC) from -40 to 185ºF (-40 to 85˚C)

Environmental:
-22 to 122ºF (-30 to 50ºC), 0 to 95% RH non-condensing

Case Material & Material Rating: ABS Plastic, UL94 V-0

Ext. Probe Material: 304 Stainless Steel (SS)

Transmitter Mounting:
Keyhole Screw Mounts (Screws not included)
Double-Sided Mounting Tape (Included)

Sensor Mounting:
Remote Probe: Plastic Holder (BA/FPB)
Thermobuffer: Hanging Rack Clip (Included)

Radio Frequency: 418 MHz @ 1mW

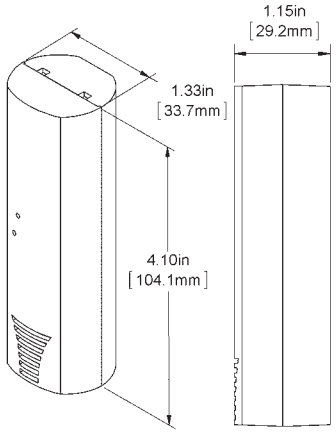
Transmitter Interval:
Selectable between 10 sec and 10 minutes in 5 second intervals (30 seconds default)

Antenna: Helical Coil Type Built into Case

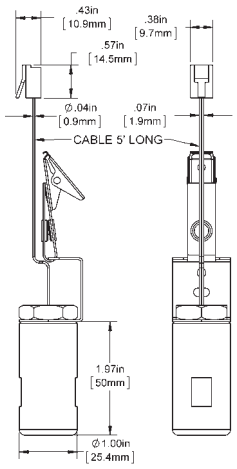
Transmission Range:
Up to 100 Feet Open Air (418 MHz @ 1mW)
Up to 1,000 Feet Open Air w/ Repeater (900MHz @ 100mW)

FCC Approval:
FCC Rules Part 15, Subpart B
FCC ID# T4FSM061025 (418MHz Only)

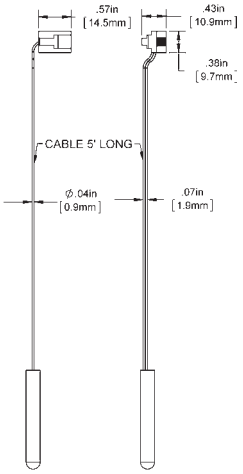
Agency:
RoHS and Industry Canada (IC:9067A-SM061025)



BAPI-Slim Wireless Temperature Transmitter



External Hanging Thermobuffer Sensor



External Remote Probe Sensor

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BAPI-Slim Wireless Temperature Transmitter

Ordering Information	*BAPI-Slim Wireless Temperature Transmitter*				List Price	Your Order
BA/WT-SL	BAPI-Slim Wireless Temperature Transmitter				$274	$_____
	Temperature Sensor Configuration	**Required Selection**				
	-IS	Internal Sensor - On board 10K-2 thermistor (no external sensor jack connector)				
	-RP	External Sensor - 1.75" SS Remote Probe with 10K-2 thermistor			$18	$_____
	-TB	External Sensor - 2" Hanging Thermobuffer with 10K-2 thermistor			$105	$_____
	-X	No Sensor - Includes an RJ11 jack for external sensor (Must order sensor separately)				
		External Sensor Cable Type and Length	**Required if -RP or -TB is selected above**			
		-R5	PVC Ribbon Cable 5 feet		$3	$_____
		-R10	PVC Ribbon Cable 10 feet		$6	$_____
		-FEP5	FEP Round Cable 5 feet		$5	$_____
		-FEP10	FEP Round Cable 10 feet		$10	$_____
			External Sensor Connector Type	**Required if -RP or -TB is selected above**		
			-RJ11	RJ11 Plug	$5	$_____
EXAMPLE						
BA/WT-SL	**-RP**	**-R5**	**-RJ11**		**Total =**	$_____
Example Part Number: BA/WT-SL-RP-R5-RJ11: BAPI-Slim transmitter w/ remote probe and 5ft of ribbon cable						
Your Part Number:						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Replacement Sensors for the BAPI-Slim Unit

Ordering Information	*Replacement Sensors for the BAPI-Slim Wireless Temperature Transmitter*				List Price	Your Order
BA/SL-102	External Sensor Assembly for the BAPI-Slim Wireless Temperature Transmitter					
	Temperature Sensor Configuration	**Required Selection**				
	-RP	1.75" SS Remote Probe with 10K-2 thermistor			$18	$_____
	-TB	2" Hanging Thermobuffer with 10K-2 thermistor			$105	$_____
		External Probe Cable Type and Length	**Required Selection**			
		-R5	PVC Ribbon Cable 5 feet		$3	$_____
		-R10	PVC Ribbon Cable 10 feet		$6	$_____
		-FEP5	FEP Round Cable 5 feet		$5	$_____
		-FEP10	FEP Round Cable 10 feet		$10	$_____
			External Probe Connector Type	**Required Selection**		
			-RJ11	RJ11 Plug	$5	$_____
EXAMPLE						
BA/SL-102	**-RP**	**-R5**	**-RJ11**		**Total =**	$_____
Example Part Number: BA/SL-102-RP-R5-RJ11: 10K-2 Thermistor remote probe and 5ft of ribbon cable						
Your Part Number:						

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

Accessories

Part Number	Description
BA/BAT-5AA	Replacement Battery, 1/2 AA, 3.6 VDC
BA/FPB	Flexible Probe Bracket for Probe Sensor Mounting

Related Products

Part Number	Description
BA/RCV418-WAM-x	418MHz Wireless Receiver for BAPI Website Access
BA/RCV418-EZ	418MHz Wireless Receiver for Analog Output Modules
BA/RCV900-EA-EZ	900MHz Wireless Receiver for Analog Output Modules (requires a repeater)
BA/RPT49-EA-EZ	418 MHz to 900MHz Repeater
BA/VOM-10-x-EZ	0 to 10V Voltage Output Module
BA/COM-x-EZ	4 to 20mA Current Output Module
BA/ROM-10x-EZ	Resistance Output Module, 10K-2 Thermistor Output

Wireless Universal Input Transmitter

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- Battery Powered (Eight Year Battery Life)
- Analog Input (0 to 5VDC, 0 to 10VDC & 4 to 20mA), Digital Input (dry contact) and Thermistor Temperature Input Models
- 100' In-Building Range, Extendable to 1,000' with a Repeater*

The Wireless Universal Input Transmitters take a hard-wired signal and transmit that signal wirelessly to a 418 MHz receiver. The Analog Input version receives a 0 to 5VDC, 0 to 10VDC or 4 to 20mA signal, the Digital Input version receives any dry contact on/off status, while the Thermistor Temperature Input version takes a 10K-2 thermistor sensor input.

All models transmit their data every 10 to 17 seconds at 418 MHz to a BAPI 418 MHz Receiver. An Output Module connected to the Receiver converts the data back to its original form for the BAS controller. The transmitters are battery powered and only require wiring from the remote input sensor.



Wireless Universal Input Transmitter with the BAPI-Box open and closed

Ordering Information

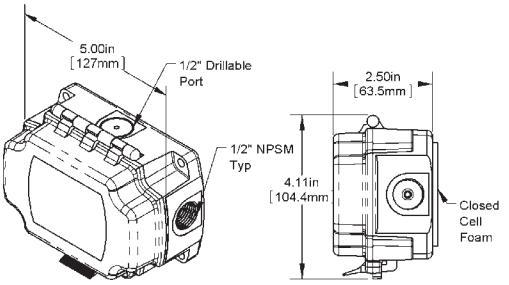
Wireless Universal Input Transmitter	Associated Wireless Products to Complete the System
BA/WAI-05 0 to 5VDC Analog Input Transmitter	**BA/RCV418-EZ & BA/VOM-05-AO-EZ** 418 MHz Receiver & 0 to 5V Voltage Output Module
BA/WAI-10 0 to 10VDC Analog Input Transmitter	**BA/RCV418-EZ & BA/VOM-10-AO-EZ** 418 MHz Receiver & 0 to 10V Voltage Output Module
BA/WAI-420 4 to 20mA Analog Input Transmitter	**BA/RCV418-EZ & BA/COM-AO-EZ** 418 MHz Receiver & 4 to 20 mA Current Output Module
BA/WDI Digital Input Transmitter	**BA/RCV418-EZ & BA/RYOL-NO-EZ** 418 MHz Receiver & Latching Relay Output Module
BA/WTS Thermistor Sensor Transmitter	**BA/RCV418-EZ & ROM, VOM or COM Temp. Output Module** 418 MHz Receiver & An ROM, COM or VOM Output Module

See end of Section F for list pricing.

Specifications

Supply Power: .....3.6 Lithium, 2-AA Batteries (included)
Battery life: .....8 years @ 10 sec. intervals
Analog Input: 2-terminals
BA/WAI-05.....0 to 5VDC, Imp. > 30KΩ
BA/WAI-10.....0 to 10VDC, Imp. > 50KΩ
BA/WAI-420.....4 to 20mA, Imp. = 100Ω
Digital Input: 2-terminals
BA/WDI.....Dry contact, >20 seconds Contact Status, < 10Ω closed, >250Ω open
Thermistor Input:...2-terminals
BA/WTS.....10K-2 Thermistor (sold seperately) Temp. Range, -40 to 185°F (-40 to 85°C)
Mounting: .....Four corner feet
Radio Frequency: ..418 MHz @ 1mW
Transmitter Interval: ~10-17 sec.
Transmission Range: Up to 100 feet direct* (Up to 1,000 feet with a repeater*)

Antenna: .....Built inside the enclosure
Enclosure:..... IP66 & NEMA-4 w/ cover screw
Environmental Operating Range:
Temperature .. 32 to 140°F (0 to 60°C)
Humidity ..... 5 to 95% RH, Non-condensing
Case Material: . Polycarb., UV resist., UL94V-0
FCC ID: T4F060811TEMP



*Actual in-building transmission distances will vary depending upon building construction and other factors.

Caution: BAPI wireless products are designed for non-critical HVAC monitoring. These products are not intended as safety devices or any heavy equipment control applications.

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418 MHz Receiver

Wireless Temperature and/or Humidity

Features & Options

- 100 Foot Range
- Extendable Antenna for Optimum Reception
- Surface, Snaptrack or Din Rail Mounting
- Can Accommodate Up To 127 Analog Output Modules

The BAPI 418 MHz unit receives the RF signal from one or more wireless temperature or humidity transmitters which have a range of 100 feet. The receiver then outputs the values to any Analog Output Module through a four-wire bus. The Analog Output Module converts the signal to an analog voltage, current or resistance for the controller. The receiver can accommodate up to 127 different Analog Output Modules. It is surface, snaptrack or din rail mountable with a 79" extendable antenna for optimum reception.



418 MHz Receiver with two Analog Output Modules mounted in 2.75" snaptrack

PART NUMBERS:

BA/RCV418-EZ - 418 MHz Receiver

Replacement Antennas pg. F23

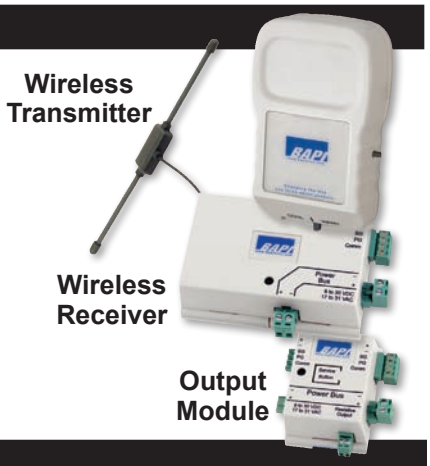
See end of Section F for list pricing.

Associated Products

• Wireless Temperature or Temp./Humidity Transmitter
Measures the room temperature and/or humidity and transmits the data through 418MHz RF to a receiver. The 1 mW transmitter is mounted in a BAPI-Stat 2 style enclosure and has an open-air range of 100 feet.

• Analog Output Modules:
Converts the signal from the Receiver into a Resistance, Voltage or Current for sending to the controller.

• Repeater
Extends the range of the Transmitter up to 1,000 feet.



Specifications for the 418 MHz Receiver

Supply Power: 9 to 30 VDC or 17 to 31 VAC

Power Consumption: 20 mA max. DC, .5 VA max AC

Inputs: 418MHz

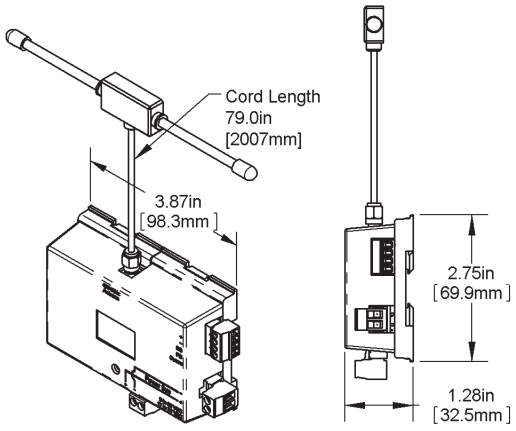
Bus Cable Distance:
4,000 ft with shielded, twisted pair cable
(Belden 9841, Belden 8132 or equivalent)

Maximum Output Modules per Receiver: 127

Environmental Operation Range:
Temp: 32 to 140°F (0 to 60°C)
Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic

Material Rating: UL94, V-0



418 MHz Receiver

900 MHz Receiver

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- 1,000 Foot Range with a Repeater
- Optional 79” Extendable Antenna for Optimum Reception
- Surface, Snaptrack or Din Rail Mounting
- Can Accommodate Up To 127 Analog Output Modules

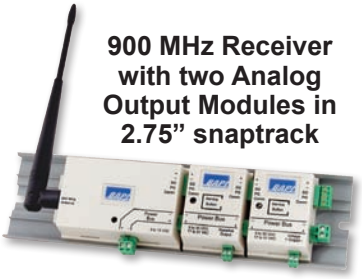
The BAPI 900 MHz unit receives a repeated or re-transmitted RF signal from one or more wireless temperature or humidity transmitters. The transmitter signal (418 MHz) is received by a BAPI Repeater and then re-transmitted at 900 MHz up to 1,000 feet to the 900 MHz Receiver.

The 900 MHz Receiver then outputs the values to any Analog Output Module through a four-wire bus. The output module converts the signal to an analog voltage, current or resistance for the controller. The 900 MHz Receiver can accommodate up to 127 different output modules. The receiver is surface, snaptrack or din rail mountable with an attached antenna or a 79” extendable antenna.

900 MHz Receiver with attached antenna



900 MHz Receiver with two Analog Output Modules in 2.75” snaptrack



PART #s: **BA/RCV900-EZ** - 900 MHz Receiver with Attached Antenna
BA/RCV900-EA-EZ - 900 MHz Receiver with Extendable Antenna

Replacement Antennas pg. F23

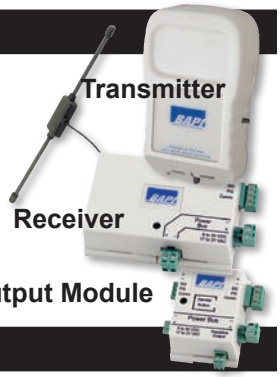
See end of Section F for list pricing.

Associated Products

• **Wireless Temperature or Temp/Humidity Transmitter:** Measures the room temperature and/or humidity and transmits the data through 418MHz RF to a receiver.

• **Analog Output Modules:** Converts the signal from the Receiver into a Resistance, Voltage or Current for the DDC controller.

• **Repeater:** Extends the range of the Transmitter up to 1,000 feet.



Specifications

Supply Power: 9 to 15 VDC

Power Consumption: 80 mA max. DC

Bus Cable Distance:
4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

Inputs: 900MHz

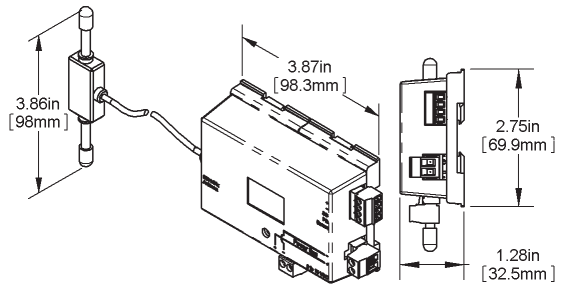
Maximum Output Modules per Receiver: 127

Environmental Operation Range:
Temp: 32 to 140°F (0°C to 60°C)
Humidity: 5 to 95% RH non-condensing

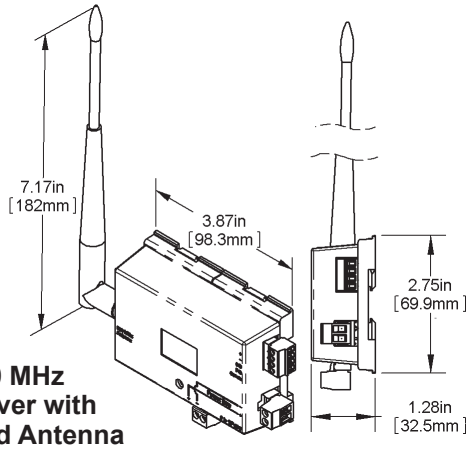
Material: ABS Plastic

Material Rating: UL94, V-0

900 MHz Receiver with Extendable Antenna



900 MHz Receiver with Attached Antenna



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418 MHz to 900 MHz Repeater

Wireless Temperature and/or Humidity

Features & Options

- Extends Transmitter Range to 1,000 Feet

The BAPI Repeater receives the 418 MHz RF signal from one or more wireless temperature or humidity transmitters which have a range of 100 feet. The Repeater re-transmits the signal at 900 Mhz to a distance of 1,000 feet to a BAPI 900 MHz Receiver.

The 900 MHz Receiver then outputs the values to any Analog Output Module through a four-wire bus. The Analog Output Module converts the signal to an analog voltage, current or resistance for the controller. The 900 MHz Receiver can accommodate up to 127 different Analog Output Modules. The Repeater is surface, snaptrack or din rail mountable with an attached 900 MHZ antenna and a 79" 418 MHz extendable antenna.



PART #S: BA/RPT49-EZ - 418 to 900 MHz Repeater
BA/RPT49-EA-EZ - 418 to 900 MHz Repeater with Extendable Antenna Replacement

Replacement Antennas pg. F23

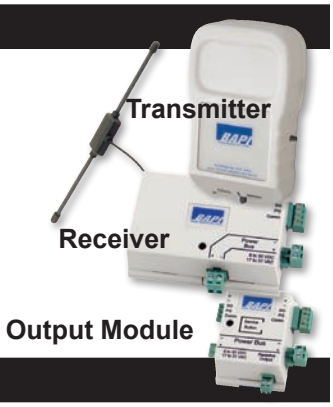
See end of Section F for list pricing.

Associated Products

• Wireless Temperature or Temp/Humidity Transmitter: Measures the room temperature and/or humidity and transmits the data through 418MHz RF to a receiver.

• 900 MHz Receiver: Receives the re-transmitted signal signal from the Repeater and outputs the values to up to an Analog Output Modules.

• Analog Output Modules: Converts the signal from the Receiver into a Resistance, Voltage or Current for sending to the controller.



Specifications

Supply Power: 9 to 15 VDC

Power Consumption: 150 mA max. DC

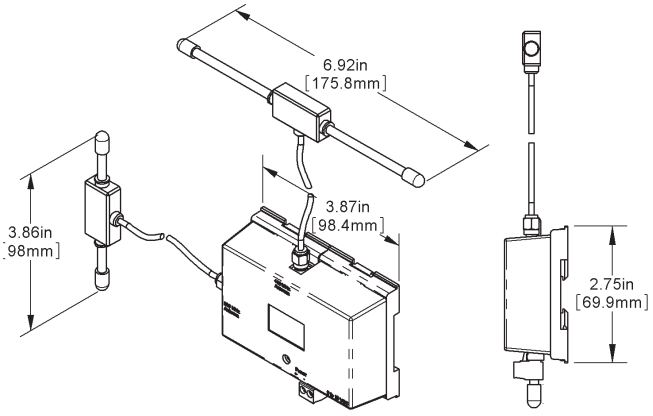
Inputs: 418MHz

Output: 900MHz at 100mW

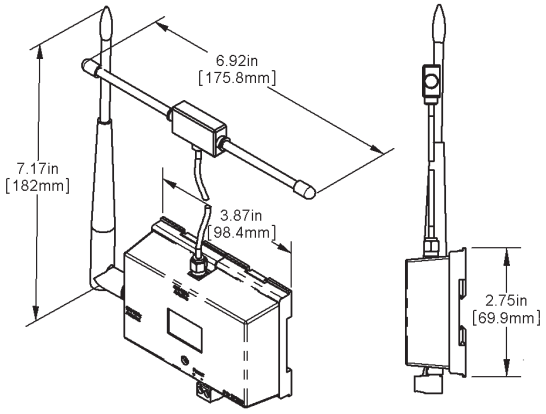
Environmental Operation Range:
Temp: 32°F to 140°F (0°C to 60°C)
Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic

Material Rating: UL94, V-0



Repeater with Extendable Antenna



Repeater with Attached Antenna

Resistance Output Module (ROM)

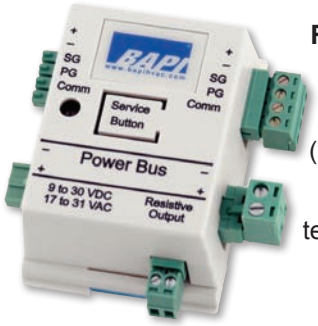
Wireless Temperature and/or Humidity

Rev. 10/16/12

Overview

The Resistance Output Module (ROM) converts the temperature data from the Wireless Receiver into a Resistance for the DDC controller. The unit is factory calibrated to output a 10K-2, 10K-3 or 10K-3(11K) thermistor curve.

The ROM receives data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Output Modules can be connected to a single receiver to send multiple variables to the controller. The ROM is easily trained to a single transmitter temperature or humidity variable with a pushbutton and LED. The ROM is surface, 2.75" snaptrack or 35mm din rail mountable.



Resistance Output Module - ROM (includes the Resistance Output terminal block connector only)

PART NUMBERS:

BA/ROM-102-EZ	10K-2 thermistor curve
BA/ROM-103-EZ	10K-3 thermistor curve
BA/ROM-10311-EZ	10K-3(11K) thermistor curve
BA/ROM-20-EZ	20K thermistor curve

See end of Section F for list pricing.



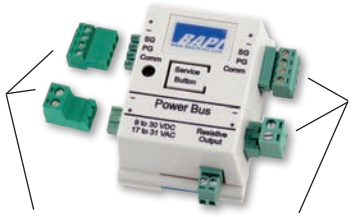
418 MHz Receiver with two Analog Output Modules

Pluggable Terminal Blocks

AOMs plug into each other and the receiver as shown above. However, the AOMs may also be mounted remotely using the optional Pluggable Terminal Block Connectors which are available as a 4-connector kit.

PART NUMBER:

BA/AOM-CONN - Pluggable Terminal Block Kit for AOMs (includes 4 terminal block connectors, see image at right)



Optional Pluggable Terminal Block Kit for AOMs (4 Connectors)

Specifications

Temperature Output Ranges at ~0.5ºF Resolution:
- **10K-2 Unit:** .....35ºF to 120ºF (1ºC to 50ºC)
- **10K-3 Unit:** .....32ºF to 120ºF (0ºC to 50ºC)
- **10K-3(11K) Unit:** 32ºF to 120ºF (0ºC to 50ºC)
- **20K Unit:** .....53ºF to 120ºF (12ºC to 50ºC)

Supply Power: 9 to 30 VDC or 17 to 31 VAC, half wave

Power Consumption:
3 mA max. DC, .1 VA max AC

Analog Input Bias Voltage: 5 VDC max

Lost Comm. Timeout: 15 min. (Fast Flash)
Reverts to High Resistance >35KΩ (Low Temp.)

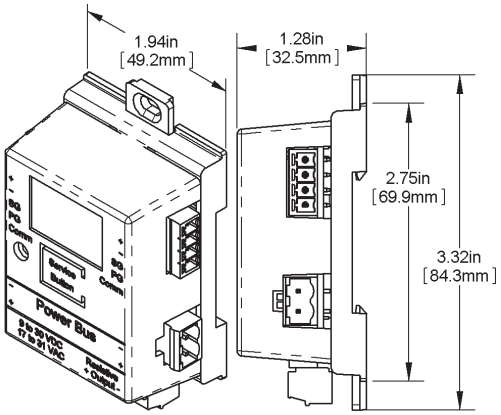
Bus Cable Distance:
4,000 ft with shielded, twisted pair cable
(Belden 9841, Belden 8132 or equivalent)

Output Resolution: ~40Ω

Environmental Operation Range:
Temp: 32°F to 140°F (0°C to 60°C)
Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic

Material Rating: UL94, V-0



Resistance Output Module

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Voltage Output Module (VOM)

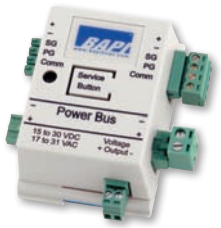
Wireless Temperature and/or Humidity

Overview

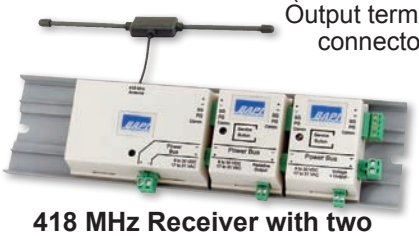
The Voltage Output Module (VOM) converts the temperature or humidity data from the Wireless Receiver into a linear 0-5 volt or 0-10 volt signal for the DDC controller.

The VOM receives the temperature or humidity data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Output Modules can be connected to a single receiver to send multiple variables to the controller.

The VOM is easily trained to a single transmitter variable with a pushbutton and LED. The VOM is surface, 2.75" snaptrack or 35mm din rail mountable.



Voltage Output Module - VOM
(includes the Voltage Output terminal block connector only)



418 MHz Receiver with two Analog Output Modules

°F PART NUMBERS:

BA/VOM-05-C-EZ:	0-5V Output, 50 to 90ºF Temp. Range
BA/VOM-05-D-EZ:	0-5V Output, 55 to 85ºF Temp. Range
BA/VOM-05-E-EZ:	0-5V Output, 60 to 80ºF Temp. Range
BA/VOM-05-F-EZ:	0-5V Output, 65 to 80ºF Temp. Range
BA/VOM-05-G-EZ:	0-5V Output, 45 to 96ºF Temp. Range
BA/VOM-05-H-EZ:	0-5V Output, -20 to 120ºF Temp. Range
BA/VOM-05-KK-EZ:	0-5V Output, 32 to 185ºF Temp. Range
BA/VOM-05-MM-EZ:	0-5V Output, -40 to 140ºF Temp. Range
BA/VOM-10-C-EZ:	0-10V Output, 50-90ºF Temp. Range
BA/VOM-10-D-EZ:	0-10V Output, 55-85ºF Temp. Range
BA/VOM-10-E-EZ:	0-10V Output, 60-80ºF Temp. Range
BA/VOM-10-F-EZ:	0-10V Output, 65-80ºF Temp. Range
BA/VOM-10-G-EZ:	0-10V Output, 45-96ºF Temp. Range
BA/VOM-10-H-EZ:	0-10V Output, -20 to 120ºF Temp. Range
BA/VOM-10-KK-EZ:	0-10V Output, 32 to 185ºF Temp. Range
BA/VOM-10-MM-EZ:	0-10V Output, -40 to 140ºF Temp. Range

°C PART NUMBERS:

BA/VOM-05-C-C-EZ:	0-5V Output, 10 to 32ºC Temp. Range
BA/VOM-05-D-C-EZ:	0-5V Output, 13 to 30ºC Temp. Range
BA/VOM-05-E-C-EZ:	0-5V Output, 15 to 27ºC Temp. Range
BA/VOM-05-F-C-EZ:	0-5V Output, 18 to 27ºC Temp. Range
BA/VOM-05-G-C-EZ:	0-5V Output, 7 to 35ºC Temp. Range
BA/VOM-05-H-C-EZ:	0-5V Output, -29 to 49ºC Temp. Range
BA/VOM-05-KK-C-EZ:	0-5V Output, 0 to 85ºC Temp. Range
BA/VOM-05-MM-C-EZ:	0-5V Output, -40 to 60ºC Temp. Range
BA/VOM-10-C-C-EZ:	0-10V Output, 10 to 32ºC Temp. Range
BA/VOM-10-D-C-EZ:	0-10V Output, 13 to 30ºC Temp. Range
BA/VOM-10-E-C-EZ:	0-10V Output, 15 to 27ºC Temp. Range
BA/VOM-10-F-C-EZ:	0-10V Output, 18 to 27ºC Temp. Range
BA/VOM-10-G-C-EZ:	0-10V Output, 7 to 35ºC Temp. Range
BA/VOM-10-H-C-EZ:	0-10V Output, -29 to 49ºC Temp. Range
BA/VOM-10-KK-C-EZ:	0-10V Output, 0 to 85ºC Temp. Range
BA/VOM-10-MM-C-EZ:	0-10V Output, -40 to 60ºC Temp. Range

%RH PART NUMBERS:

BA/VOM-05-M-EZ:	0-5V Output, 0-100% RH
BA/VOM-05-N-EZ:	0-5V Output, 35-70% RH
BA/VOM-10-M-EZ:	0-10V Output, 0-100% RH
BA/VOM-10-N-EZ:	0-10V Output, 35-70% RH

FULL SCALE PART NUMBERS:

BA/VOM-05-AO-EZ:	0-5V Output Full Scale
BA/VOM-10-AO-EZ:	0-10V Output Full Scale

See end of Section F for list pricing.

***Note:** Custom Ranges are available. Call BAPI for details.*

Specifications

Supply Power: (half wave)
0-5Vdc models: 9-30 VDC or 17-31 VAC
0-10Vdc models: 15-30 VDC, 17-35 VAC

Output Voltage Range:
0-5 Volts or 0-10 Volts (factory calibrated)

Output Current: 1 mA max

Power Consumption:
3 mA max. DC, .1 VA max. AC,

Lost Comm. Timeout: 15 min. (Fast Flash)
Temp. & Full Scale revert to 0 volts
%RH reverts to high scale (5V or 10V)

Bus Cable Distance:
4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

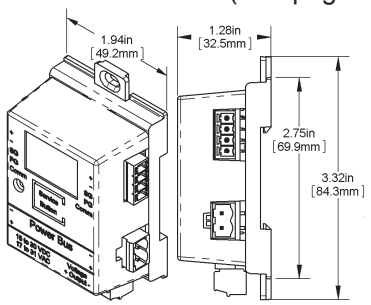
Output Resolution: 10 bit, 1024 counts

Environmental Operation Range:
Temp: 32°F to 140°F (0°C to 60°C)
Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic

Material Rating: UL94, V-0

Accessory Terminals: BA/AOM-CONN (See page 18)



Voltage Output Module

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Current Output Module (COM)

Wireless Temperature and/or Humidity

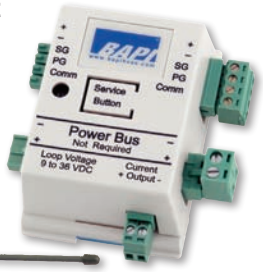
Rev. 10/16/12

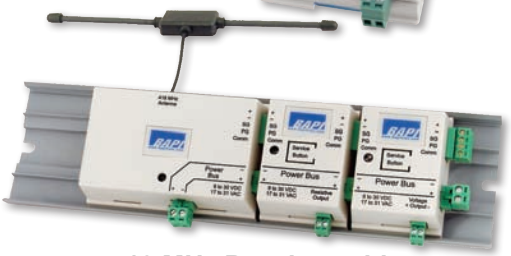
Features & Options

The Current Output Module (COM) converts the temperature or humidity data from the Wireless Receiver into a linear 4-20 mA signal for the DDC controller.

The COM is loop powered and receives data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Output Modules can be connected to a single receiver to send multiple network variables to the controller. The COM is easily trained to a single transmitter variable with a pushbutton and LED. The COM is surface, 2.75" snaptrack or 35mm din rail mountable.

Current Output Module - COM (includes the Current Output terminal block connector only)





418 MHz Receiver with two Analog Output Modules

°F PART NUMBERS:

BA/COM-C-EZ:	4-20 mA Output, 50-90ºF Temp. Range
BA/COM-D-EZ:	4-20 mA Output, 55-85ºF Temp. Range
BA/COM-E-EZ:	4-20 mA Output, 60-80ºF Temp. Range
BA/COM-F-EZ:	4-20 mA Output, 65-80ºF Temp. Range
BA/COM-G-EZ:	4-20 mA Output, 45-96ºF Temp. Range
BA/COM-H-EZ:	4-20 mA Output, -20 to 120ºF Temp. Range
BA/COM-KK-EZ:	4-20 mA Output, 32 to 185ºF Temp. Range
BA/COM-MM-EZ:	4-20 mA Output, -40 to 140ºF Temp. Range

°C PART NUMBERS:

BA/COM-C-C-EZ:	4-20 mA Output, 10 to 32ºC Temp. Range
BA/COM-D-C-EZ:	4-20 mA Output, 13 to 30ºC Temp. Range
BA/COM-E-C-EZ:	4-20 mA Output, 15 to 27ºC Temp. Range
BA/COM-F-C-EZ:	4-20 mA Output, 18 to 27ºC Temp. Range
BA/COM-G-C-EZ:	4-20 mA Output, 7 to 35ºC Temp. Range
BA/COM-H-C-EZ:	4-20 mA Output, -29 to 49ºC Temp. Range
BA/COM-KK-C-EZ:	4-20 mA Output, 0 to 85ºC Temp. Range
BA/COM-MM-C-EZ:	4-20 mA Output, -40 to 60ºC Temp. Range

%RH PART NUMBERS:

BA/COM-M-EZ:	4-20 mA Output, 0-100% RH
BA/COM-N-EZ:	4-20 mA Output, 35-70% RH

FULL SCALE PART NUMBERS:

BA/COM-AO-EZ:	4-20 mA Output Full Scale

ACCESSORY TERMINALS:

BA/AOM-CONN:	Pluggable Terminal Block Kit for AOMs

See end of Section F for list pricing.

Associated Products

AOMs plug into each other and the receiver as shown above. However, the AOMs may also be mounted remotely using the optional Pluggable Terminal Block Connectors which are available as a 4-connector kit.



Optional Pluggable Terminal Block Kit for AOMs (4 Connectors)

Specifications

Output Current Range: 4-20 mA (factory calibrated)

Power Consumption: (half wave)
Loop Powered, 20 mA max
Loop Voltage Range 9-36 VDC,

Lost Comm. Timeout: 15 min. (Fast Flash)
Temp. & Full Scale revert to 4 mA, %RH reverts to 20 mA

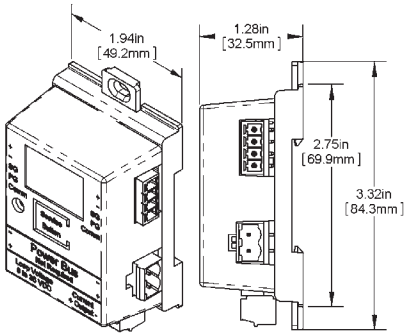
Bus Cable Distance:
4,000 ft with shielded, twisted pair cable
(Belden 9841, Belden 8132 or equivalent)

Output Resolution: 12 bit, 4096 counts

Environmental Operation Range:
Temp: 32°F to 140°F (0°C to 60°C)
Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic

Material Rating: UL94, V-0



Current Output Module

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Setpoint Output Module (SOM)

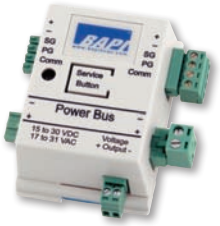
Wireless Temperature and/or Humidity

Overview

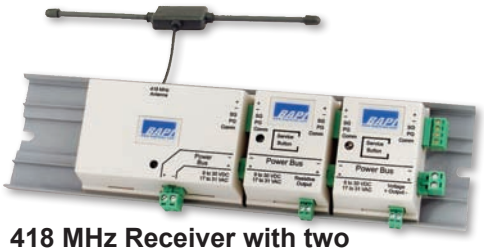
The Setpoint Output Module (SOM) converts the Setpoint data from the Wireless Receiver into a Resistance or Voltage for the DDC controller.

The SOM receives the setpoint data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Setpoint Output Modules or Analog Output Modules can be connected to a single receiver to send multiple variables to the controller.

The Setpoint Output Module is easily trained to a single transmitter setpoint with a pushbutton and LED. The SOM is surface, 2.75" snaptrack or 35mm din rail mountable.



Setpoint Output Module - SOM (includes the Setpoint Output terminal block connector only)



418 MHz Receiver with two Analog Output Modules

VOLTAGE OUTPUT PART #S:

BA/SOM-00-EZ: 0 to 5 Volts Output
BA/SOM-01-EZ: 1 to 5 Volts Output
BA/SOM-02-EZ: 3.7 to .85 Volts Output
BA/SOM-03-EZ: 5 to 0 Volts Output
BA/SOM-04-EZ: 4.2 to 1.2 Volts Output
BA/SOM-05-EZ: 2.75 to 3.34 Volts Output
BA/SOM-06-EZ: 2.88 to 3.17 Volts Output
BA/SOM-10-EZ: 0 to 10 Volts Output
BA/SOM-11-EZ: 2 to 10 Volts Output

RESISTANCE OUTPUT PART #S:

BA/SOM-50-EZ: 0 to 5k Ohms Output
BA/SOM-51-EZ: 7.87k to 2.87k Ohms Output
BA/SOM-60-EZ: 0 to 10k Ohms Output
BA/SOM-61-EZ: 15k to 5k Ohms Output
BA/SOM-62-EZ: 9,577 to 1,422 Ohms
BA/SOM-63-EZ: 1k to 11k Ohms Output
BA/SOM-80-EZ: 0 to 20k Ohms Output
BA/SOM-81-EZ: 4.75k to 24.75k Ohms Output
BA/SOM-82-EZ: 6.19k to 26.19k Ohms Output
BA/SOM-83-EZ: 7.87k to 27.87k Ohms Output
BA/SOM-84-EZ: 10k to 30k Ohms Output
BA/SOM-85-EZ: 24.75k to 4.75k Ohms Output
BA/SOM-91-EZ: 25k to 75k Ohms Output
BA/SOM-102-C-EZ: 10K-2 Thermistor, 50 to 90°F

ACCESSORY TERMINALS:

BA/AOM-CONN: Pluggable Terminal Block Kit
(See page F20)

See end of Section F for list pricing.

Specifications

Supply Power: (half wave)
Resistance models: 9-30 VDC or 17-31 VAC
0-5VDC models: 9-30 VDC or 17-31 VAC
0-10VDC models: 15-30 VDC, 17-35 VAC

Output Current: 1 mA

Analog Input Bias Voltage: 5 VDC max (Resistance Output Models only)

Power Consumption:
3 mA max. DC, .1 VA max AC

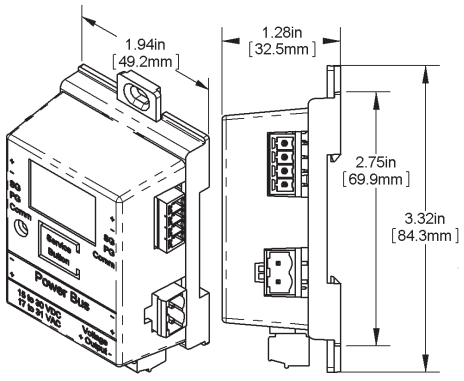
Lost Comm. Timeout: 15 min. (Fast Flash)
Reverts to its last command

Bus Cable Distance:
4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

Output Resolution:
Resistance Output: ~40 ohms
Voltage Output: 10 bit

Environmental Operation Range:
Temp: 32°F to 140°F (0°C to 60°C)
Humidity: 5% to 95% RH non-condensing

Material & Rating: ABS Plastic, UL94, V-0



Setpoint Output Module

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Relay Output Module (RYOM & RYOL)

Wireless Temperature and/or Humidity

Rev. 10/16/12

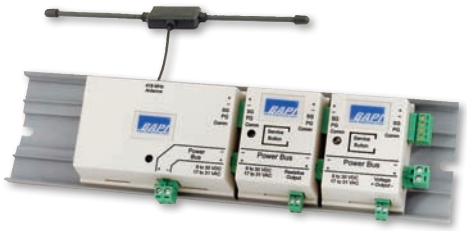
Features & Options

The Relay Output Modules convert the data from the Wireless Receiver into a floating solid state switch closure for the DDC controller. The RYOM is a momentary Relay and is trained to the occupant override button on the side of the BAPI Wireless Room Transmitter. The RYOL is a latching relay and is trained to the BAPI Wireless Digital Input Transmitter.

Both Relay Modules receive data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Modules can be connected to a single receiver to send multiple variables to the controller. The Relay Modules are easily trained to a single transmitter variable with a pushbutton and LED. The RYOM is surface, 2.75" snaptrack or 35mm din rail mountable.



Relay Output Module (includes the Relay Output terminal block connector only)



Receiver with two Output Modules

PART NUMBERS:

BA/RYOM-NO-EZ	Relay Output Momentary, Normally Open Output
BA/RYOM-NC-EZ	Relay Output Momentary, Normally Closed Output
BA/RYOL-NO-EZ	Relay Output Latching, Normally Open Default
BA/RYOL-NC-EZ	Relay Output Latching, Normally Closed Default

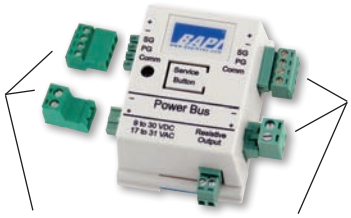
See end of Section F for list pricing.

Pluggable Terminal Blocks

AOMs plug into each other and the receiver as shown above. However, the AOMs may also be mounted remotely using the optional Pluggable Terminal Block Connectors which are available as a 4-connector kit.

PART NUMBER:

BA/AOM-CONN - Pluggable Terminal Block Kit for AOMs (includes 4 terminal block connectors, see image at right)



Optional Pluggable Terminal Block Kit for AOMs (4 Connectors)

Specifications

Relay Output: 40V (DC or AC peak), 150 mA max.
Off state leakage current 1 uA max.
On state resistance 15Ω max.

Operation:
BA/RYOM: 5 second momentary actuation
BA/RYOL: Latching actuation

Supply Power: 9 to 30 VDC or 17 to 31 VAC

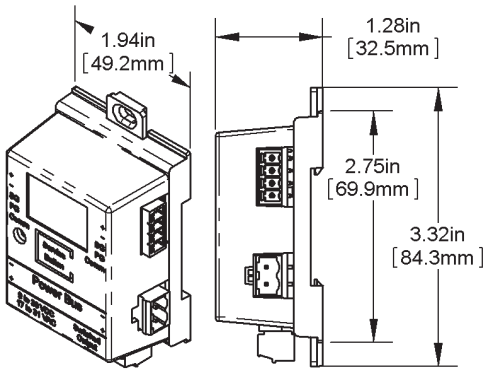
Power Consumption: 15 mA max. (relay on)

Lost Comm. Timeout: 15 minutes (Fast Flash)
Reverts to normal condition, N.O. or N.C.

Bus Cable Distance:
4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

Environmental Operation Range:
Temp: 32°F to 140°F (0°C to 60°C)
Humidity: 5% to 95% RH non-condensing

Material & Material Rating:
ABS Plastic, UL94, V-0



Relay Output Module

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Features & Options

- Rugged Injection Molded
- Compact and Unobtrusive
- Omni-directional Pattern
- Very Low VSWR
- RP-SMA Connectors



900 MHz Dipole Antenna



418 MHz Dipole Antenna

900 MHz Whip Antenna

BAPI provides a broad line of wireless antennas for use with our receivers and repeaters.

The dipole antennas have 79 inch cords for flexibility in mounting. The receiver or repeater may be mounted low for accessibility while the antenna is mounted high for better reception. The long cord length allows the receiver to be mounted in a metal panel but allows the antenna to be outside of the panel for proper reception. An adhesive pad allows the antenna to be mounted on flat nonconductive surfaces such as drywall, windows or ceiling tiles.

The 900 MHz half wave flexible whip is a compact antenna for tight areas.

Ordering Information

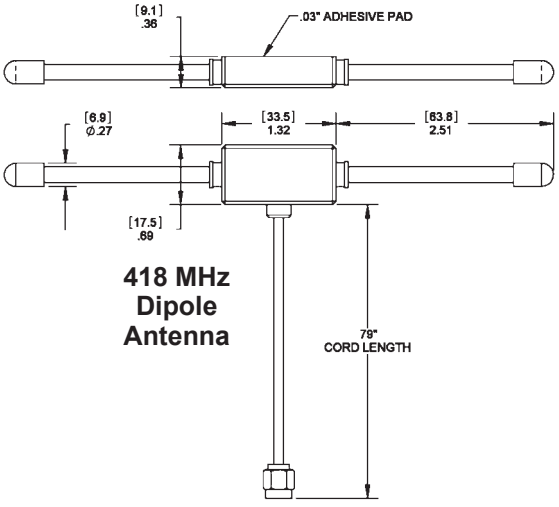
PART NUMBERS:

BA/ANT418..... Dipole, 79 inch cord, 418 MHz
BA/ANT900..... Flexible Whip, 900MHz
BA/ANT900-EA..... Dipole, 79 inch cord, 900 MHz

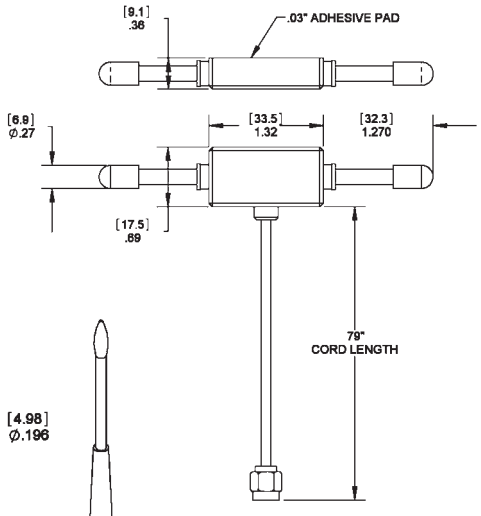
See end of Section F for list pricing.

Specifications

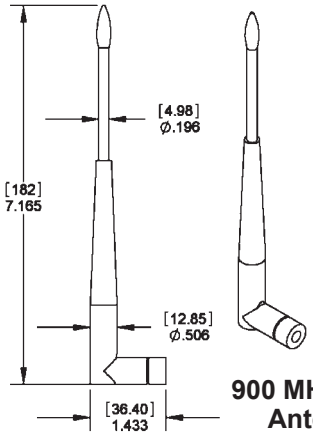
Parameter	418 MHz Dipole	900 MHz Dipole	900 MHz Whip
Center Frequency	418 MHz	916 MHz	925 MHz
Bandwidth	20 MHz	136 MHz	70 MHz
Wavelength	½ Wave	½ Wave	½ Wave
VSWR	≤1.5 typ at center	≤1.5 typ at center	<2
Impedance	50 Ω	50 Ω	50 Ω
Connector	RP-SMA	RP-SMA	RP-SMA
Cable	79" RG-174 coax	79" RG-174 coax	None



418 MHz Dipole Antenna



900 MHz Dipole Antenna



900 MHz Whip Antenna

Wireless Field Verifiers

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- Validates RF operation with a simple site visit
- Identifies radio positions before installation
- Battery operated for easy survey mobility
- 30 Day Loaner
- Automatic battery power management
- LED and beeper indication of performance



418 MHz Verifier

Carrying Case (included)

900 MHz Verifier

The 418 MHz Field Verifier is designed to measure how far the BAPI Wireless Transmitter signal will go in a specific installation. The 418 MHz verifier is equipped with an LED bar graph that indicates the signal strength from a single BAPI 418 MHz transmitter or from all the BAPI 418 MHz transmitters on the job.

The 900 MHz Field Verifier is designed to verify how far the BAPI Repeater signal will go in a specific installation. Each 900 MHz verifier is equipped with an LED and beeper to indicate when it has received a signal from the other verifier. The 900 MHz verifiers are used in pairs with one unit set up as the transmitter and the other unit set up as the receiver.

The verifiers are available as a combined 30 day loaner kit which includes both 418 MHz and 900 MHz units and a carrying case.

Ordering Information

BA/FV-KIT-LOAN - Loaner Combined Field Verifier Kit (includes 418 MHz & 900 MHz Verifiers)*

***Note:** You will receive 100% credit less shipping and handling charges if unit is returned in working order within 30 Days from product ship date

See end of Section F for list pricing.

Specifications

Battery Power: 418 MHz Unit, (2) 3.6 volt Lithium
900 MHz Unit, 9VDC

Auto Off: 418 MHz Unit, 17 minutes
900 MHz Unit, 1 hour

Storage/Operating: 32º to 158ºF (0 to 70ºC)

Frequency/RF-Power/Transmission time

418MHz Unit: 418MHz/ 1mW / ~every 10S
900MHz Unit: 900MHz/100mW / ~ every 1S

Receiver Sensitivity: 418 MHz - 112dBm
900 MHz - 110dBm

Typical open air range: 418 MHz - 100 feet
900 MHz - 1,000 feet

Sound Indication: 50db@5ft beeper (Off selectable)

418MHz Unit Indication: 10 bar LED, ~6db per element

900 MHz Unit Indication: 2 LED's, 1-transmit and 1-recieve

Antenna: Detachable whip (must be installed to operate)

Weight: 0.5 lb (.23kg) per unit

Agency: 418 MHz, FCC ID #T4F060811TEMP
900 MHz, FCC ID #OUR9XSTREAM

Indoor Transmission Range Estimate "Rules of Thumb"

A) Transmitter 0 to 50ft
Will work in open office instances.

B) Transmitter 0 to 100ft
May work but verify.

C) Transmitter >100 ft
Needs a repeater.

D) Repeater 0 to 300ft
Will work in most instances.

E) Repeater 0 to 800ft
May work but verify.

F) Repeater >1,000ft
Needs another repeater.

Wireless Asset Monitor (WAM) Receiver

Wireless Temperature and/or Humidity

Features & Options



- 100 Foot Open Reception Range
- Remote Antenna Option for Optimum Reception
- Surface, Snaptrack or DIN Rail Mounting
- RJ45 and USB-B Communication Connections
- Local or Custom Web-based Sensor Monitoring

The Wireless Asset Monitor (WAM) unit receives data from all BAPI wireless 418 MHz sensor/transmitters. The receiver delivers the data simultaneously to the Universal Serial Bus (USB) output for local use and to the RJ45 Ethernet port for communication with a BAPI WAM Website (see "Associated Products" below) or to a web address of your choice.

Multiple length antennas are available for ease of installation and optimal reception. The EZ mount system allows for DIN rail, snaptrack or surface mounting.

Two software programs and USB drivers are included on a CD. The first program identifies the IP address assigned to the WAM Receiver by the Dynamic Host Configuration Protocol (DHCP) network. The other program runs on the user's computer to locally monitor the wireless sensor/transmitters or to interface with the user's Building Automation System (BAS) equipment.

Ordering Information:	**Description**
BA/RCV418-WAM-EA79-EZ	Wireless 418MHz WAM Receiver with 79" (2m) Dipole Antenna
BA/RCV418-WAM-EA180-EZ	Wireless 418MHz WAM Receiver with 180" (4.5m) Dipole Antenna
BA/RCV418-WAM-WHP-EZ	Wireless 418MHz WAM Receiver with 7" (.18m) Whip Antenna

See end of Section F for list pricing.

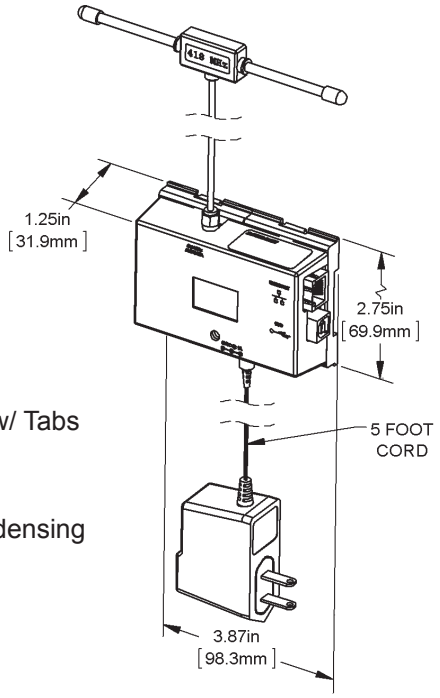
Associated Products - WAM Website



The BAPI WAM website lets the user monitor BAPI wireless sensor/transmitters from anywhere in the world with a customized web browser. The website is password protected and allows full administrative control of locations, users, devices and alerts.

Specifications

Supply Voltage:	AC Receptacle Plug-in Power Supply (provided)
Power cord	5' cord w/ 2.5mm DC power jack
Volts	120VAC converter 5VDC@6W
Outputs:	
Ethernet	RJ45 Jack (10base-T)
Serial	USB-B Jack (USB 2.0)
Termination:	
Ethernet	RJ45 CAT5e straight 5' cable (provided)
Serial	USB-B/USB-A male, 3' cable (provided)
Antenna	RP-SMA Connector
Display Indicator:	One Red LED for Power & Reception
Antenna:	Dipole or Whip
Enclosure Rating:	NEMA 1, (IP 20)
Mounting:	35mm DIN Rail, 2.75"x4" Snaptrack or Surface w/ Tabs
Material:	ABS Plastic, UL94 V-2
Color:	Warm White (WMW)
Ambient:	32º to 140ºF (0º-60ºC) • 5 to 95% RH, Non-Condensing
Agency:	RoHS
Software:	Included
IP Search Program	Identifies Assigned DHCP Network Address
Monitor	Local Computer Wireless Point Monitoring
FTDI Drivers	USB Communication Interface



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Web-based Wireless Asset Monitor (WAM)

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options



- Remote Monitoring from any Internet Connection
- Works with BAPI Wireless Sensors to Monitor Temperature, Humidity, Doors and Motion
- Password Protected Private Website with Live Data, Charts, Trending and Easy-to-Navigate Screens
- User Controllable Alert Parameters
- Text, Voice or Email Alerts
- Custom Reporting via Excel Data Export

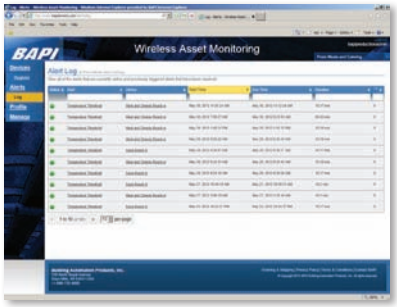
The BAPI Web-based Wireless Asset Monitor (WAM) system allows users to monitor wireless sensors/transmitters from any of the popular web browsers. The WAM website is password protected and provides full administrative control. The WAM website works with any BAPI wireless sensor/transmitter to monitor parameters including temperature, humidity, doors and motion.

The wireless sensor/transmitters send their information to a BAPI WAM Receiver which passes the information on to the WAM Website via a local internet jack. Alert parameters such as high and low temperature or humidity limits can be added to each sensor through the website with alert notifications sent out to selectable recipients via email, phone text, phone call or voice mail.

A demonstration of the system is available at “wam.bapisensors.com”. Enter the User name “bapidemo” and password “bapidemo” to view a live system.



Current Status Screen



Alert Alarm Log Screen



Devices List Screen

Specifications

Computer HW (customer provided):	Must have internet access: Tower, Laptop, Tablet or Smart Phone
Required Supporting Software:	Oracle JAVA or Adobe Flash Player
Web Browsers Supported:	Microsoft Internet Explorer 7, Mozilla Firefox 11, Apple Safari 5.1, Google Chrome v18 (or newer versions of any of these)
Display Screen:	Best with >8” color screen or smart phone
Cell Phones Supported:	All Major Carriers with Text Messaging
New Data Response Time Typical:	
Website Display:	Normally Within 1 Minute
New Point Registration:	Normally Within 5 Minutes
Screen Navigation:	First Level “Device”, “Alerts”, “Profile” or “Manage”
Top	Website Information and Asset Location Name
Left side	Main Navigation Elements
Center Screen	Main Device or Personnel Profile Information
Right Side if shown	Device Status and/or Editing
Remote Site Equipment:	Purchased Separately
Wireless Receiver Gateway	Wireless Asset Monitor (WAM) Receiver
Wireless Point Transmitters	Temperature, Humidity, Analog, Digital
Specialized Sensors	Door Switch and Break Beam

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Ordering Information

Part Number	Description
BA/WAM-10-1	.....10 Monitored Points on Custom WAM Website, 1 year service
BA/WAM-10-2	.....10 Monitored Points on Custom WAM Website, 2 year service
BA/WAM-10-3	.....10 Monitored Points on Custom WAM Website, 3 year service

The maximum number of points per location is based on the transmission interval of the sensors (contact BAPI for more info). To order more than 10 monitored points, increase the quantity of the order. (Example: Ordering 2 of the BA/WAM-10-1 equals 20 monitored points for 1 year.)

The last number in the Part Number (-1) indicates the number of years of service. Multi-year contracts are available in yearly increments ("-2", "-3", "-4", etc.). Pricing multiplies with each year.

Note: There is a maximum of 120 phone call alert messages per year for every 10 sensors included in the price. Beyond the maximum, a $1 charge per phone call alert message will be invoiced at the end of the year. There is no limit on email or text alert messages. Multi-year service will freeze the price over the term of the service order.

See end of Section F for list pricing.

Associated Products - WAM Receiver

The WAM Receiver collects the data from the BAPI wireless sensor/transmitters. The receiver delivers the data simultaneously to the serial ASCII USB output for local use and to the RJ45 Ethernet port for communication with the BAPI WAM Website or web address of your choice.

WAM Receiver



Associated Products - Wireless Sensor/Transmitters

BAPI has a wide range of wireless 418 MHz sensor/transmitters that can be monitored by the WAM Website. Parameters covered by the sensors include temperature, humidity, door switch and break beam. Locations that can be covered include freezers, coolers, storage areas or any other space within the building.

BAPI-Slim Freezer, Cooler or Remote Sensor

BAPI-Stat 2 Room Sensor



BAPI-Box Remote Sensor



Note: Please contact BAPI customer support if your location will include over 100 monitored points.

Wireless Food Temperature Probes

Wireless Temperature and/or Humidity

Rev. 10/16/12

Features & Options

- 100 Foot Open Air Transmission Range
- Integrates with all BAPI Receivers & Output Modules
- 4 Year Battery Life
- Waterproof Construction for Food Service Use
- NSF Certified with Food and Dishwasher Safe Materials
- Fits Most Food Bins
- Many Additional Applications Besides Food

BAPI's Wireless Food Temperature Probes remain in the food trays to measure and transmit the temperature every 30 seconds to a receiver up to 100 feet away. The receiver transforms the data into common outputs (0 to 10V, 0 to 5V, 4 to 20mA or thermistor) for input into any BAS or data acquisition system or the BAPI WAM internet monitoring service.

The food probes eliminate the need for an employee to hand record the temperatures with a thermometer for HACCP compliance. Bin clips are available to fit most stainless steel or plastic food bins. The probe is designed for dishwasher or hand washing.

Because the probes are designed for wet, dusty or dirty environments, there are many additional applications including Cooling Towers, Evaporative Coolers, Steam Humidifiers, Dusty or Wet Conveyer Systems, Aggregate Washers and Vaulted Ceiling Suspension.



3" Bent Probe without Clip | **4" Bent Probe with Black Clip** | **Straight Probe with Black Clip**



Food Probe Inside a Bin

Specifications

Supply Power: One 3.6 VDC Lithium

Battery life: 4 years @ 30 second intervals

Battery Included: BA/BAT-5AA-HIT, 1/2 AA

Sensor: Tip Sensitive Thermistor Probe

Measurement Range: -15° to 110ºC (5° to 230ºF)

Accuracy: ±0.55ºC (±1ºF), from 0º to 100ºC

Environmental Operating Range:
- **SS Probe:** -40º to 110ºC (-40º to 230ºF)
- **Washing Spike Temp:** 100ºC (212ºF) for 8 hours
- **Humidity:** 0 to 100% RH Condensing

Case Material: Food Safe Plastic

Probe Material:
304 Stainless Steel, 1/8" Diameter

Food Bin Bracket: Four Styles
- **SS Bin:** Tip within 3/8" of bottom
- **Plastic Bin:** Tip within 3/8" of bottom

Food Probe Insertion:
2" Minimum into Food, Tip Sensitive

Radio Frequency: 418 MHz @ 1mW

Transmitter Interval: ~30 seconds

Antenna: Spiral type built into case

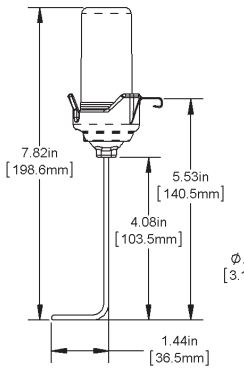
Transmission Range: Up to 100 feet open air
Up to 1,000 feet open air with a repeater

Cleaning: Dishwasher Safe (see Spike Temperature)

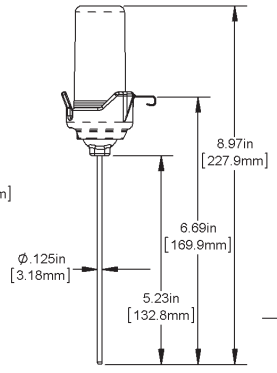
Agency: RoHs & NSF Certified

FCC Approval: FCC ID# T4FSM061025
FCC Rules Part 15, Subpart B

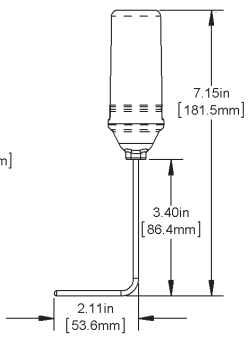
Industry Canada: IC:9067A - SM061025



4" Bent Probe with Clip



Straight Probe with Clip



3.4" Bent Probe without Clip

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Wireless Food Temperature Probes

Food Probe Ordering Information

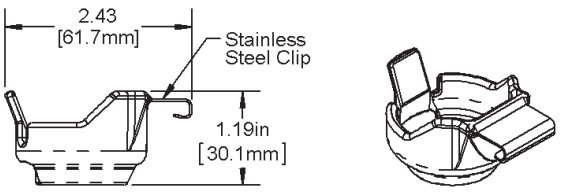
Part Number	Description
BA/WFP-B3	Bent Stainless Steel Probe, 3.4” Insertion with 2.11” Bend
BA/WFP-B4	Bent Stainless Steel Probe 4.1” insertion with 1.4” bend
BA/WFP-S5	Straight Stainless Steel probe 5” insertion

Note: Each Probe includes two round blank Disk Labels.

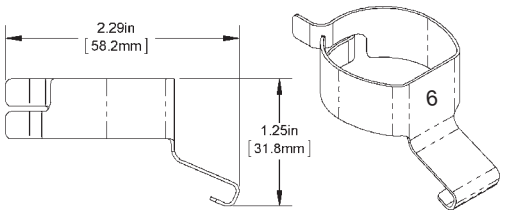
See end of Section F for list pricing.

Accessories Ordering Information

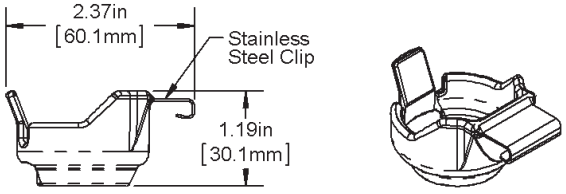
Part Number	Description
BA/FP-CLP4	Fixed Depth Clip for Stainless Steel Square Food Bins (Black Plastic) (Use with B4 or B3 probes for 6” deep bins or S5 probe for 7” deep bins.)
BA/FP-CLP5	Fixed Depth Clip for Plastic Square Food Bins (Amber Plastic) (Use with B4 or B3 probes for 6” deep bins.)
BA/FP-CLP6	Adjustable Depth Clip for Plastic Square Bins (“6” stamp on flat) (Use with B4 or B3 probes for 6” deep bins.)
BA/FP-CLP7	Adjustable Clip for SS Square Bins (“7” stamp on flat) (Use with B4 or B3 probes for 6” deep bins or S5 probe for 7” deep bins.)
BA/FP-CLIP-KIT	Clip Kit (includes 1 each of BA/FP-CLP4, BA/FP-CLP5, BA/FP-CLP6, BA/FP-CLP7)
BA/BAT-5AA-HIT	Replacement Battery, 3.6V, 1/2-AA, High Temperature
BA/FP-O-RING-5	Food Probe O-Ring (5 per package)
BA/UL140	Food Probe Label Sheet, 70 Round Labels (40 numbered 1 to 40 and 30 blanks)
BA/UL-BLANK	Food Probe Label Sheet, 70 Round Blank Labels
BA/FP-LID-16-S	Stainless Food Bin Lid, 6 x 7”, 1/6 Square w/ Ladle and Food Probe Cutout
BA/FP-LID-13-S	Stainless Food Bin Lid, 12 x 7”, 1/3 Square w/ Ladle and Food Probe Cutout
BA/FP-LID-12-S	Stainless Food Bin Lid, 12.75 x 10.4”, 1/2 Square w/ Ladle and Food Probe Cutout
BA/FP-HLID-7Q-R	Stainless Food Bin Hinged Lid, 9” 7-QT Round w/ Ladle and Food Probe Cutout
BA/FP-DP-5	Desiccant Pack (5 per package)
BA/FP-CRT1	Food Probe Plastic Cap Removal Tool



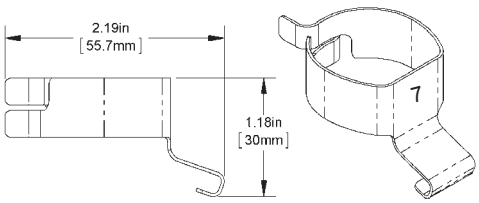
Fixed Depth Clip for Most Plastic Square Bins (Amber Plastic)



Adjustable Depth Bin Clip for Most Plastic Square Bins (“6” stamp on flat)



Fixed Depth Clip for Most Stainless Steel Square Bins (Black Plastic)



Adjustable Depth Bin Clip for Most SS Square Bins (“7” stamp on flat)

Blü-Test™ - Bluetooth Temp & Humidity Probe

Wireless Temperature and/or Humidity

Rev. 06/17/13

Features & Options

- Handheld Probe with Bluetooth Wireless Interface
- Measures Both Temperature and Humidity
- Communicates with Smart Phone or Tablet*
- Blü-Test App for Android OS with Simple Touch Screen Menus
- Emailable Data Logs with Time Stamp and Location

The Blü-Test is a handheld temperature & humidity measurement probe that interfaces wirelessly via Bluetooth to the user's enabled Smart Phone or Tablet. After loading the free Blü-Test App, multiple points can be logged and emailed for easy insertion into the commissioning reporting.

The unit makes it easy to take readings from difficult locations. The 8" probe has a fast measurement time of 2 minutes in slow moving air. Each probe comes with a National Institute of Standards and Technology (NIST) traceable certificate of calibration.

This unit is very simple to use. Just start up the app on your smart phone or tablet, sync the Bluetooth communication with the testing probe, then begin taking measurements. Available with optional carrying case with room for up to four probes.



Blü-Test Probe (right), Blü-Test App screen (top) and optional carrying case.

Ordering Information

Part Number:	Description
BA/BTP-T-RH	Blü-Test Bluetooth Temp/Humidity Probe
BA/BTP-T-RH-C	Blü-Test Bluetooth Temp/Humidity Probe & Carrying Case (room for up to 4 probes)
BA/BTP-RECERTIFY	Blü-Test probe recertification with NIST certificate and battery

See end of Section F for list pricing.

Specifications

Handheld Probe (HHP) Specifications**

Power:.....3.0 to 3.6V 1,000 mAh Battery Included (Replaceable)

Environmental:
- Probe.....-40 to 185°F (-40 to 85°C)
- Plastic.....-22 to 158°F (-30 to 70°C)
- Humidity Overall .....5 to 95% Non-condensing

Probe Measurement Range:
- Temperature:.....-40 to 185°F (-40 to 85°C),
- %RH.....10 to 90% Non-condensing

Battery Life:.....Up to 6 months under normal use
HHP Controls:.....On/Off Button and Auto Off
HHP LED Indicators: ..2 for On/Off and Comm. Status

Typical Accuracy:
- Temperature:.....±0.54°F@77°F (±0.3°C@25°C)
- %RH: .....±2%RH@77°F (25°C)

Specific Accuracy: .....See the provided NIST certificate
%RH Sensor:.....Capacitive Polymer
Temperature Sensor:..Semiconductor Band Gap
Dimensions:.....12" Overall Height
Probe: .....Stainless Steel - 8" Length, .25" Dia.
Enclosure Material: ....Molded Plastic
Communication: .....Bluetooth Class 2

Handheld Probe (HHP) Specifications**

Data Transfer: .....Updates to display every 15 sec
Carrying Case:.....Space for multiple probes
Agency: ..... RoHS, CE, NIST Traceable Cert.
FCC ID: T9J-RN42

Blü-Test Application Specifications

Application Program:
*Android OS 2.3 or higher

Display: On Smart Phone or Tablet
- Measured Data: Temp (°F/°C) & %RH
- Time Stamp: Date and 24 hour time
- Location: Manually entered
- Save: Saves current data, time & location
- Log: Show trend data on screen
- Email: Sends data log to any email address

*Note: A user supplied Bluetooth-enabled Smart Phone or Tablet is required as the display device.

**For complete specifications, see the full instruction manual.

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Page	Part Number	Description	List Price

WIRELESS ROOM TRANSMITTERS

F2	**BA/BS2-WT**	Room Temperature Transmitter	$215
	BA/BS2-WT-O	Room Temperature Transmitter with Override	$220
	BA/BS2-WT-S	Room Temperature Transmitter with Setpoint	$221
	BA/BS2-WT-SO	Room Temperature Transmitter with Setpoint & Override	$226
F3	**BA/BS2-WTH**	Room Temp. & Humidity Transmitter	$265
	BA/BS2-WTH-O	Room Temp. & Humidity Transmitter with Override	$270
	BA/BS2-WTH-S	Room Temp. & Humidity Transmitter with Temp. Setpoint	$271
	BA/BS2-WTH-SO	Room Temp. & Humidity Transmitter with Temp. Setpoint & Override	$276
	BA/LI3620	Lithium Battery, 3.6 Volt (for Wireless Transmitters)	$30

WIRELESS DUCT TRANSMITTERS

F4	**BA/WT-D-4”**	Wireless Duct Temperature Transmitter, 4” Probe Length	$335
	BA/WT-D-8”	Wireless Duct Temperature Transmitter, 8” Probe Length	$335
	BA/WT-D-12”	Wireless Duct Temperature Transmitter, 12” Probe Length	$335
	BA/WT-D-18”	Wireless Duct Temperature Transmitter, 18” Probe Length	$335
	BA/WT-D-XX”*	Wireless Duct Temp. Transmitter, Custom Probe Length	Call
F5	**BA/WTH-D**	Wireless Duct Temperature and Humidity Transmitter	$535
	BA/LI3620	Lithium Battery, 3.6 Volt (for Wireless Transmitters)	$30

*The “XX” represents a custom length of 1/4” diameter, stainless steel probe. Please call BAPI for availability and pricing.

WIRELESS IMMERSION TRANSMITTERS

F6	**BA/WT-I-2”**	Wireless Immersion Temp. Transmitter, 2” Probe Length	$335
	BA/WT-I-4”	Wireless Immersion Temp. Transmitter, 4” Probe Length	$335
	BA/WT-I-8”	Wireless Immersion Temp. Transmitter, 8” Probe Length	$335
	BA/LI3620	Lithium Battery, 3.6 Volt (for Wireless Transmitters)	$30

WIRELESS REMOTE PROBE TRANSMITTERS

F7	**BA/WT-RPP-5’**	Remote Probe with Plenum Rated Cable - 5’ Leads	$347
	BA/WT-RPP-10’	Remote Probe with Plenum Rated Cable - 10’ Leads	$349
	BA/WT-RPP-15’	Remote Probe with Plenum Rated Cable - 15’ Leads	$351
	BA/WT-RPP-20’	Remote Probe with Plenum Rated Cable - 20’ Leads	$353
	BA/WT-RPP-25’	Remote Probe with Plenum Rated Cable - 25’ Leads	$355
	BA/WT-RPFEP-5’	Remote Probe with FEP Jacketed Cable - 5’ Leads	$350
	BA/WT-RPFEP-10’	Remote Probe with FEP Jacketed Cable - 10’ Leads	$355
	BA/WT-RPFEP-15’	Remote Probe with FEP Jacketed Cable - 15’ Leads	$360
	BA/WT-RPFEP-20’	Remote Probe with FEP Jacketed Cable - 20’ Leads	$365
	BA/WT-RPFEP-25’	Remote Probe with FEP Jacketed Cable - 25’ Leads	$370
	BA/LI3620	Lithium Battery, 3.6 Volt (for Wireless Transmitters)	$30

WIRELESS OUTSIDE AIR TRANSMITTERS

F8	**BA/WT-O-BB**	Wireless Outside Air Temperature Transmitter	$335
F9	**BA/WTH-O-BB**	Wireless Outside Air Temperature & Humidity Transmitter	$530
F8-9	**BA/LI3620**	Lithium Battery, 3.6 Volt (for Wireless Transmitters)	$30

Wireless List Pricing

Wireless Temperature and/or Humidity

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Page	Part Number	Description	List Price

THERMOBUFFER

F10-11 **BA/WT-TB-M304-2-BB**
Wireless Thermobuffer, 304 SS Chamber, 2 inch probe, BAPI-Box Enclosure $532

BA/WT-TB-M304-4-BB
Wireless Thermobuffer, 304 SSI Chamber, 4 inch probe, BAPI-Box Enclosure $532

BA/WT-TB-MAL-2-BB
Wireless Thermobuffer, Machined Alum. Chamber, 2 inch probe, BAPI-Box Encl. $472

BA/WT-TB-MAL-4-BB
Wireless Thermobuffer, Machined Alum. Chamber, 4 inch probe, BAPI-Box Encl. $472

BA/LI3620
Replacement Battery, Lithium 3.6V.....$30

BAPI-SLIM WIRELESS TEMPERATURE TRANSMITTER

F12-13 **BA/WFC-x** ..... BAPI-Slim Wireless Temperature Transmitter.....See Datasheet

WIRELESS UNIVERSAL INPUT MODULE

F14 **BA/WAI-05**..... 0-5VDC Analog Input Transmitter, 418MHz.....$315
BA/WAI-10..... 0-10VDC Analog Input Transmitter, 418MHz.....$315
BA/WAI-420..... 4-20mA Analog Input Transmitter, 418MHz $315
BA/WDI..... Digital Input Transmitter, 418MHz.....$315
BA/WTS..... Thermistor Sensor Transmitter, 418MHz $315

418 MHz RECEIVERS

F15 **BA/RCV418-EZ** ..... 418 MHz Receiver (comes with 79” Extendable Antenna).....$300

900 MHz RECEIVERS

F16 **BA/RCV900-EZ** ..... 900 MHz Receiver (comes with Attached Antenna).....$550
BA/RCV900-EA-EZ . 900 MHz Receiver (comes w/ 79” Extendable Antenna) $550

REPEATERS

F17 **BA/RPT49-EZ**..... 418 MHz to 900 MHz Repeater $735
BA/RPT49-EA-EZ.... 418 MHz to 900 MHz Repeater with Extandable Antenna.....$735

RESISTANCE OUTPUT MODULES

F18 **BA/ROM-102-EZ .....** Resistance Output Module, 10K-2 Thermistor Curve $150
BA/ROM-103-EZ ..... Resistance Output Module, 10K-3 Thermistor Curve $150

VOLTAGE OUTPUT MODULES

F19 **BA/VOM-XX*-EZ .....** All Voltage Output Modules $150

*The “XX” represents any of the ranges and outputs from the VOM datasheet. Please fill in the appropriate range and output code for your application in place of the “XX” place holder.

CURRENT OUTPUT MODULES

F20 **BA/COM-XX*-EZ** ..... All Current Output Modules.....$150

*The “XX” represents any of the ranges and outputs from the COM datasheet. Please fill in the appropriate range and output code for your application in place of the “XX” place holder.

Page	Part Number	Description	List Price

SETPOINT OUTPUT MODULES

F21 **BA/SOM-XX*-EZ** ..... All Setpoint Output Modules $150

*The "XX" represents any of the outputs from the SOM datasheet. Please fill in the appropriate output code for your application in place of the "XX" place holder.

RELAY OUTPUT MODULES

F22 **BA/RYOM-NO-EZ**.....Relay Output Module, Normally Open Contacts $150
BA/RYOM-NC-EZ.....Relay Output Module, Normally Closed Contacts $150
BA/RYOL-NO-EZ.....Relay Output Latching, Normally Open Default $150
BA/RYOL-NC-EZ.....Relay Output Latching, Normally Closed Default $150

PLUGGABLE TERMINAL BLOCK KITS

F22 BA/AOM-CONN ..... Pluggable Terminal Block Connectors for Analog Output Modules..... $15
(includes 4 terminal block connectors)

WIRELESS ANTENNAS

F23 **BA/ANT418**..... ¼ wave dipole, 79 inch cord, 418 MHz..... $40
BA/ANT900..... ½ wave flexible whip, 900MHz $40
BA/ANT900-EA ..... ¼ wave dipole, 79 inch cord, 900 MHz..... $40

FIELD VERIFIER KIT LOANER

F24 **BA/FV-KIT-LOAN** .....Loaner Combined Field Verifier Kit (BA/FV418K & BA/FV900K)* .$2,608

***Note:** A separate PO is required for the loaner unit and only loaner units may appear on the PO. After one month, you will be expected to pay the invoice for the loaner units that are not returned. An RMA will be issued at the time of the loan so that the loaner unit can be returned expeditiously. You will receive 100% credit less shipping and handling charges if the unit is returned in working order within 30 Days from product ship date.

WIRELESS ASSET MONITORING (WAM) RECEIVER

F25 **BA/RCV418-WAM-EA79-EZ** ....418MHz WAM Receiver w/ 79" (2m) Dipole Antenna..... $715
BA/RCV418-WAM-EA180-EZ ..418MHz WAM Receiver w/ 180" (4.5m) Dipole Antenna. $755
BA/RCV418-WAM-WHP-EZ.....418MHz WAM Receiver w/ 7" (.18m) Whip Antenna..... $735

WIRELESS ASSET MONITORING (WAM) WEBSITE

F26 **BA/WAM-10-1**..... 10 Monitored Points on WAM Website, 1 year service $240
BA/WAM-10-2..... 10 Monitored Points on WAM Website, 2 year service $480
BA/WAM-10-3..... 10 Monitored Points on WAM Website, 3 year service $720

Note: Pricing above is based on a charge of $2 per point per month in increments of 10. The maximum number of points per location is based on the transmission interval of the sensors (contact BAPI for more info). To order more than 10 monitored points, increase the quantity of the order. (Example: Ordering 2 of the BA/WAM-10-1 equals 20 monitored points for 1 year.)

The last number in the Part Number (-1) indicates the number of years of service. Multi-year contracts are available in yearly increments ("-2", "-3", "-4", etc.). Pricing multiplies with each year.

Gray shaded items follow the Buy and Resale Multiplier.

Wireless List Pricing

Wireless Temperature and/or Humidity

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WIRELESS FOOD PROBE & ASSOCIATED PRODUCTS

F28	**BA/WFP-B3**	Bent Stainless Steel Probe, 3.4” Insertion with 2.11” Bend	$300
	BA/WFP-B4	Bent Stainless Steel Probe 4.1” insertion with 1.4” bend	$300
	BA/WFP-S5	Straight Stainless Steel probe 5” insertion	$300
	BA/FP-CLP4	Fixed Depth Clip for Stainless Steel Square Food Bins (Black Plastic) (Use with B4 or B3 probes for 6” deep bins or S5 probe for 7” deep bins.)	$15
	BA/FP-CLP5	Fixed Depth Clip for Plastic Square Food Bins (Amber Plastic) (Use with B4 or B3 probes for 6” deep bins.)	$15
	BA/FP-CLP6	Adjustable Depth Clip for Plastic Square Bins (“6” stamp on flat) (Use with B4 or B3 probes for 6” deep bins.)	$25
	BA/FP-CLP7	Adjustable Clip for SS Square Bins (“7” stamp on flat) (Use with B4 or B3 probes for 6” deep bins or S5 probe for 7” deep bins.)	$25
	BA/FP-CLIP-KIT	Clip Kit (includes 1 each of BA/FP-CLP4, BA/FP-CLP5, BA/FP-CLP6, BA/FP-CLP7)	$75
	BA/BAT-5AA-HIT	Replacement Battery, 3.6V, 1/2-AA, High Temperature	$15
	BA/FP-O-RING-5	Food Probe O-Ring (5 per package)	$15
	BA/UL140	Food Probe Label Sheet, 70 Round Labels (Numbered 1 to 40 and 30 Blanks)	$20
	BA/UL-BLANK	Food Probe Label Sheet, 70 Blank Labels	$20
	BA/FP-LID-16-S	Stainless Food Bin Lid, 6 x 7”, 1/6 Square w/ Ladle and Food Probe Cutout	$44
	BA/FP-LID-13-S	Stainless Food Bin Lid, 12 x 7”, 1/3 Square w/ Ladle and Food Probe Cutout	$53
	BA/FP-LID-12-S	Stainless Food Bin Lid, 12.75 x 10.4”, 1/2 Square w/ Ladle & Food Probe Cutout	$60
	BA/FP-HLID-7Q-R	Stainless Food Bin Hinged Lid, 9” 7-QT Round w/ Ladle and Food Probe Cutout	$54
	BA/FP-DP-5	Desiccant Pack (5 per package)	$10
	BA/FP-CRT1	Food Probe Plastic Cap Removal Tool	$15

BLÜ-TEST TEMPERATURE AND HUMIDITY PROBE

F30	**BA/BTP- T-RH**	Blü-Test Bluetooth Temp/Humidity Probe (Free Download App)	$500
	BA/BTP- T-RH-C	Blü-Test Bluetooth Temp/Humidity Probe & Carrying Case (with room for 4 probes)	$535
	BA/BTP-RECERTIFY	Blü-Test probe Recertification with NIST Certificate and Battery	$165

Gray shaded items follow the Buy and Resale Multiplier.

Building Automation Products, Inc. • 750 North Royal Avenue, Gays Mills, WI 54631 USA
Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • Email: sales@bapihvac.com • Web: www.bapihvac.com

ETA Product Line Overview

BAPI's **E**lectronic **T**echnician **A**ssistant (ETA) products are a uniform line of interface and communication devices that complement a DDC installation. They consolidate many of the components being used at present and provide a more complete picture of the system than a laptop computer alone.

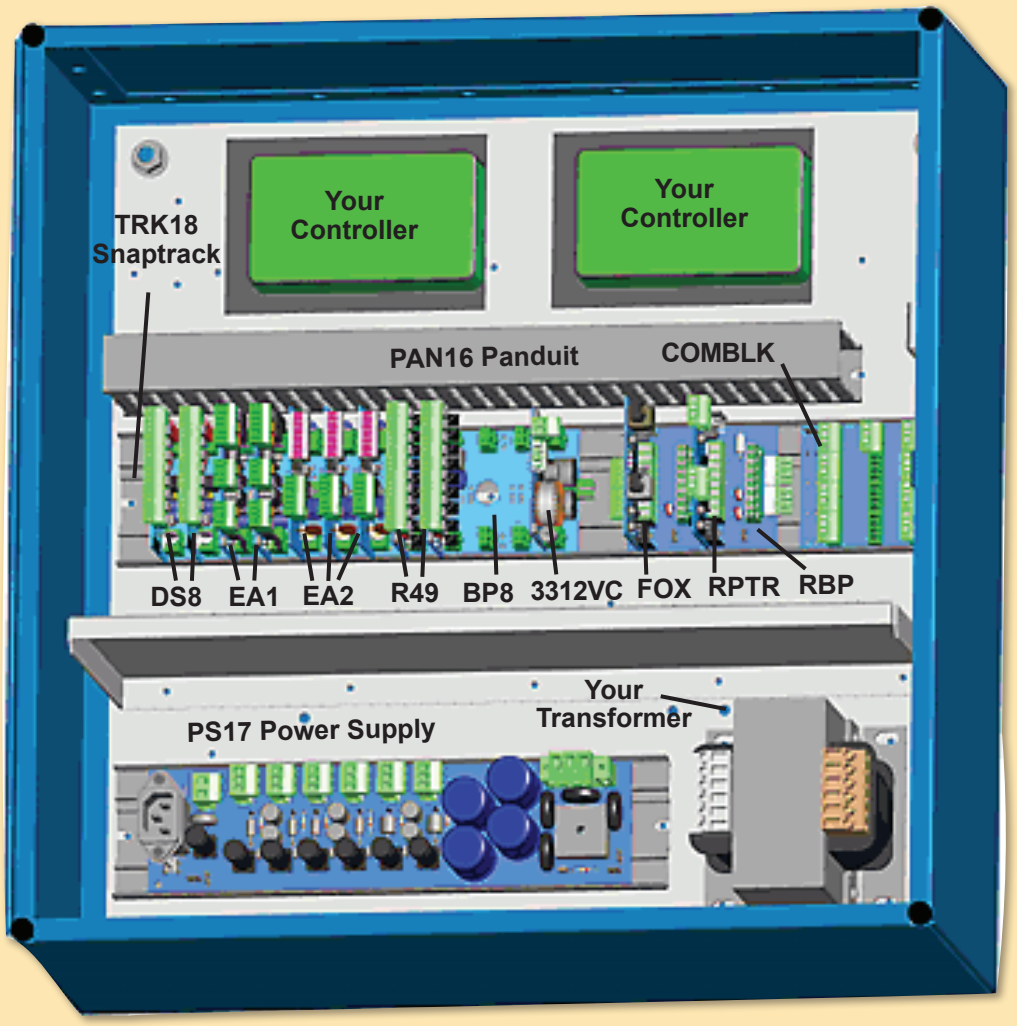
The ETA line offers a number of benefits including simplifying the task of wiring and troubleshooting the system, cutting down on control panel clutter and providing additional feedback to the facilities manager and technician.

The ETA devices simplify wiring and troubleshooting by providing a screw terminal for each and every wire in the system – communications, sensing or control. All the screw terminals are pluggable, making it easy to break the system into sections to quickly isolate a problem.

The ETA devices cut down on control panel clutter because they plug into specially designed backplanes which distribute power through the mounting connectors, greatly reducing the number of wires in the panel. The backplanes are also powered by a single power supply and mount the ETA modules vertically to save space and allow straightforward access to displays, wiring connectors and switches.

The ETA devices provide additional feedback because they are a practical and inexpensive way to pick up feedback signals which are currently ignored in many systems, such as non-critical alarm points or actuator feedback signals. Having convenient LED display of these signals at the control panel, or summarizing multiple feedback signals into a single input to the controller, provides a more complete picture of the system than a laptop computer alone, helping the facilties manager and technicians keep the system performing at its optimum level.

ETA interface devices and controllers in a control panel.



20x20x8 Steel Enclosure

Table of Contents

ETA Line

Rev. 10/16/12

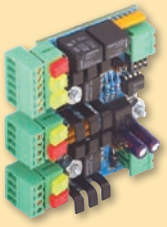
DS8 - Discrete Summary Module, pg. 4



Summarizes up to 8 alarm points and sends out a single signal to the controller when the number of alarms reaches a user-defined threshold. It's great for grouping alarms which you will want to distinguish in the field, but don't need to distinguish on the central computer.

EA1 - 2 Position Actuator Interface, pg. 5

Simplifies the wiring and troubleshooting of Belimo® style 2-position actuators with auxiliary switch position feedback. The LEDs on the EA1 let the technician determine at a glance whether the actuators are in the positions specified by the controller.



EA2 - Modulating Actuator Interface, pg. 6



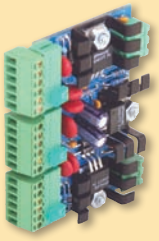
Simplifies the wiring and troubleshooting of Belimo® style actuators with voltage feedback. The technician no longer needs to gain physical access to the actuator to determine if it is in the correct position. The EA2 shows the actuator position, and with the push of a button, shows the position that the controller is requesting.

OAM - Output Adjust Module, pg. 7

Moving an actuator throughout its range of motion often require a laptop computer, communications interface and special software. However, an OAM in conjunction with an EA2 module lets you to stroke the actuator to any position without any additional equipment.



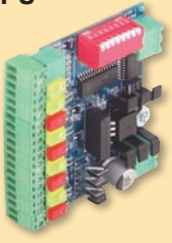
CDSP - CO_2 Sensor Power Supply, pg. 8



CO_2 sensors require special voltages and additional terminations to land the wiring. The extra power supplies, wiring and terminations can clutter up the panel or the control room. This module removes the clutter by providing the power and terminations for up to three CO_2 sensors.

SQ4 - Four-Step Sequencer, pg. 9

Simplifies proportional control by sequencing multiple on-off devices based on a single analog output from the controller. Cooling towers with multiple two-speed fans, staged electric heat units and multi-compressor chillers can be controlled to provide the utmost efficiency and consistency for the load at hand.



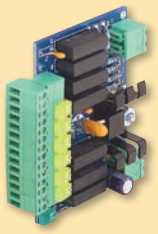
R49 - Relay Interface, 9 Output, pg. 10



If you want to perform several tasks at once – for example, turn on an auxiliary supply fan and exhaust fan, open purge dampers and close return dampers. Rather than tying up 4 I/O spots, the R49 conserves critical controller space by turning on or off up to 9 relays using only one controller output.

DS6R - Dry Switch Monitor, pg. 11

The DS6R module monitors six dry switch closure devices and provides one resistive output to the controller. Each switch closure subtracts a precise resistance from the output so a simple subtraction algorithm at the controller decodes which switches are set.



PMPB5, TS1 & TS2 Modules, pg. 12

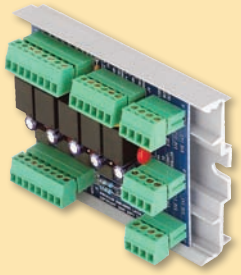


PMPB5 - Provides electrical isolation between the controller and the pulse output from electrical, water or gas meters.

TS1 & TS2 - Protects HVAC control systems from electrical transients (temporary excess voltage) from various sources.

TURB - Terminal Unit Relay Board, pg. 13

The TURB - Terminal Unit Relay Board is an interface board that allows convenient interconnection between a Controller and a DX unit thermostat terminal block.



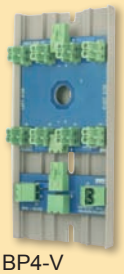
Backplanes, pgs. 14-15



BP4 Backplane

The Backplanes provide mounting and power for the ETA modules, cutting down on control panel and control room clutter.

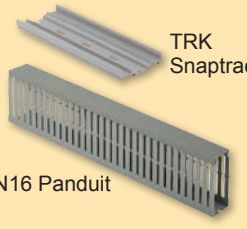
The Vertical Backplane allows the use of small vertical spaces that may go unused.



BP4-V Vertical Backplane

TRK Snaptrack & PAN16 Panduit, pg. 16

Provides a sturdy, secure and easy mounting method for the ETA line. The PAN16 guides the wire to the ETA device, keeping clutter out of the control panel.

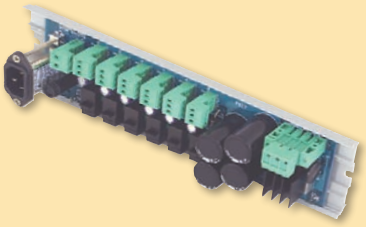


TRK Snaptrack

PAN16 Panduit

PS17 & PS17CB - Power Supplies, pg. 17

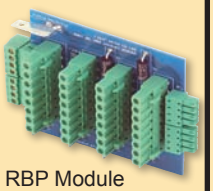
Each PS17 provides up to 6 fused or breakered 33 VDC power supplies to operate any of the ETA modules (except the FOX & RPTR RS-485 communication modules).



RBP - Comm. Repeater Backplane, pg. 26
SRBP - Single Repeater Backplane, pg. 27

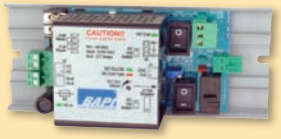
The RBP - Distributes power and communications for up to four FOX and RPTR RS-485 communications modules.

The SRBP - Provides a convenient single repeater solution for FOX and RPTR RS-485 communications.



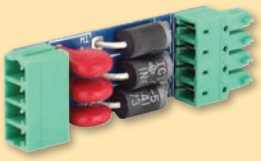
RBP Module

VC2700-STM - 2.7 Amp Voltage Converter & LVTM & TB4-VC100 Accessories, pg. 18-19



A versatile 2.7 amp voltage converter that converts 18 to 30 VAC to a regulated and adjustable output of 3 to 26 VDC, plus two accessories modules to expand the VC2700-STM functionality.

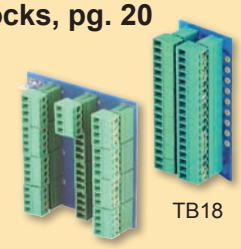
COMSRG - Comm. Surge Protector, pg. 28



The transient protection on the controller terminals is sometimes inadequate. Examples are roof mounted air handlers or pad mounted air conditioners or chillers. The COMSRG provides the extra protection to prevent damage.

COMBLK & TB18 Terminal Blocks, pg. 20

Small circuit board terminal blocks that simplify the termination of wiring. The COMBLK contains 4 independent RS-485 circuits with 3 connectors - one for bus in, one for bus out and a third for wiring to the controller. The TB18 has pluggable terminal blocks for 9 pairs of wires.

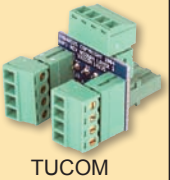


TB18

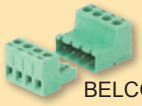
COMBLK

BELCON - Mating Pair Belimo® Connectors, TUCOM - Term. Unit Comm. Block, pg. 29

The TUCOM adds 3 pluggable terminals to the communications port of the Carrier® Comfort System controller to simplify wiring. The BELCON allows a 4-pole pluggable connection between a peripheral and controller so you can disconnect the peripheral without fear of shorting wires.



TUCOM



BELCON

3312VC - Voltage Converter, pg. 21



The RS-485 Communications Repeater (RPTR) and the Fiber Optic Transceiver (FOX) require 12VDC power. The 3312VC converts the 33 VDC from the PS17 and PS17CB power supplies into the 12 VDC required by the RPTR and FOX.

Steel Enclosures, pg. 30-32

BAPI offers steel enclosures in three sizes, alng with Backplates & Cable Guides, designed to accomodate all ETA devices.

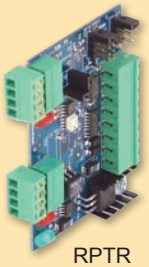


32"x20"x8" Enclosure

RPTR - RS-485 Repeater, pg. 22

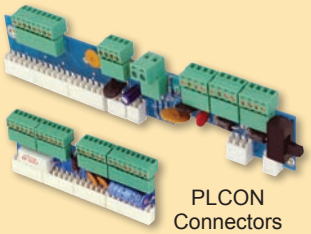
Standard RS-485 communications are limited to 32 unit loads and 4,000 feet. Each RPTR module allows an additional 32 unit loads or 4,000 feet.

BAPI also offers a **REPEATER KIT** which provides all the functions for one repeater and remote RS-485 network - **pg. 23**



RPTR

PLCON1 & 2 - PremierLink™ Connectors, pg. 33

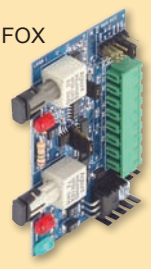


PLCON Connectors

Simplifies the wiring of Carrier® PremierLink rooftop controllers. The modules slip onto terminals on the controller and provide labeled, pluggable screw terminals for all I/O as well as a power switch with pilot light.

FOX - RS-485 Fiber Optic Transceiver, pg. 24

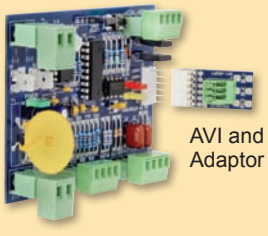
FOX



The FOX module converts the RS-485 data from the controller to a fiber optic signal for transmission to other buildings. It also converts the fiber optic signal back into RS-485 for distribution to controllers.

BAPI also offers a **FOX COMM. KIT** with all the functions for one fiber optic and remote RS-485 network - **pg. 25**

AVI - Air Valve Interface and Adaptor, pg. 34-35



AVI and Adaptor

The AVI module connects long-running jack-screw style Variable Air Volume floating point actuators with mechanical end switches to DDC controllers.

The **AVI Adaptors** connect a VAV actuator cable when the factory installed connector is missing.

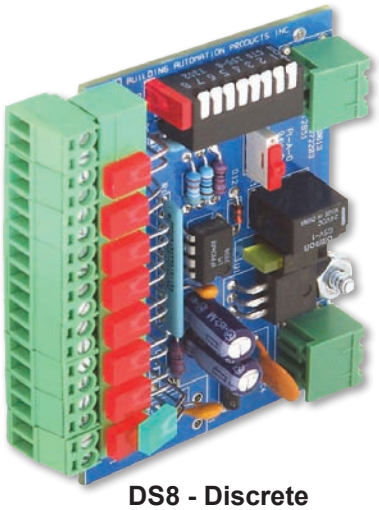
DS8 - Discrete Summary Module

ETA Line

Rev. 10/16/12

Overview

The number of discrete switch closure inputs required in an HVAC system often exceeds the number of hardware inputs available (or justifiable) on the controller. Summarizing multiple discrete points into a single system input is an easy and effective solution. The DS8 module accepts up to eight dry contacts and provides a single dry contact signal to the controller when the number of monitored points reaches a user-defined threshold.



DS8 - Discrete Summary Module

The DS8 is great for grouping alarms which you will want to distinguish in the field, but don't need to distinguish on the central computer. Examples include dirty filter alarms, condensate float switches, VFD faults, moisture monitors, door switches, etc. A technician can glance at the DS8 and quickly determine which filter to change; which drain to check or which VFD to inspect.

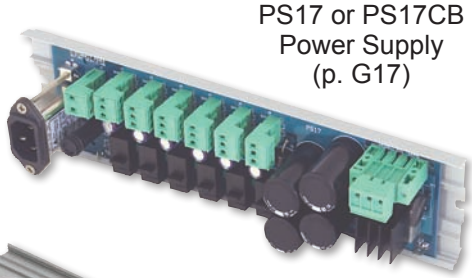
The DS8 plugs into the BP4 or BP8 backplane and accepts up to eight independent dry switch contacts on easy-to-use connectors at the front of the module. Each input has an LED to indicate when the contact is closed. An eight-position DIP switch allows the user to set the alarm threshold. The output is also user switchable to a NO or NC dry contact.

The DS8 can also be used to monitor multiple auxilliary contacts when multiple discrete points are controlled using a R49. Typical applications include lighting controls and small fan controls.

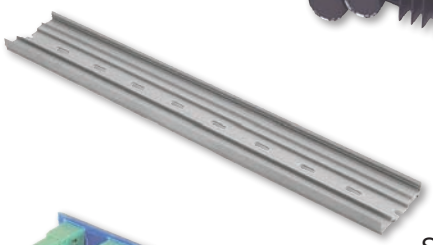
Part Number	**Description**
BA/DS8	Discrete Summary Module, 8 Input

See end of Section G for list pricing.

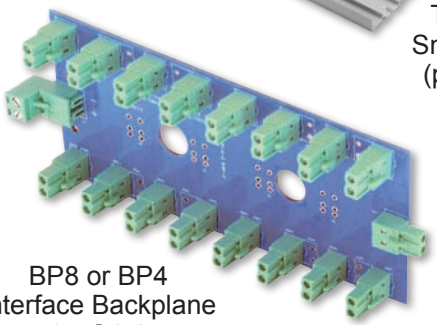
Associated Products



PS17 or PS17CB Power Supply (p. G17)

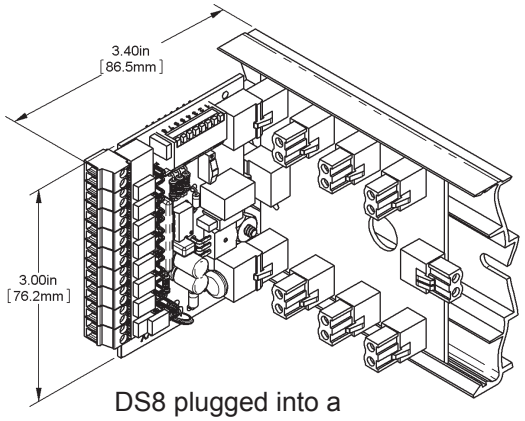


TRK18 Snaptrack (p. G16)



BP8 or BP4 Interface Backplane (p. G14)

Specifications



DS8 plugged into a BP4 Backplane

Power Voltage: 24 to 35 VDC
22 to 26 VAC

Power Current: 35 mA max. (1.2VA max)

Switch Voltage: 24 VDC

Switch Current: 2.4 mA

Output: Dry relay contacts
NEC Class 2 circuits only

Output Current: 1 mA to 1 Amp

Building Automation Products, Inc. • 750 North Royal Avenue, Gays Mills, WI 54631 USA
Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • Email: sales@bapihvac.com • Web: www.bapihvac.com

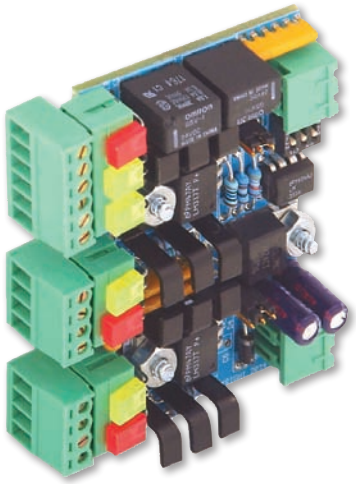
EA1 - Two Position Actuator Interface

Overview

The EA1 simplifies the wiring and troubleshooting of "Belimo®" style two-position actuators with end switch position feedback. Each EA1 module can control two actuators from a single controller output and provide a summary dry contact status when a user-selectable number of end switches close (1,2, or more). The actuators can move together or in opposite directions based on jumper settings on the module. An additional end switch input allows multiple EA1s to be cascaded together.

The connectors on the front of the EA1 module are readily accessible and make terminations quick and easy for the controller, actuators and actuator end switches. The red and amber LEDs on the EA1 indicate when power is being supplied to the actuators and when they have reached their end states. These LEDs tell the technician the state of the controller output, when power is being sent to the actuators and if the actuator end switch is closed.

The EA1 plugs into a BP4 or BP8 backplane. A green LED on the EA1 indicates when power is present.



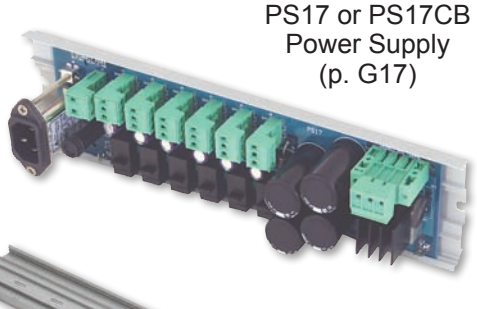
EA1 - Two Position Actuator Interface

Part Number	Description
BA/EA1	2 Position Actuator Interface

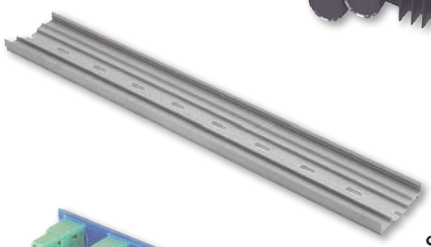
See end of Section G for list pricing.

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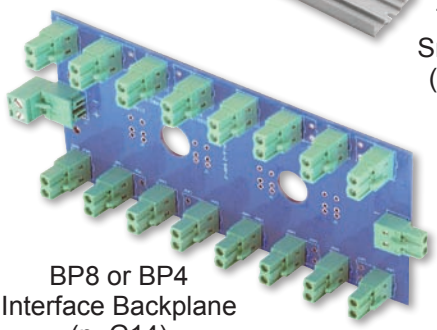
Associated Products



PS17 or PS17CB Power Supply (p. G17)

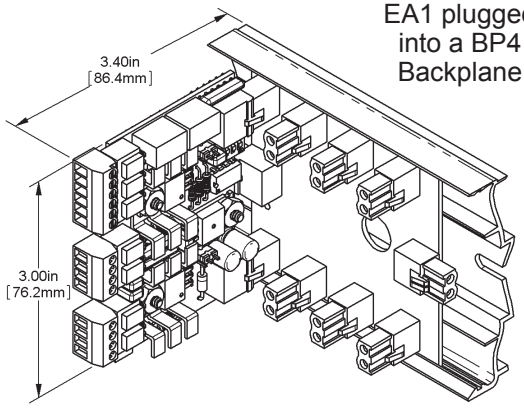


TRK18 Snaptrack (p. G16)



BP8 or BP4 Interface Backplane (p. G14)

Specifications



EA1 plugged into a BP4 Backplane

Power Voltage: 26 to 36 VDC

Power Current: 50 mA max. plus actuators (1.7 VA max plus actuator)

Actuator Control Voltage: 0 or 24 VDC @ 7mA max

Actuator Power Voltage: 24 VDC

Actuator Power Current: 2 output of 250 mA max. (12 Watts total)

EA2 - Modulating Actuator Interface

ETA Line

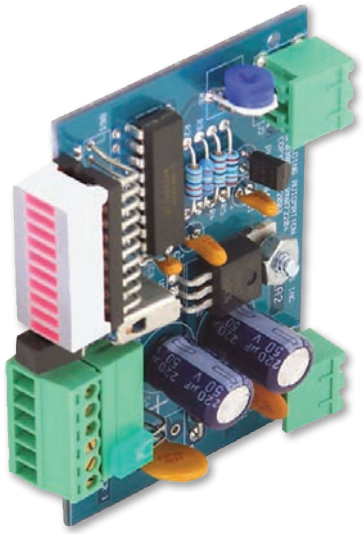
Rev. 10/16/12

Overview

The EA2 simplifies the wiring and troubleshooting of "Belimo®" style modulating actuators with voltage feedback, saving time and money every time you install or check an actuator. The connector plug on the front of the EA2 module makes terminations quick and easy for the controller and the actuator. The four actuator wires and the controller's output signal terminate on the connector plug. The EA2 provides regulated and fused power for the actuator from the backplane.

The EA2 module is an excellent troubleshooting tool because the technician does not need to gain physical access to the actuator to determine if the actuator is in the correct position. The EA2 display shows the actuator position based on the actuator's feedback signal. An easy push of a button on the EA2 and the display shows the position which the controller is requesting. Troubleshooting is a simple comparison of the two. If they don't match, you have a problem; the actuator is either stuck, manually overridden, not terminated properly or dead.

The EA2 plugs into a BP4 or BP8 backplane. A green LED on the EA2 indicates when power is present.



EA2 - Modulating Actuator Interface

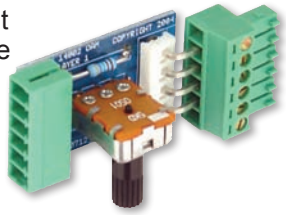
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Part Number	Description
BA/EA2	Modulating Acuator Interface

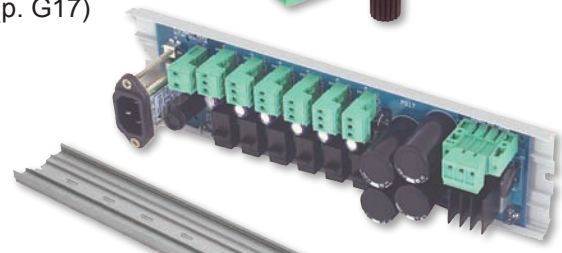
See end of Section G for list pricing.

Associated Products

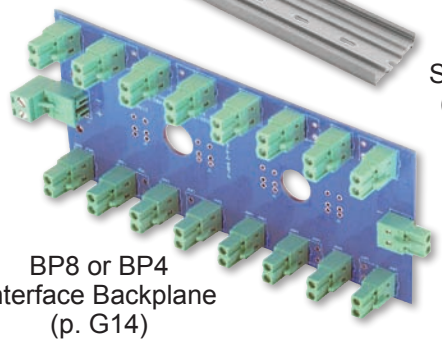
OAM - Output Adjust Module (p. G7)



PS17 or PS17CB Power Supply (p. G17)



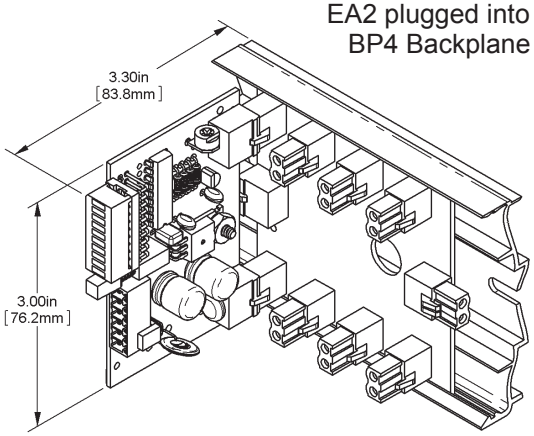
TRK18 Snaptrack (p. G16)



BP8 or BP4 Interface Backplane (p. G14)

Specifications

EA2 plugged into a BP4 Backplane



Power Voltage: 26 to 35 VDC
20 to 26 VAC

Power Current: 50 mA max. plus actuators
(1.7 VA max plus actuator)

Actuator Control Voltage: 2 to 10 VDC

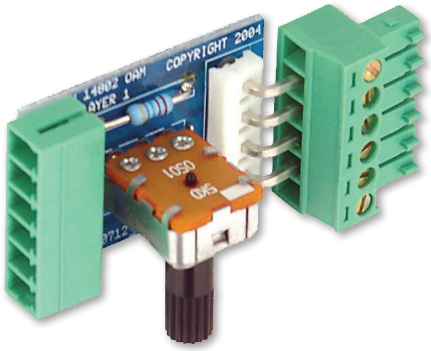
Actuator Power Voltage: 24 VDC

Actuator Power Current:
500 mA max (12 Watts total)

Overview

Many times, it is necessary to move an actuator throughout its entire range of motion to troubleshoot the mechanical linkage. In DDC systems, this procedure may require a laptop computer, communications interface and special software. Then you have to know which controller to interface with, that controller's individual address and which output connects to the actuator you need to troubleshoot. Now the battery is going dead on your laptop and there is nowhere to plug in the charger.

There is a better way. If you use the EA2 module (p.G6) to drive your modulating actuators, the OAM (Output Adjust Module) accessory allows you to stroke your actuator to any position without any additional equipment. Simply plug the actuator cable into the OAM and then plug the OAM into the EA2. Turning the knob on the OAM allows you to set the actuator's position anywhere in its range. Push the button on the EA2 to see your commanded position, release the button to see the actuator's position.

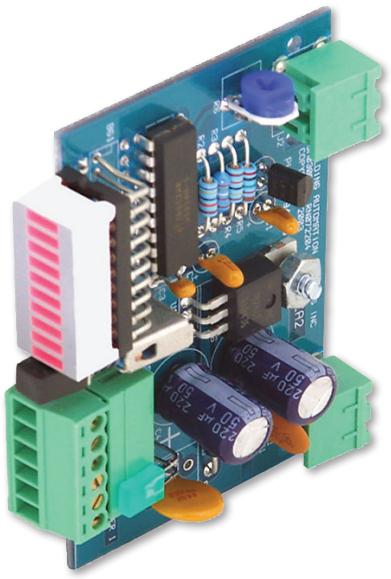


OAM - Output Adjust Module

Part Number	Description
BA/OAM	Output Adjust Module

See end of Section G for list pricing.

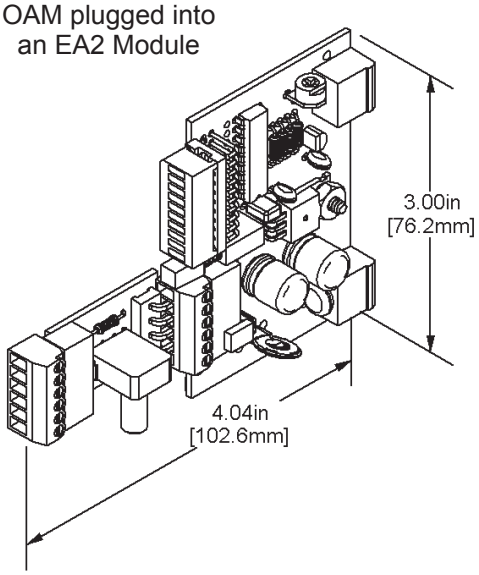
Associated Products



EA2 - Modulating Actuator Interface (p. G6)

Specifications

OAM plugged into an EA2 Module



Input Voltage: 24VDC

Output Power Voltage: 0-10 VDC nominal

Output Power Current: 2 mA

CDSP - Carbon Dioxide Sensor Power Supply

ETA Line

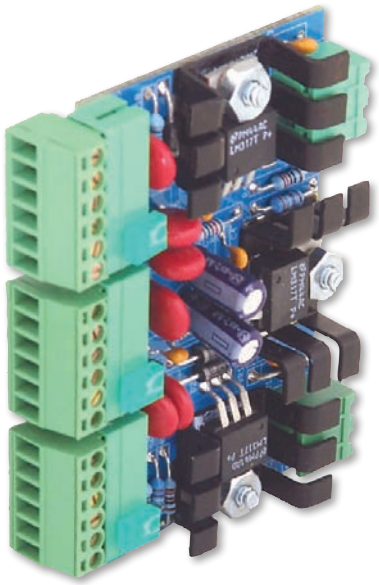
Rev. 10/16/12

Overview

Many facilities use Carbon Dioxide (CO_2) sensors for demand-controlled ventilation. Although BAPI makes CO_2 sensors that can run on AC or DC power, other CO_2 sensors typically require 24 VDC to operate and additional terminations to land the wiring. The extra power supplies, wiring and terminations can clutter up the control panel or the control room.

The BAPI CDSP module removes the clutter and the wiring hassles by providing the power and terminations for up to three CO_2 sensors. Additional CDSP modules can be mounted neatly in the associated backplane to accommodate an unlimited number of CO_2 sensors throughout the facility.

The CDSP module plugs into a BP4 or BP8 backplane. Three green LEDs indicate when power is present to the CO_2 sensors. Another green LED indicates when power is present to the CDSP module. The CDSP can be used to power virtually any four-wire sensor requiring 24 VDC.

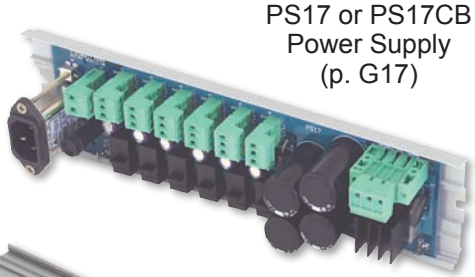


CDSP - Carbon Dioxide Sensor Power Suppy

Part Number	Description
BA/CDSP	Carbon Dioxide Sensor Power Supply

See end of Section G for list pricing.

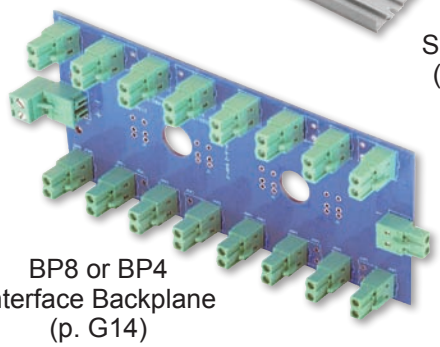
Associated Products



PS17 or PS17CB Power Supply (p. G17)

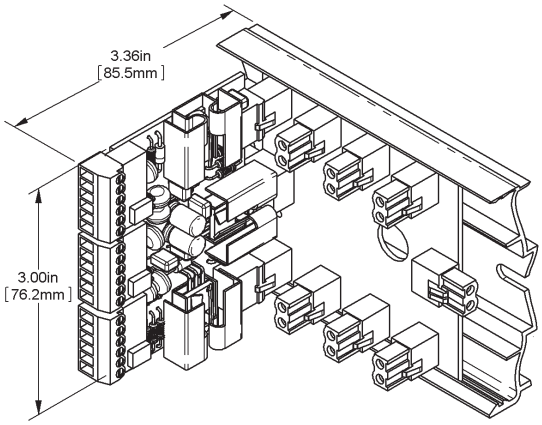


TRK18 Snaptrack (p. G16)



BP8 or BP4 Interface Backplane (p. G14)

Specifications



CDSP plugged into a BP4 Backplane

Input Voltage: 26 to 36 VDC

Input Current: 350 mA max. (12 VA max.)

Output Voltage: 24 VDC

Output Current: 75 mA on each output (225 mA total)

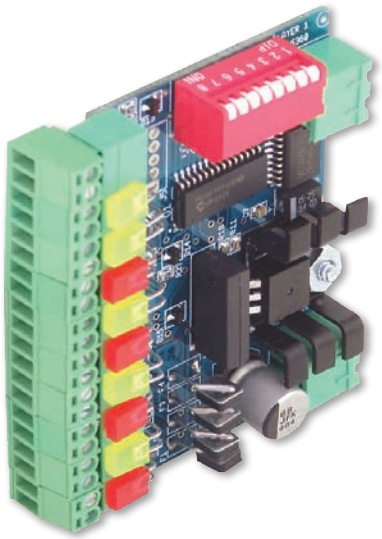
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Overview

The high cost of energy today makes proportional control of HVAC systems a necessity, not a luxury. With proportional control you use only the energy needed to get the job done.

Proportional control is easy for water valves and air dampers, but more complex and cost prohibitive for electric heat units, fans and refrigeration systems. The SQ4 module simplifies the job by sequencing multiple on-off devices based on a single analog output from the controller. Now items such as cooling towers with multiple two-speed fans, staged electric heat units and multi-compressor chillers can be controlled to provide the utmost efficiency and consistency for the load at hand – all at a reasonable price.

Each SQ4 module provides four NO/NC output relays that trigger at four fixed voltages across the 0-5 or 0-10 control voltage range. Two SQ4 modules can be cascaded to provide eight independent output stages. When closed, each output relay provides 24 VDC at 120 mA. In addition, sequencer modules are available that provide a rotational sequence as well as contact monitoring and alarm output.

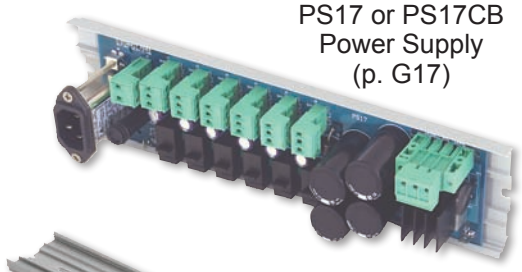


SQ4RA - Four-Step Sequence Module

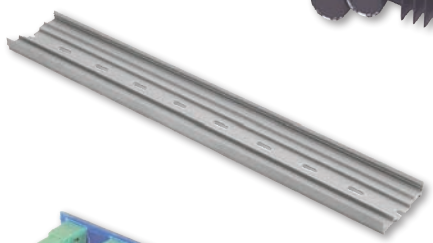
Part Number	Description
BA/SQ4	4-Step Sequence Module
BA/SQ4-R	4-Step Sequence Module (Rotational)
BA/SQ4-A	4-Step Sequence Module (with Alarm)
BA/SQ4-RA	4-Step Sequence Module (Rotational with Alarm)

See end of Section G for list pricing.

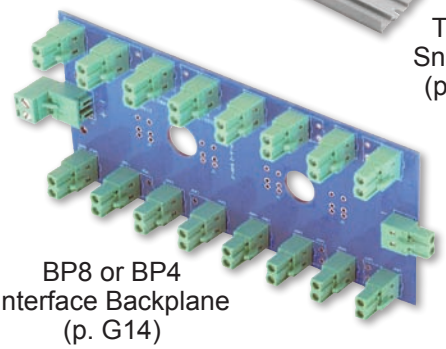
Associated Products



PS17 or PS17CB Power Supply (p. G17)

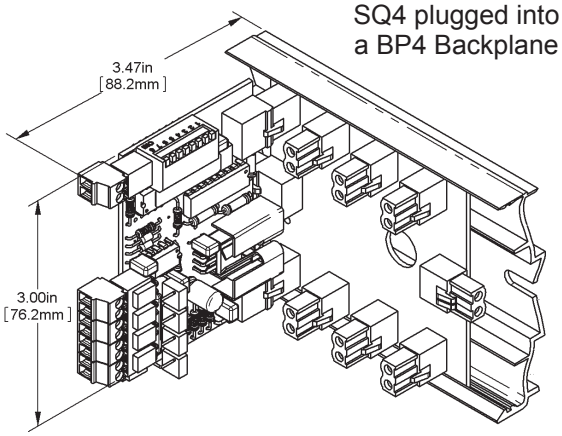


TRK18 Snaptrack (p. G16)



BP8 or BP4 Interface Backplane (p. G14)

Specifications



SQ4 plugged into a BP4 Backplane

Power Voltage: 26 to 36 VDC

Power Current: 50 mA max. plus output (1.7 VA max plus output)

Input Control Voltage: 0-5 or 0-10 VDC

Output Power Voltage: nominal 24 VDC (23-32 VDC)

Output Power Current: 4 outputs of 120 mA max. (12 Watts total)

R49 - Relay Interface, 9 Output

ETA Line

Rev. 10/16/12

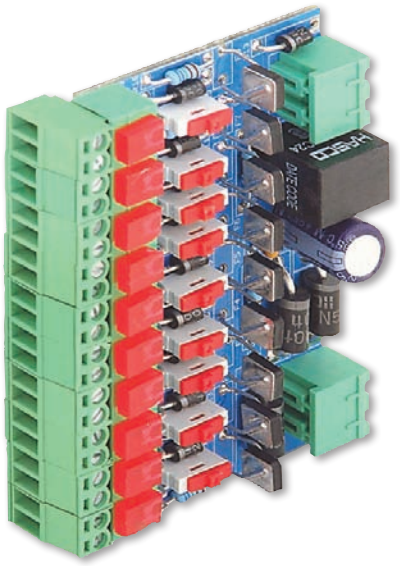
Overview

It is often necessary to perform several tasks simultaneously in an HVAC system – for example, turn on an auxiliary supply fan, turn on an exhaust fan, open purge dampers and close return dampers. Rather than tying up four I/O spots on the controller to perform these tasks, the BAPI R49 conserves critical controller space by turning on or off up to nine relays using only one controller output.

Each output on the R49 module has a polarity switch so that some loads may be turned off while others are turned on as the input changes state.

Each R49 output supplies a nominal 24 VDC at 120 mA allowing it to control most common relays or small contactors. Each output has a red LED to indicate when power is present.

The R49 plugs into a BP2, BP4 or BP8 Backplane. A green LED indicates that power is present to the module.

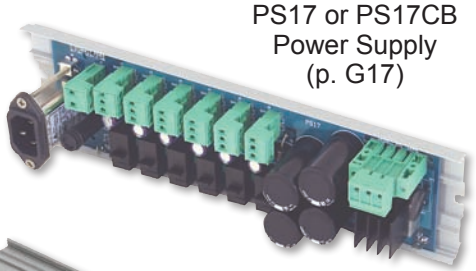


R49 - Relay Interface

Part Number	Description
BA/R49	Relay Interface Module, 9 Output

See end of Section G for list pricing.

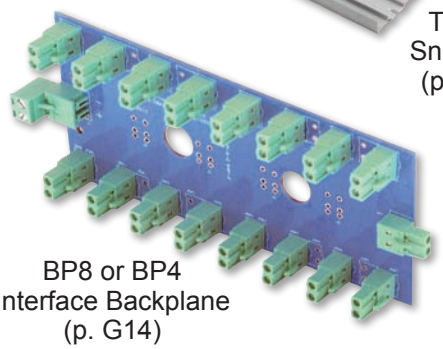
Associated Products



PS17 or PS17CB Power Supply (p. G17)

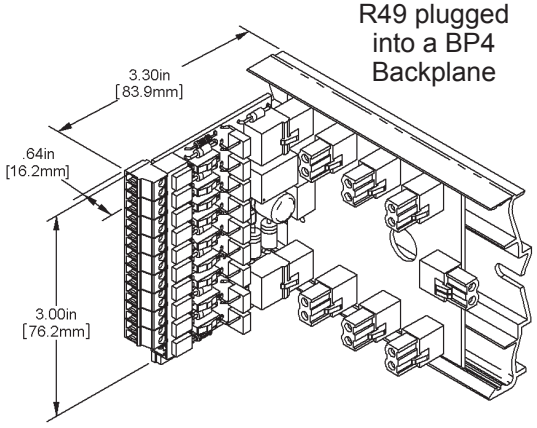


TRK18 Snaptrack (p. G16)



BP8 or BP4 Interface Backplane (p. G14)

Specifications



R49 plugged into a BP4 Backplane

Power Voltage: 26 to 36 VDC

Power Current: 50 mA max. plus relays (1.7 VA max. plus relays)

Input Control Voltage: 0 or 24 VDC @ 7 mA max.

Output Power Voltage: nominal 24 VDC (23-32 VDC)

Output Power Current: 9 outputs of 120 mA max. (26 Watts total)

DS6R - Dry Switch Monitor

Overview

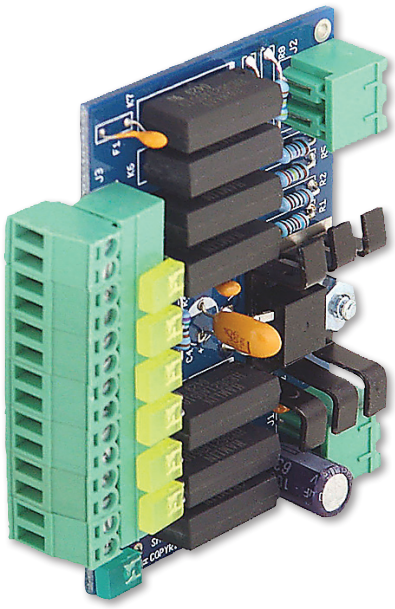
The DS6R module monitors six dry switch closure devices and provides one resistive output to the controller.

Each switch closure subtracts a precise resistance from the output so a simple subtraction algorithm at the controller decodes which switches are set. Each switch terminates on an independent plug on the front of the DS6R module and an LED associated with each input indicates switch closure for simple troubleshooting.

The DS6R plugs into the BP2, BP4 or BP8 backplane.

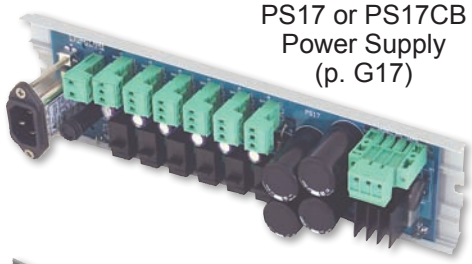
Part Number	Description
BA/DS6R	Dry Switch Monitor, 30K Output
BA/DS6R-10K	Dry Switch Monitor, 10K Output

See end of Section G for list pricing.

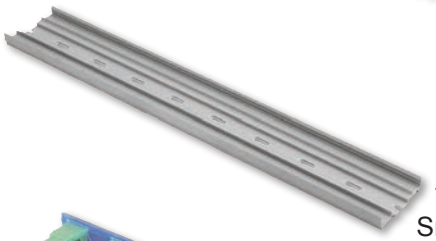


DS6R - Dry Switch Monitor

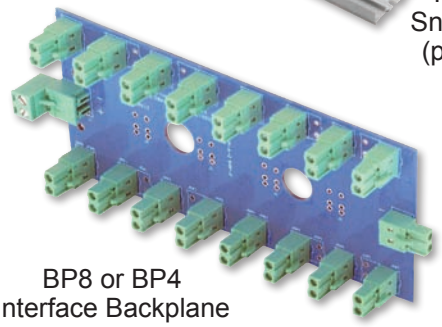
Associated Products



PS17 or PS17CB Power Supply (p. G17)



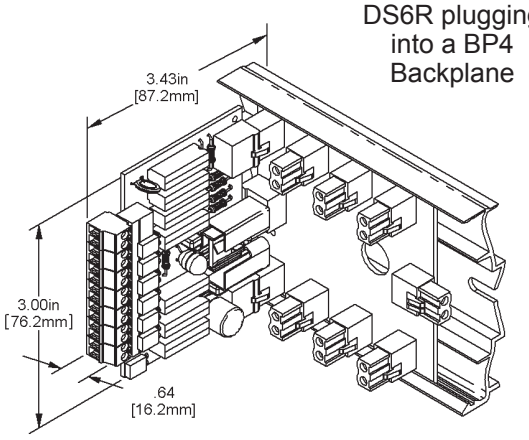
TRK18 Snaptrack (p. G16)



BP8 or BP4 Interface Backplane (p. G14)

Specifications

DS6R plugging into a BP4 Backplane



Power Voltage: 10 to 42 VDC
20 to 26 VAC

Power Current: 70 mA maximum
(2.4 VA maximum)

Switch Voltage: 7 VDC

Switch Current: 10mA

Output Resistance:
DS6R ..... 29.505KΩ - All Switches Open
DS6R-10K .. 9.806KΩ - All Switches Open

(Full output resistance tables are available in the installation and operation instructions)

PMPB5 - Pulse Meter Pulse Buffer

ETA Line

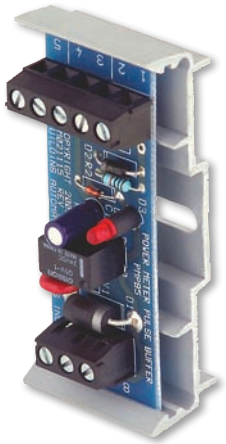
Rev. 10/16/12

Overview

Many electrical, water or gas meters provide a pulse output with each pulse representing a specific quantity of the media being measured. These pulse outputs often need to be electrically isolated from the controller's input by a buffer. The PMPB5 provides that buffer by receiving the pulses from the meter and recreating them as dry contact closures. An LED lights whenever the buffer contacts are closed. The PMPB5 fits standard 2.75" snaptrack.

Part Number	Description
BA/PMPB5	Pulse Meter Pulse Buffer

See end of Section G for list pricing.



PMPB5 mounted in the optional 2.75" snaptrack

Specifications

Power ..... 24VAC 50/60HZ @ 25mA (0.6VA)
Contact rating ..... 1A @ 24VAC maximum, 1mA @ 5VDC minimum)
Contact repetition rate ..... 2 seconds per pulse maximum

TS1 & TS2 - Transient Suppressor

ETA Line

Rev. 01/31/06

Overview

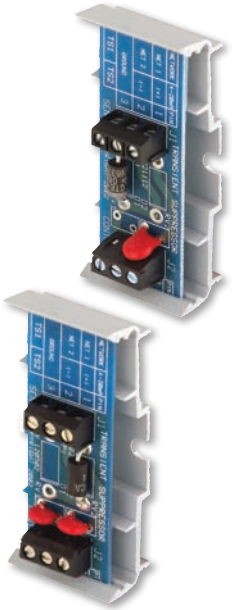
HVAC control systems can be subjected to electrical transients (temporary excess voltage) from various sources. Damage to control systems can occur if static electricity, lightning or contactors produce transients of sufficient magnitude and duration to overwhelm the protection built into the control system components. The TS1 and TS2 can significantly increase the transient protection and reduce the possibility of damage to the control system. Both modules fit in standard 2.75" snaptrack

The TS1 is specifically designed for network communications between control system components. The TS1 clamps voltages to 10 VAC or ±14 VDC Line to ground and 7.5 VDC line to line. *Please Note: The added capacitance of the TS1 may be unsuitable for some combinations of communications line length and high speed data. For best operation you may have to reduce line lengths and add data repeaters.*

The TS2 is designed to protect 4 to 20 mA current loops. The TS2 clamps the signal return line to 5 volts above ground and 1 volt below ground. The voltage supply line is clamped to ±39 VDC Line to ground.

Part Number	Description
BA/TS1	Transient Suppressor (voltage)
BA/TS2	Transient Suppressor (current)

See end of Section G for list pricing.



TS1 & TS2 - Transient Suppressors mounted in the optional 2.75" snaptrack

Specifications

TS1 Clamping Voltage..... 10 VAC or ±14 VDC Line to Ground, ±7.5 VDC Line to Line

TS2 Clamping Voltage..... 5 VDC Above Ground, Signal Return Line
1 VDC Below Ground, Signal Return Line
±39 VDC Line to Ground, Power Supply Line

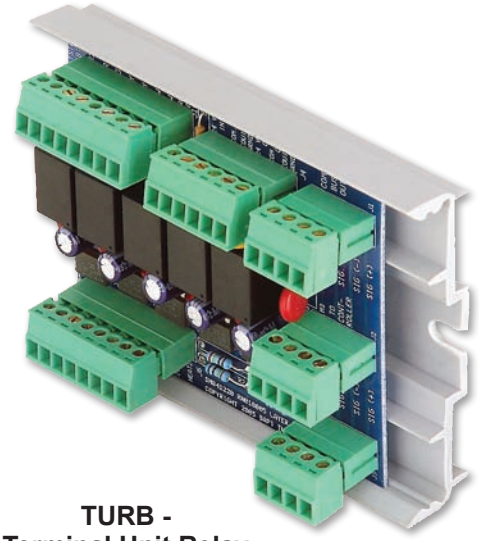
TURB - Terminal Unit Relay Board

Overview

Today's energy costs are forcing older buildings to be retrofitted with Building Management Systems - keeping the occupied spaces comfortable while reducing the overall energy use. The TURB - Terminal Unit Relay Board is an interface board that allows convenient interconnection between a Digital Controller and a DX unit's conventional thermostat terminal block. The TURB eliminates the wiring mess and provides a neat professional look that simplifies maintenance to eliminate costly callbacks.

The TURB provides an easily pluggable interface between the modules and provides fused power to the controller from the "R" terminal of the DX unit. Dry-contact pilot duty relays interface between the Digital Controller and the conventional thermostat inputs of the DX unit.

The TURB also provides a "mini communications block" with surge protection to provide a clean and easily pluggable connection to the controller. All this is packaged on a board that mounts in a 2.75" snaptrack in one orientation, or a 3.25" snaptrack in the other orientation, depending on how you want to install the module.



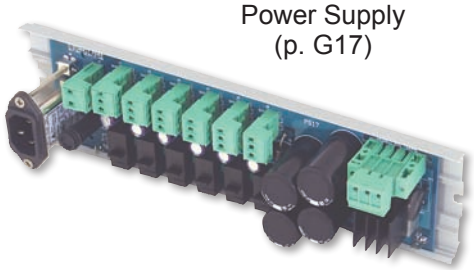
TURB - Terminal Unit Relay Board mounted in the optional 2.75" snaptrack

For your convenience, BAPI offers the TURB with an optional 4" piece of 2.75" snaptrack.

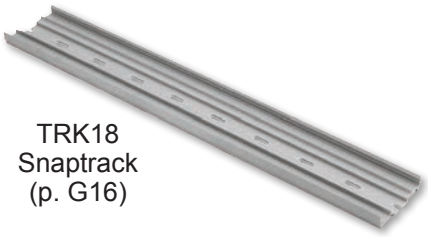
Part Number	Description
BA/TURB	Terminal Unit Relay Board
BA/TURB-TRK..	Terminal Unit Relay Board with 4" piece of 2.75" snaptrack

See end of Section G for list pricing.

Associated Products

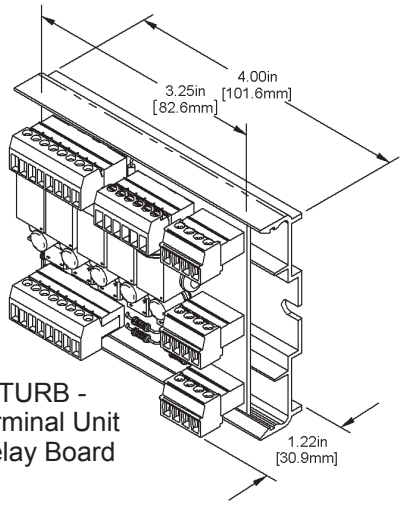


PS17 or PS17CB Power Supply (p. G17)



TRK18 Snaptrack (p. G16)

Specifications



TURB - Terminal Unit Relay Board

Relay Input Power: 24 VAC @ 10mA each

Relay Output Contacts:
2 Amps @ 24 VAC, 24 VDC

Communications Clamping Voltage:
7.5 V positive, 1 V negative

BP2, BP4 or BP8 Backplane

ETA Line

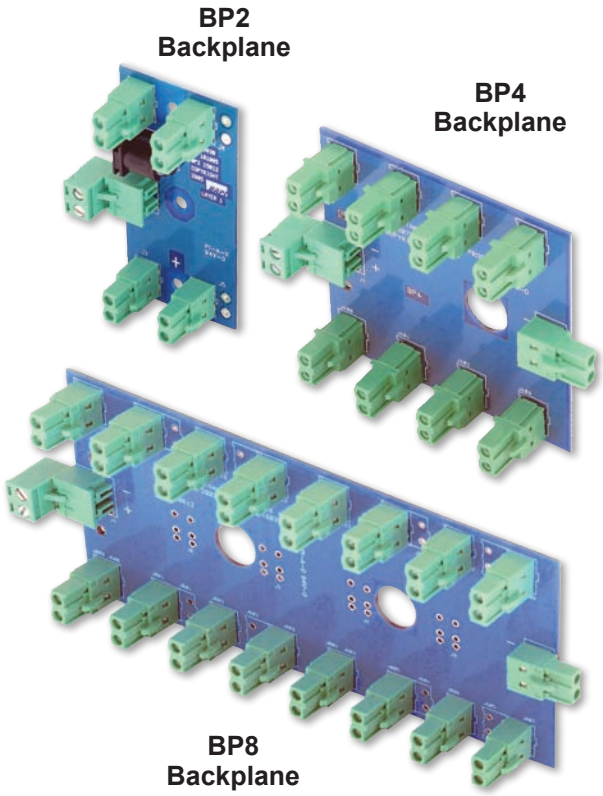
Rev. 10/16/12

Overview

The BP2, BP4 and BP8 Backplanes provide a convenient way to mount and power the BAPI ETA interface devices which helps cut down on control panel and control room clutter. All three backplanes fit standard 2.75" snaptrack.

Connectors on the face of each Backplane plug into mating connectors on the ETA modules. The BP8 Backplane accommodates eight ETA interface modules while the BP4 Backplane accommodates four modules and the BP2 accommodates two modules.

For large control systems, the Backplanes receive power from a PS17 or PS17CB Power Supply. The Backplanes can be plugged together using the end connectors to build large systems. For small control systems, the Backplanes can receive power from BAPI's VC100 or VC350 voltage converters (in Accessories section).

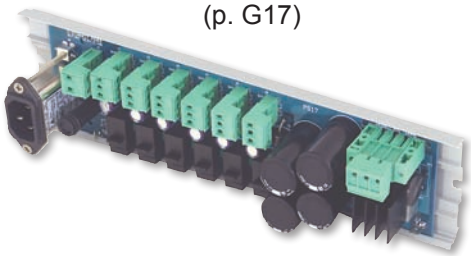


Part Number	Description
BA/BP2	2-Position Interface Backplane
BA/BP4	4-Position Interface Backplane
BA/BP8	8-Position Interface Backplane

See end of Section G for list pricing.

Associated Products

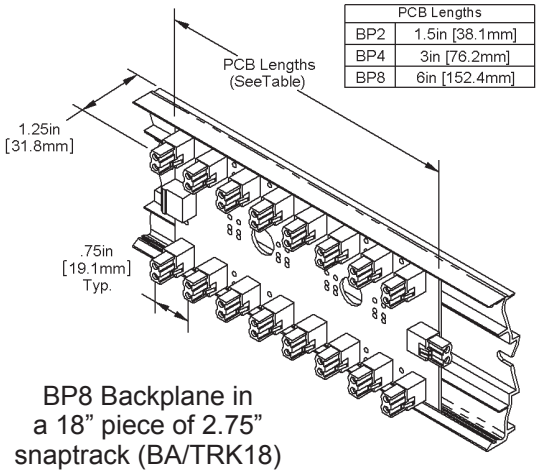
PS17 or PS17CB
Power Supply
(p. G17)





TRK18
Snaptrack
(p. G16)

Specifications



BP8 Backplane in
a 18" piece of 2.75"
snaptrack (BA/TRK18)

Power Voltage: 0 to 40 VDC or VAC

Power Current: 4 Amp max.

BP4V - Vertical Backplane & BR - Bridge

Overview

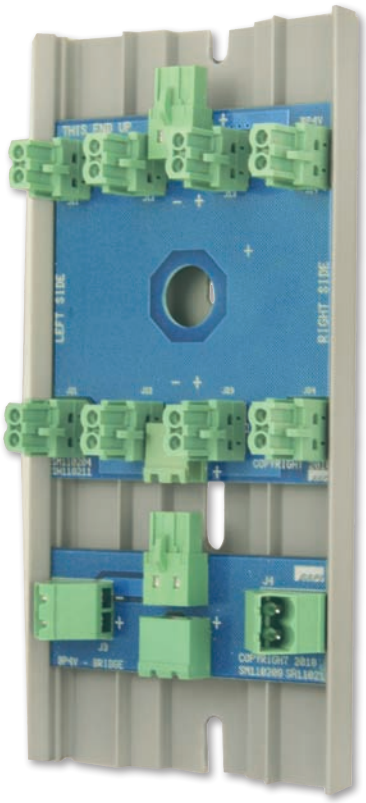
The BP4V - Vertical Backplane was designed to add additional ETA boards into a congested panel. The Vertical Backplane allows the use of small vertical spaces that may go unused. Each Vertical Backplane accommodates four ETA modules.

If there is enough space for more than one Vertical Backplane, they should be connected together with a BR - Bridge. The Bridge provides clearance from one Vertical Backplane to the other for easy insertion of the ETA modules.

For large control systems, the Vertical Backplane receives power from a PS17 or PS17CB Power Supply (See page G17 of this section). For small control systems, the Vertical Backplane can receive power from BAPI's VC350 voltage converters (See the Accessories Sections for more info on the VC350 voltage converters).

Part Number	Description
BA/BP4-V	Vertical Backplane
BA/BP-BR	Bridge (to connect Vertical Backplanes)

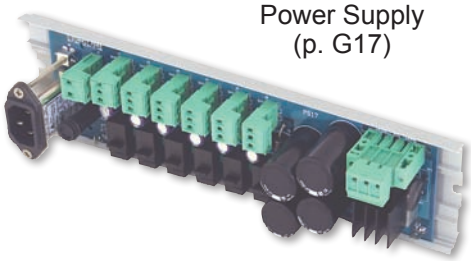
See end of Section G for list pricing.



BA/BP4-V - Vertical Backplane and a BA/BP-BR - Bridge in a 2.75" wide piece of snaptrack (sold separately)

Associated Products

PS17 or PS17CB Power Supply (p. G17)

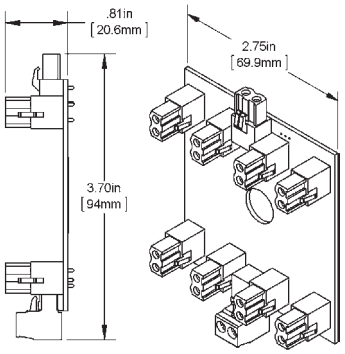




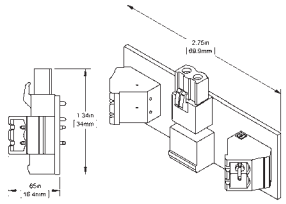
TRK18 Snaptrack (p. G16)

Specifications

BA/BP4-V - Vertical Backplane in a 18" piece of 2.75" snaptrack (BA/TRK18)



BA/BP-BR - Bridge in the same snaptrack



Power Voltage: 12 to 36 VDC, 18 to 32 VAC

Power Current: 4 Amp max.

TRK - TR2 Snaptrack

ETA Line

Rev. 10/16/12

Overview

All good projects need to start out with a proper foundation and BAPI's ETA modules are no exception. The TRK - Snaptrack provides a sturdy, secure and easy mounting method for the ETA line. The standard 2.75" snaptrack is cut to a several convenient lengths for the ETA enclosures.

The snaptrack cradles the ETA interface and communications backplanes and the terminal blocks, holding them firmly in place so you can build neat, accurate and cost effective control panels.



TRK18 - 2.75" snaptrack 18", 8" and 4" shown

Part Number	Description
BA/TRK01	TR2 Snaptrack, 1.25" length
BA/TRK02	TR2 Snaptrack, 2" length
BA/TRK04	TR2 Snaptrack, 4" length
BA/TRK08	TR2 Snaptrack, 8" length
BA/TRK12	TR2 Snaptrack, 12" length
BA/TRK18	TR2 Snaptrack, 18" length
BA/TRK48	TR2 Snaptrack, 48" length

See end of Section G for list pricing.

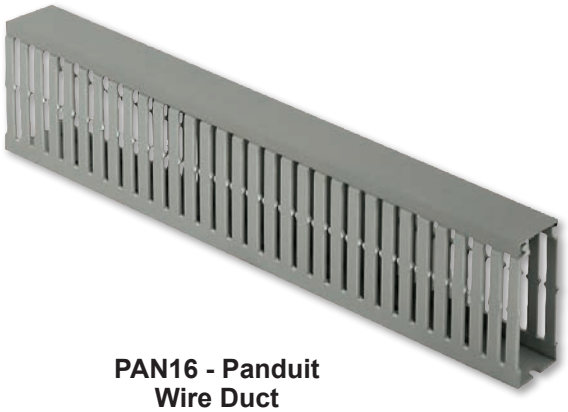
PAN16 - Panduit 1x3x16" Wire Duct

ETA Line

Overview

BAPI's PAN16 - Panduit wire duct screws to the enclosure back plate using pre-punched holes in the back plate.

The PAN16 guides the wire to the ETA device keeping clutter out of the control panel.



PAN16 - Panduit Wire Duct

Part Number	Description
BA/PAN16	Panduit 1x3x16" Wire Duct

See end of Section G for list pricing.

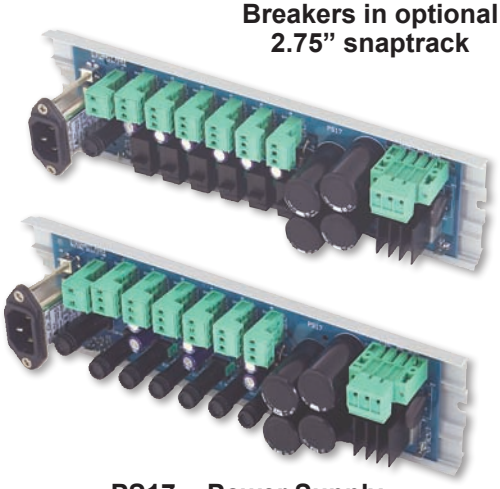
Overview

The PS17CB Power Supply with Circuit Breakers provides up to six 33 VDC power supplies with circuit breakers to operate any of the BAPI ETA modules except the FOX & RPTR RS-485 communication modules. Each PS17CB output has a green LED, which lights to show normal power. Both power supplies fit standard 2.75” snaptrack

The PS17CB uses a 120 VAC to 24 VAC transformer with a rating of 75VA to 400 VA depending upon current consumption. Total your current consumption and pick the appropriate transformer from the table below.

The PS17CB provides a transient line filter for the 120 VAC input to the transformer. Screw terminals on the PS17CB allow convenient termination of the input and output of the transformer. Plug a standard computer power cord into a duplex outlet and then into the line filter to power the PS17CB. A green LED lights when 120 VAC is applied and the circuit breaker is not tripped.

PS17CB - Power Supply with Circuit Breakers in optional 2.75” snaptrack



PS17 - Power Supply Fuse Block in optional 2.75” snaptrack

Part Number	Description
BA/PS17	Power Supply Fuse Block
BA/PS17CB	Power Supply w/ Circuit Breakers

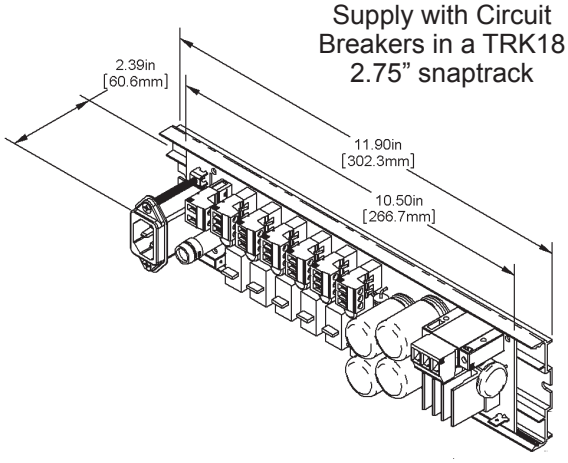
See end of Section G for list pricing.

Total Current Consumption	Transformer Power
1.875 amps or less	75 VA
2.500 amps or less	100 VA
3.750 amps or less	150 VA
5.000 amps or less	200 VA
6.250 amps or less	250 VA
7.500 amps or less	300 VA
12.00 amps or less	400 VA

Note: The customer supplies the power transformer.

Specifications

PS17CB - Power Supply with Circuit Breakers in a TRK18 2.75” snaptrack



Input Power

120 VAC at 0.7 to 3.5 Amps depending on transformer selected. Standard IEC Line Filter

Output

Nominal 33 VDC.

Four Outputs rated at 2.25 Amps (3.15 Amp Circuit Breaker) (Typically for controllers)

Two Outputs rated at 3 Amps (4 Amp Circuit Breaker) (Typically for ETA devices)

Circuit Breakers are all push to reset style

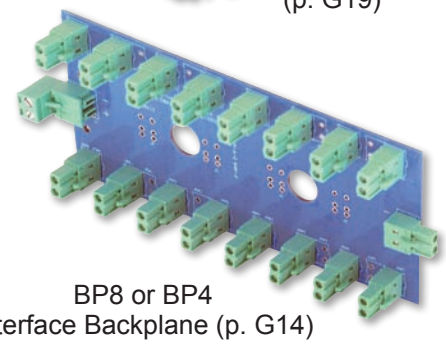
Associated Products



TRK18 Snaptrack (p. G16)



Power Cord (p. G19)



BP8 or BP4 Interface Backplane (p. G14)

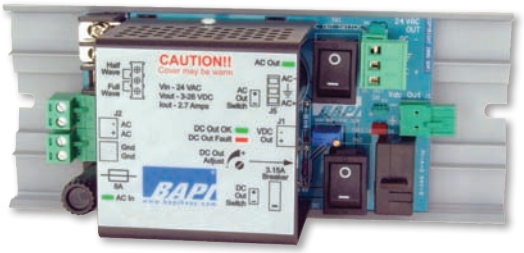
VC2700-STM - 2.7 Amp Voltage Converter

ETA Line

Rev. 10/16/12

Overview

The VC2700-STM is a 2.75" snaptrack-mountable 2.7 amp voltage converter. The unit takes a 24 VAC input and converts it to a regulated and adjustable output of 3-26 VDC.



VC2700-STM - Voltage Converter with included 8" piece of 2.75" Snaptrack

The unit also has a filtered, unregulated 24 VAC output tap drawn from the 24 VAC input. Both the 24 VAC and the VDC outputs are routed through independent ON-OFF rocker switches. The switches allow you to remove power from the AC or DC loads without disturbing the other circuit.

There are status LEDs for 24 VAC IN, 24 VAC OUT, VDC OUT and VDC FAULT (indicating that the resettable circuit breaker has tripped). The user can determine at a glance whether there is a problem with the HVAC system power and where the problem exists. The resettable circuit breaker eliminates the need for fuses.

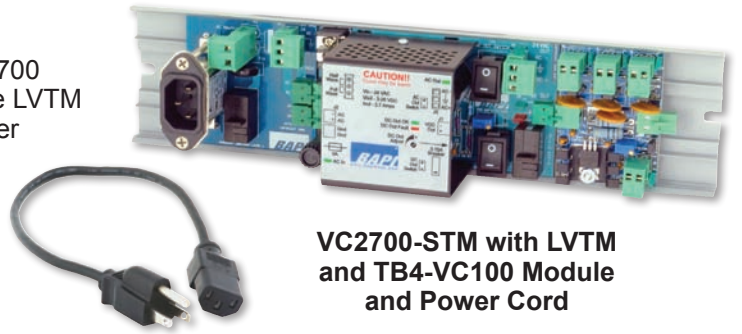
This unit has removable terminal block plugs at all inputs and outputs to simplify wiring. The unit can also be plugged directly into the BP2, BP4 or BP8 Backplanes of the ETA line to provide power to a variety of ETA modules or other peripherals, and features a user-selectable full wave or half wave rectification. The unit comes with an 8" piece of 2.75" snaptrack.

Part Number	Description
BA/VC2700-HW-STM	2.7 Amp Voltage Converter, Half-Wave, Snaptrack Mountable
BA/VC2700-FW-STM.....	2.7 Amp Voltage Converter, Full-Wave, Snaptrack Mountable

See end of Section G for list pricing.

VC2700 Accessories

BAPI makes three accessories for the VC2700 which are shown on the opposite page. The LVTM simplifies connecting an external transformer to the VC2700-STM, while the TB4 and TB4-VC100 provide additional depluggable terminals for the VC2700 output voltage or an additional system voltage.

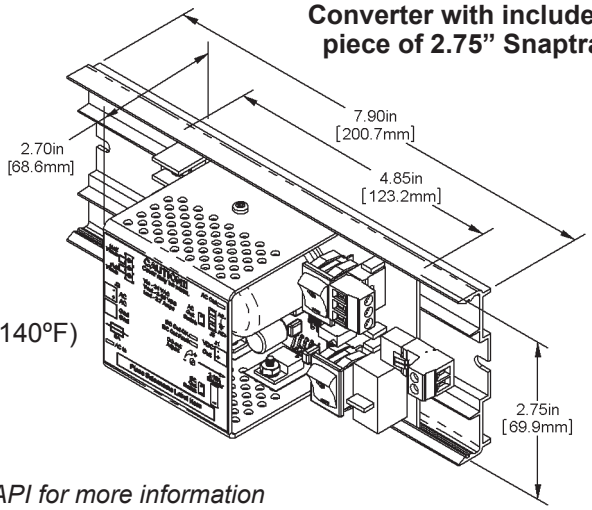


VC2700-STM with LVTM and TB4-VC100 Module and Power Cord

Specifications

Voltage Input..... 18 - 30 VAC
Current Output ..... 2.7A DC (100 VA Input)
Current Input..... 4 Amp AC (100VA)
Output Ripple..... 50mV p-p, Full Wave
100mV p-p, Half Wave
AC Voltage Output..... Same as Input
Min DC Output Voltage.... 3 VDC
Max Output voltage ..... 26 VDC, Full Wave
25.5 VDC Half Wave
Ambient Temperature .... -40ºC to 60ºC (-40ºF to 140ºF)
Max Output Current .... 2.7 Amps* DC
Min Input Voltage.... 5 or 15 VDC Output: 18 VAC
24 VDC Output: 23 VAC

VC2700-STM - Voltage Converter with included 8" piece of 2.75" Snaptrack



**Other current output ranges are available, contact BAPI for more information*

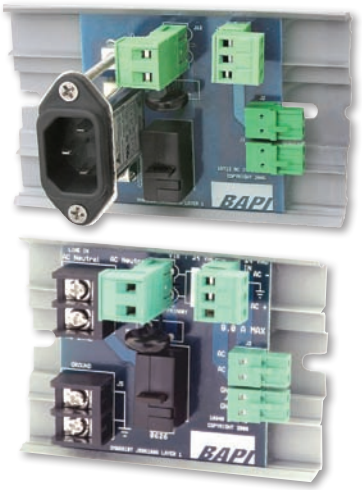
Building Automation Products, Inc. • 750 North Royal Avenue, Gays Mills, WI 54631 USA
Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • Email: sales@bapihvac.com • Web: www.bapihvac.com

LVTM - Line Volt. Transformer Module

Overview

BAPI offers two styles of Line Voltage Transformer Module (LVTM) to simplify connecting an external transformer to the VC2700-STM Voltage Converter. The LVTM can sit side-by-side with the VC2700-STM in an 8" long piece of industry standard 2.75" snaptrack (TRK08).

The LVTM takes 120/240 VAC power and protects the input with a 3.15 amp resettable circuit breaker. Pluggable terminals provide a convenient way to terminate the primary and secondary windings of the transformer. Connectors on the end of the LVTM plug directly into the VC2700's inputs for a clean connection without interconnecting wires.



LVTM (top) and LVTM-TB (below) in an accessory Snaptrack (TRK18)

Part Numbers

BA/LVTM..... Line Voltage Transf. Module with power cord connector
BA/LVTM-TB.... Line Voltage Transf. Module with Terminal Block

BA/PWR-CORD-18" .... 18" Power Cord
BA/PWR-CORD-36" .... 36" Power Cord

See end of Section G for list pricing.

LVTM Specifications

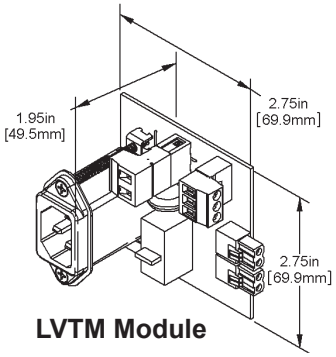
Input: 120/240 VAC at 3.15 Amps Max.
24 VAC input: 9 Amps Max.

Power Cord Specifications

Input: 125 VAC at 10 Amps Max.
Wire: 3 Wire, 18 AWG
Ratings: NEMA 5-15P, UL817, CSA22.2



18" Power Cord shown above



LVTM Module

TB4 & TB4-VC100

Overview

Power supplies and voltage converters in large HVAC/R systems sometimes do not have enough output terminals. Also some systems need a small amount of power at a 2nd voltage. BAPI'S TB4 and TB4-VC100 are accessories for the VC2700 that answer these problems.

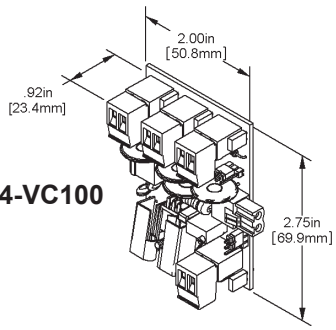
The TB4 plugs directly into the VC2700 and provides four sets of depluggable terminals for the VC2700's output voltage. These additional outputs can be used to power BP8, BP4 and BP2 ETA backplanes.

The TB4-VC100 plugs directly into the VC2700 and adds a 100 mA adjustable voltage converter for a second system voltage of 5-20 VDC. Additional TB4-VC100's may be plugged in for 3rd and 4th system voltages. The adjustable voltage must be 6 VDC or more below the VC2700 voltage.



TB4-VC100 Module in an accessory Snaptrack

Part Number	Description
BA/TB4.....	Four Terminal Output Board
BA/TB4-VC100	TB4 w/ adjustable 100 mA Voltage Converter



TB4-VC100

Specifications

Input: BA/VC2700

Output: *VC2700 terminals,* 3-26 VDC Adjustable (from VC2700) 2.7 Amps DC Max at each terminal

VC100 section: 5-20 VDC adjustable, 100 mA Max.

COMBLK - Comm. Cable Terminal Block

ETA Line

Rev. 10/16/12

Overview

The COMBLK - Communication Cable Terminal Block is a small circuit board designed to simplify the task of terminating communications wiring.

The COMBLK fits into the TRK18 snaptrack or any other industry standard 2.75” snaptrack. Each COMBLK contains four independent circuits with three connectors - one for bus in, one for bus out and a third for wiring to the controller.

The COMBLK allows each bus to be quickly isolated and tested in each direction to simplifying the troubleshooting of communications problems. A common ground connector provides a convenient means of grounding all shield drain wires. The COMBLK also accommodates the COMSRG surge suppressor, which plugs directly inline between the COMBLK and the communications bus segment.

The COMBLK is suitable for RS-485, Modbus, Echelon®, or virtually any other communications standard that talks over two or three wires.



COMBLK - Comm. Cable Terminal Block

Part Number	Description
BA/COMBLK	Communications Cable Terminal Block (NEC Class 2 Circuits, 4 Amp max.)

See end of Section G for list pricing.

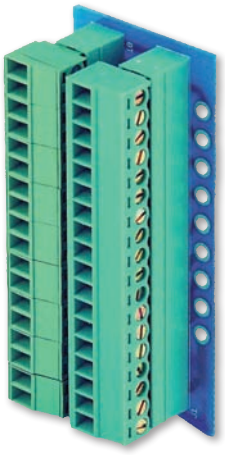
TB18 - Pluggable Terminal Block

ETA Line

Overview

The TB18 - Pluggable Terminal Block is a small circuit board designed to simplify the task of wire termination. The TB18 is easier to apply and troubleshoot than a bunch of wires under a large wire nut or the typical barrier strip.

The TB18 board fits into the ETA line TRK Snaptrack or any other industry standard 2.75” snaptrack, and provides a straight through connection for nine pairs of wire on individual plugs.



TB18 Pluggable Terminal Block

Part Number	Description
BA/TB18	Pluggable Terminal Block (NEC Class 2 Circuits, 4 Amp max.)
BA/TB18C	Pluggable Terminal Block (NEC Class 2 Circuits, 4 Amp max.) All odd numbered terminals are common
BA/TB18C2	Pluggable Terminal Block (NEC Class 2 Circuits, 4 Amp max.) All odd numbered terminals are common and all even numbered terminals are common

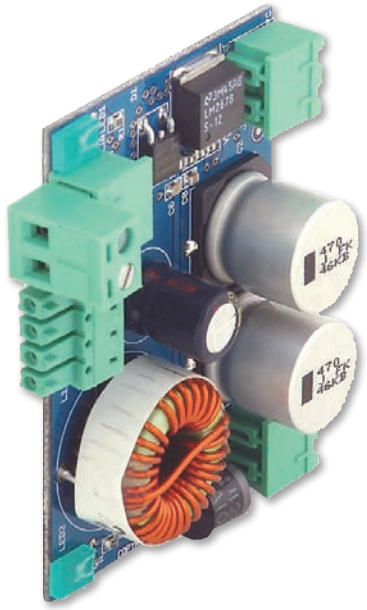
See end of Section G for list pricing.

3312VC - Voltage Converter

Overview

The RS-485 communications repeater (RPTR) and the fiber optic transceiver (FOX) require 12VDC power. The 3312VC converts the 33 VDC from the power supply fuse block (PS17) into the 12 VDC required by the RPTR and FOX.

There are two mountings options for the 3312VC. The 3312VC can plug vertically into the interface module backplanes (BP4 or BP8) like a standard interface device. A 2-wire cable then connects the 12 VDC power to the communications repeater backplane (RBP) which powers the RPTR and FOX. The 3312VC can also fit directly into the snap track plugging directly into the RBP so that the BP4 or BP8 is not required. The unit can then be powered with a two-wire connection to the PS17 or any standard 24 VDC power supply.

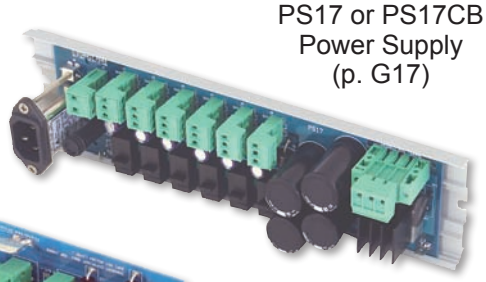


3312VC - Voltage Converter

Part Number	Description
BA/3312VC	Voltage Converter (33VDC to 12VDC)

See end of Section G for list pricing.

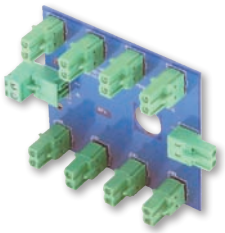
Associated Products



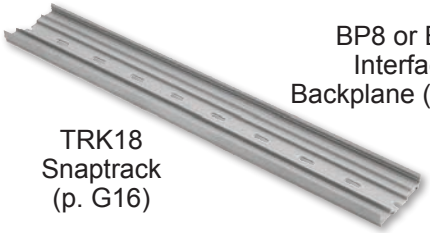
PS17 or PS17CB Power Supply (p. G17)



RBP or SRBP Repeater Backplanes (p. G26-27)

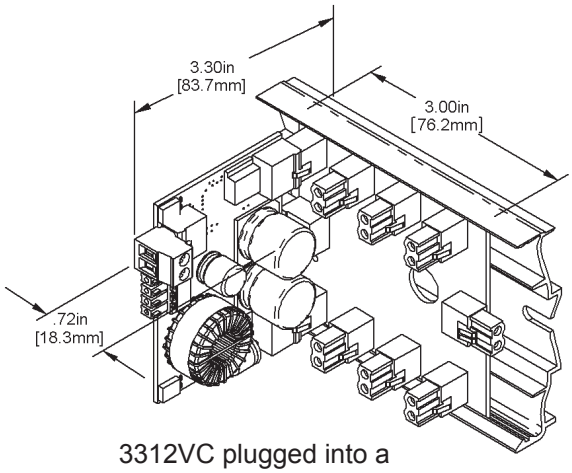


BP8 or BP4 Interface Backplane (p. G14)



TRK18 Snaptrack (p. G16)

Specifications



3312VC plugged into a BP4 Backplane

Input Voltage:	16 to 36 VDC
Input Current:	1.2 AMP max. (40 VA max.)
Output Voltage:	12 ± 0.25 VDC
Output Current:	2.5 Amp max. (30 VA max)

RPTR - RS-485 Repeater

ETA Line

Rev. 10/16/12

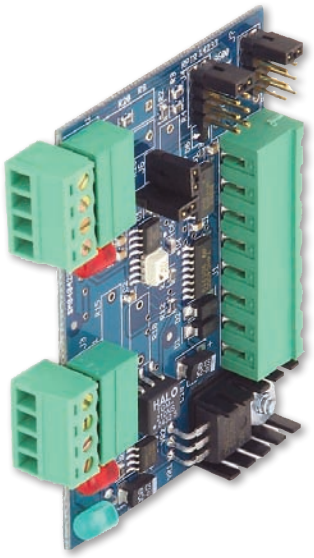
Overview

RS-485 is the most common communications standard for DDC controllers; however, it is limited to 32 unit loads and 4,000 feet. Extending the network beyond 32 unit loads or 4,000 feet requires repeaters.

BAPI's RS-485 repeater (RPTR) connects two RS-485 segments together. Data from one segment repeats to the other segment and vice versa. Each RPTR module allows an additional 32 unit loads or 4,000 feet. The RPTR may be installed directly into the snaptrack to form a simple stand alone bus extender as described above.

The RPTR module also plugs into the communications repeater backplane (RBP). Additional RPTR modules plugged into the backplane will form a star network, allowing multiple segments to connect to the same point. Each repeater card consumes one unit load for the primary RS-485 network and one unit load for the repeated network.

A green power LED indicates that 12 VDC is present to the module. A red LED at each RS-485 network connector flashes when data is transmitted or received.



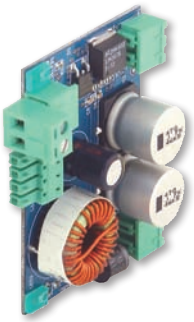
RPTR - RS-485 Repeater

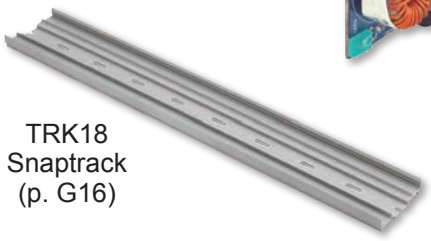
Part Number	Description
BA/RPTR.....	RS-485 Repeater
BA/RPTR-KIT.....	RS-485 Repeater Communication Kit (see page G23)
	includes one RS-485 Repeater (RPTR) Module, a 350 mA voltage converter (VC350A), a Single Repeater Backplane (SRBP) and a 4" piece of 2.75" snaptrack

See end of Section G for list pricing.

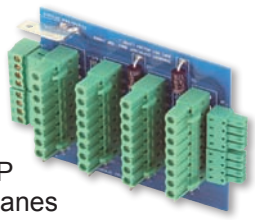
Associated Products

3312VC Voltage Converter (p. G21)





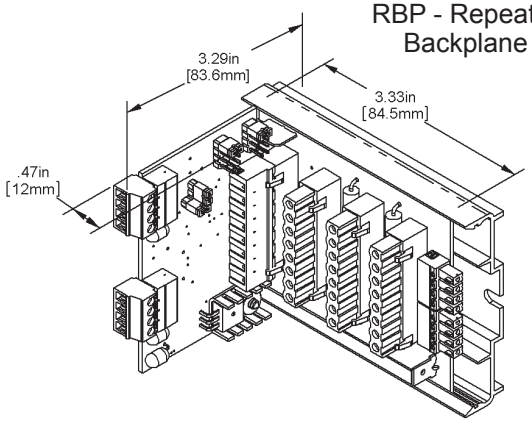
TRK18 Snaptrack (p. G16)



RBP or SRBP Repeater Backplanes (p. G26-27)

Specifications

RPTR module plugged into a RBP - Repeater Backplane



Power Voltage: 11 to 13 VDC

Power Current: 250 mA max. (3 VA max.)

Communications rates: 9.6K, 19.2K and 38.4K Baud

Network Load: 1 unit load

Network Length: 4,000 ft (1.2 Km)

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RS-485 Repeater Communication Kit

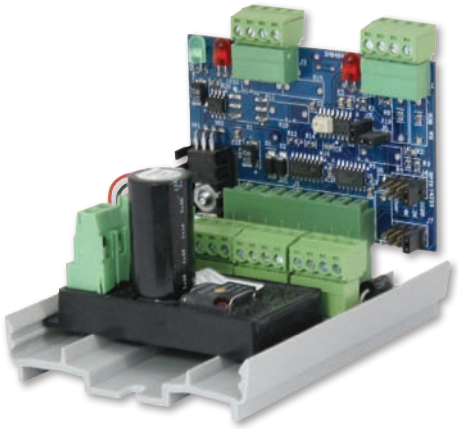
Overview

RS-485 is the most common communications standard for DDC controllers; however, it is limited to 32 unit loads and 4,000 feet. Extending the network beyond 32 unit loads or 4,000 feet requires repeaters.

The RS-485 Repeater Communication Kit provides all the functions for one repeater and remote RS-485 network, plus it comes in a self-contained, easy-to-apply and cost effective assembly. The kit also aids in troubleshooting because LEDs indicate when power is applied and communications are present.

The RS-485 Repeater Communication Kit includes:

- One RS-485 Repeater (RPTR) module which connects two RS-485 segments together. Data from one segment repeats to the other segment and vice versa. Each RPTR module allows an additional 32 unit loads and 4,000 feet;
- A 350 mA voltage converter (VC350) to provide the higher current necessary for flawless communications;
- A Single Repeater Back Plane (SRBP) to mount the RPTR module and provide pluggable connectors for power and three RS-485 cables;
- A four inch long piece of 2.75” snaptrack to easily mount the entire assembly.



RS-485 Repeater Communication Kit
(includes one RS-485 Repeater Module, a 350 mA voltage converter, a Single Repeater Backplane and a 4” piece of 2.75” snaptrack)

Ordering Information

Part Number	Description
BA/RPTR-KIT.....	RS-485 Repeater Communication Kit includes one RS-485 Repeater (RPTR) Module, a 350 mA voltage converter (VC350A), a Single Repeater Backplane (SRBP) and a 4” piece of 2.75” snaptrack

See end of Section G for list pricing.

Specifications

Input Voltage: 18-30 VAC, 15-28 VDC

Input Current Max: 760mA (18.25 VA)

Environmental Operation Range:
0-50°C (32-122°F)
0 to 95 %RH Non-Condensing

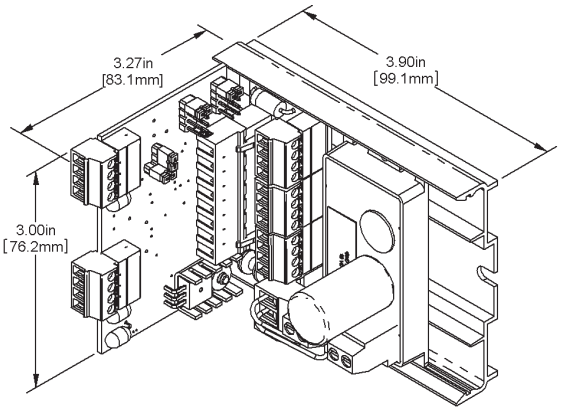
Rectification: Half-Wave Rectified

Grounding: AC and DC Ground are common

Communication Rates:
9.6K, 19.2K and 38.4K Baud

Network Load:
1 unit load on each RS-485 bus

RS-485 Network Length: 4,000ft (1.2Km)



RS-485 Repeater Communication Kit

FOX - RS-485 Fiber Optic Transceiver

ETA Line

Rev. 10/16/12

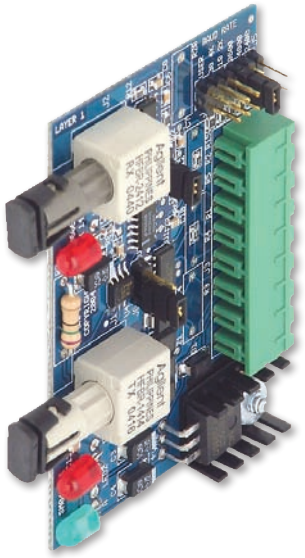
Overview

BAPI recommends fiber optic cable for HVAC communications networks that travel between buildings. Fiber optic cable is not electrically conductive therefore it is not affected by electrical disturbances such as lightning strikes, radio transmitters or system ground variations.

The FOX - Fiber Optic Transceiver converts the RS-485 data from the copper network to a fiber optic signal for transmission to other buildings. A FOX in the other building converts the fiber optic signal back into RS-485 for the remote copper network.

The FOX module accepts the multi-mode fiber cable on standard ST connectors. The copper RS-485 connection is made on the 8-pole plug along with the power and ground connections. The FOX also plugs into the communications repeater backplane (RBP). Each FOX module consumes one unit load on the RS-485 bus.

A green power LED indicates that 12 VDC is present to the module. A red LED at each fiber cable connection flashes when data is transmitted or received.



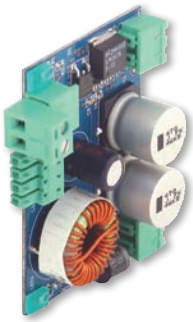
FOX - RS-485 Fiber Optic Transceiver

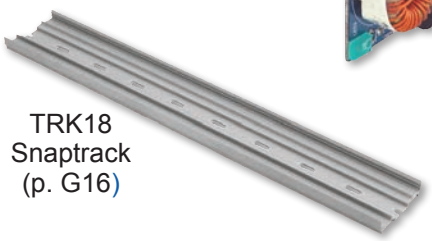
Part Number	Description
BA/FOX	RS-485 Fiber Optic Transceiver
BA/FOX-KIT	FOX Communication Kit (see page G25) *includes one Fiber Optic Transceiver (FOX) Module, a 350 mA voltage converter (VC350A), a Single Repeater Backplane (SRBP) and a 4" piece of 2.75" snaptrack*

See end of Section G for list pricing.

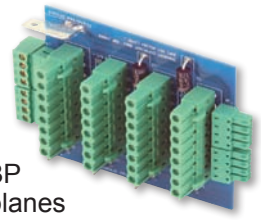
Associated Products

3312VC Voltage Converter (p. G21)





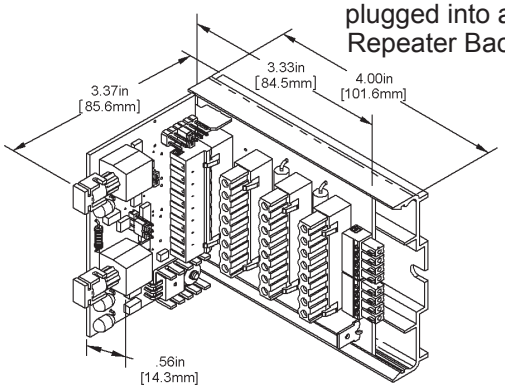
TRK18 Snaptrack (p. G16)



RBP or SRBP Repeater Backplanes (p. G26-27)

Specifications

FOX module plugged into a RBP - Repeater Backplane



Power Voltage: 11 to 13 VDC

Power Current: 250 mA max. (3 VA max)

Communications rates:
2.4K, 4.8K, 9.6K, 19.2K and 38.4K Baud

Network Load: 1 unit load (RS-485 side)

Optical Network Length:
10,500 ft (3,200 meters)
(max. attenuation of 4 dB/Km)

RS-485 Network Length: 4,000 ft (1.2Km)

FOX Communication Kit

Overview

BAPI recommends fiber optic cable for HVAC communications networks that travel between buildings. Fiber optic cable is not electrically conductive therefore it is not affected by electrical disturbances such as lightning strikes, radio transmitters or system ground variations.

The FOX Communication Kit provides all the functions for one fiber optic and remote RS-485 network, plus it comes in a self-contained, easy-to-apply and cost effective assembly. The kit also aids in troubleshooting because LEDs indicate when power is applied and communications are present.

The FOX Communications Kit includes:

- One Fiber Optic Transceiver (FOX) module which converts RS-485 data to a fiber optic signal or converts a fiber optic signal to RS-485 data;
- A 350 mA voltage converter (VC350) to provide the higher current necessary for flawless communications;
- A Single Repeater Back Plane (SRBP) to mount the FOX module and provide pluggable connectors for power and three RS-485 cables;
- A four inch long piece of 2.75” snaptrack to easily mount the entire assembly.



FOX Communication Kit
(includes one Fiber Optic Transceiver Module, a 350 mA voltage converter, a Single Repeater Backplane and a 4” piece of 2.75” snaptrack)



Ordering Information

Part Number	Description
BA/FOX-KIT	FOX Communication Kit includes one Fiber Optic Transceiver (FOX) Module, a 350 mA voltage converter (VC350A), a Single Repeater Backplane (SRBP) and a 4” piece of 2.75” snaptrack

See end of Section G for list pricing.

Specifications

Input Voltage: 18-30 VAC, 15-28 VDC

Input Current Max: 760mA (18.25 VA)

Environmental operation Range:
0-50°C (32-122°F)
0 to 95 %RH Non-Condensing

Rectification: Half-Wave Rectified

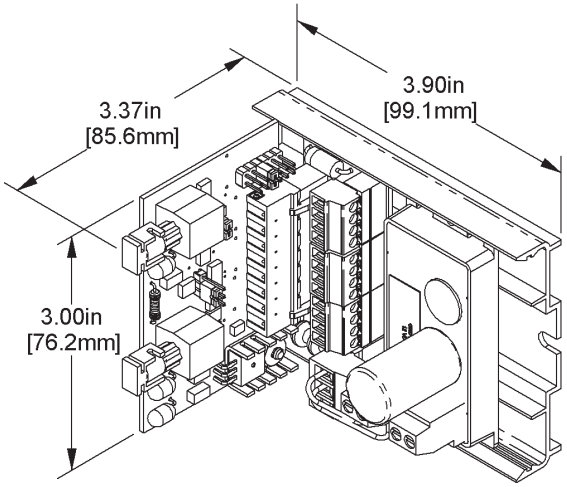
Grounding: AC and DC Ground are common

Communication Rates:
2.4K, 4.8K, 9.6K, 19.2K and 33.4K Baud

Network Load: 1 unit load (RS-485 side)

Optical Network Length:
10,500 Ft (3,200 meters)
(Maximum attenuation of 4db/Km)

RS-485 Network Length: 4,000ft (1.2Km)



FOX Communication Kit

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RBP - Comm. Repeater Backplane

ETA Line

Rev. 10/16/12

Overview

The RBP - Communications Repeater Backplane fits into the TRK18 2.75” snaptrack and provides power, communications and convenient mounting for the FOX and RPTR modules.

Connectors on the face of the RBP plug into mating connectors on the RPTR and FOX. The FOX and RPTR modules share data across the RBP backplane which provides transient protection for the communications network. Several RBP backplanes can be plugged together to share data through the backplane end connectors, allowing all the RPTR and FOX modules to form a large communications hub.

The RBP backplane receives 12 VDC power from a 3312VC voltage converter.



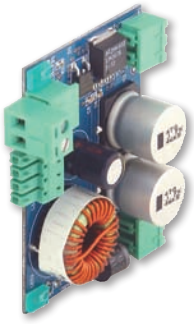
RBP - Communications Repeater Backplane

Part Number	Description
BA/RBP	Communications Repeater Backplane
BA/RBP-TRK	Communications Repeater Backplane with 4” piece of 2.75” snaptrack

See end of Section G for list pricing.

Associated Products

3312VC Voltage Converter (p. G21)

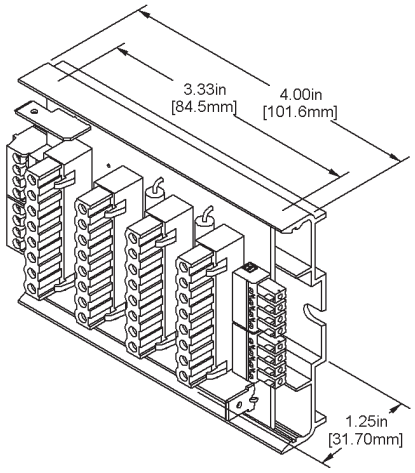




TRK18 Snaptrack (p. G16)

Specifications

RBP - Repeater Backplane mounted in 2.75” snaptrack



Power Voltage: 12 VDC

Power Current: 4 Amp max.

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SRBP - Single Repeater Backplane

Overview

Many times you need to place only one communications repeater at a specific point in a communications network. A four-position Communications Repeater Backplane (RBP) and it's associated power supplies is clearly overkill. The BAPI SRBP - Single Repeater Back Plane teamed with a BAPI VC350 voltage converter (in Accessories section) and a FOX or RPTR module provides a convenient single repeater solution.

The SRBP fits into the standard 2.75" snaptrack. Pluggable connectors on the face of the SRBP allow quick and easy connections for power and RS-485 communications buses. One FOX module or RPTR module plug into a mating connector.

The SRBP receives 12VDC power from either a 3312VC or a BAPI VC350 voltage converter (shown in the Accessories, Sec. E).



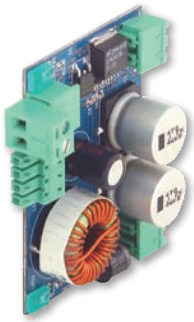
SRBP - Single Repeater Backplane

Part Number	Description
BA/SRBP	Single Repeater Backplane
BA/SRBP-TRK	Single Repeater Backplane with 4" piece of 2.75" snaptrack

See end of Section G for list pricing.

Associated Products

3312VC Voltage Converter (p. G21)

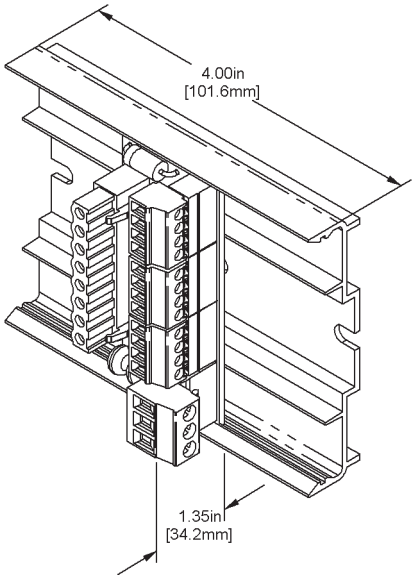




TRK18 Snaptrack (p. G16)

Specifications

SRBP - Single Repeater Backplane mounted in the optional 2.75" snaptrack



Power Voltage: 12 VDC

Power Current: 4 Amp max.

COMSRG - Comm. Surge Protector

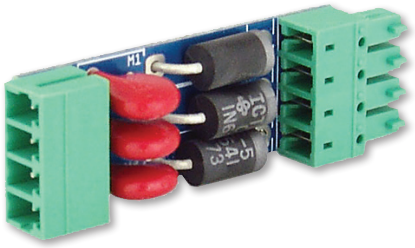
ETA Line

Rev. 10/16/12

Overview

In some applications, the transient protection on the communications terminals of DDC controllers is inadequate. Examples are roof mounted air handlers, pad mounted air conditioners or chillers – or anything attached to the building's HVAC system but outside the building envelope.

BAPI's COMSRG provides the extra muscle necessary to prevent damage. The COMSRG plugs between the communications network and any of the COMBLK, RPTR or TUCOM.



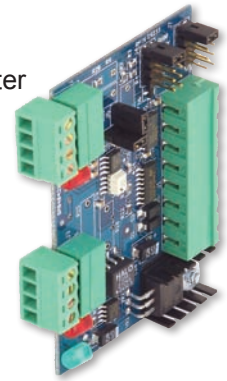
COMSRG
- Communication Surge Protector

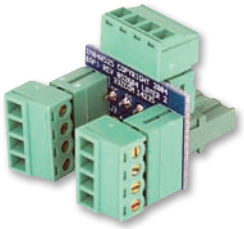
Part Number	Description
BA/COMSRG	Communications Surge Protector

See end of Section G for list pricing.

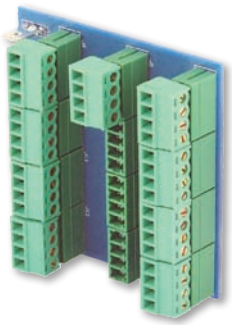
Associated Products

RPTR
RS-485 Repeater
(p. G22)





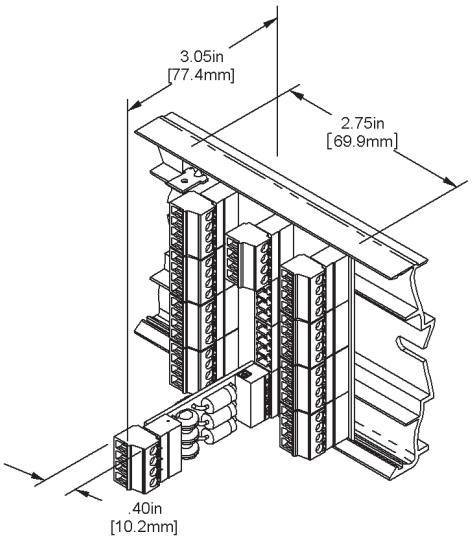
TUCOM - Terminal
Unit Comm. Block
(p. G29)



COMBLK
Comm. Cable
Terminal Block
(p. G20)

Specifications

COMSRG module plugged into a COMBLK Communications Cable Terminal Block



Clamp Voltage: 6 VDC

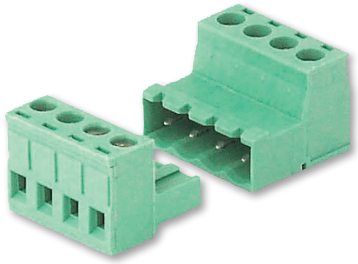
Clamp Power: 1.5 Joules

BELCON - Mating Pair Belimo® Connectors

Overview

Many HVAC peripherals come with a short pigtail wire for connecting to the rest of your system. Running wire from your control panel to the peripheral and connecting them together is your headache. Most of the time it's twist the wires together and apply wire nuts. Later, when you need to disconnect the peripheral for troubleshooting, the inconvenient wire nuts get lost and the loose wires short out ruining the controller.

BAPI's BELCON connector pair allows a four-pole pluggable connection between your peripheral and the control wiring. You can quickly disconnect any peripheral without fear of wires shorting together or to any conductive surface.



BELCON
Mating Pair of
Belimo® Connectors

Belimo® is a trademark of Belimo Aircontrols (USA) Inc. registered in the United States and other countries.

Part Number	Description
BA/BELCON	Mating Pair of Belimo® Connectors (NEC Class 2 Circuits, 4 Amp max.)

See end of Section G for list pricing.

TUCOM - Terminal Unit Comm. Block

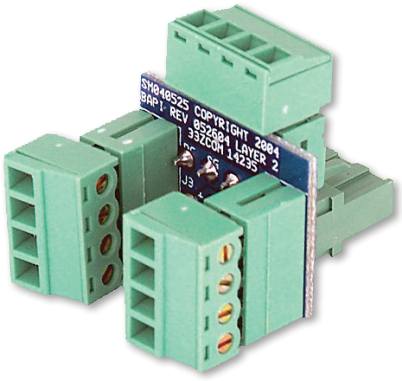
ETA Line

Overview

The TUCOM is a specific purpose connector which adds pluggable screw terminals for the Carrier® Comfort System zone controller.

The Carrier® zone controller only provides one communications plug, whereas you often need to terminate three cables on it. The TUCOM plugs into the zone controller's communications port and expands it into three pluggable screw terminals. Now you have one set of terminals for each wire in the network (communications in, communications out and zone sensor)

The TUCOM will accept the COMSRG (p.G22) for surge protection in extreme environments.



TUCOM - Terminal Unit
Communications Block

Carrier® is a trademark of Carrier Corporation, Registered in the United States and other countries.

Part Number	Description
BA/TUCOM	Terminal Unit Communications Block (NEC Class 2 Circuits, 4 Amp max.)

See end of Section G for list pricing.

44”x20”x8” Steel Enclosures

ETA Line

Rev. 10/16/12

Overview

BAPI makes a NEMA 1 and NEMA 4X 14-gauge painted steel enclosure in the 44”x20”x8” size. The NEMA 1 model weighs approximately 90 pounds, while the NEMA 4X watertight model features a door seal with latches and weighs approximately 95 pounds.

Two permanent dividers provide a wireway for input and output conduit connections at the top of the enclosure and a high voltage compartment at the bottom of the enclosure for the power supply.

Flipping the enclosure 180 degrees accommodates left and right hand door openings. No knockouts are provided; drill and punch where you need conduit openings.

Each NEMA 1 and NEMA 4X models come with a Large Backplate (BP185X285), a Small Backplate (BP6X185) and two Bracket Cable Guides (BCG).

Both models are UL50 rated and carry a UL sticker. Enclosures are suitable for use in UL508 panels.



44208N1S - NEMA 1 Steel Enclosure 44”x20”x8”

Part Number	Description
BA/44208N1S	NEMA 1X Steel Enclosure, 44”x20”x8”
BA/44208N4XS	NEMA 4X Steel Enclosure, 44”x20”x8”

See end of Section G for list pricing.

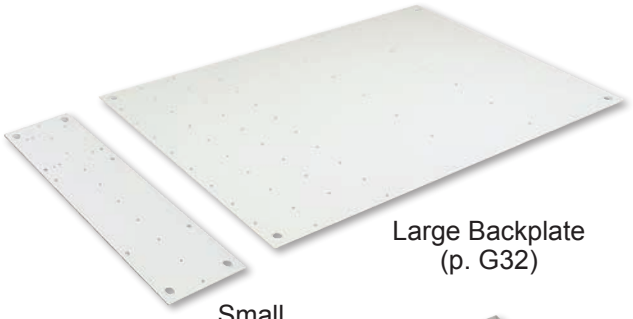
Associated Products

Enclosure Backplates and Bracket Cable Guides

The appropriate size backplate(s) and two Bracket Cable Guides are included with each BAPI enclosure.

The Backplates are made of 12-gauge painted steel and pierced with a hole pattern that accommodates the various components which will be installed in the enclosure including snaptrack, panduit wire duct, bracket cable guides, transformers and DDC controllers.

More information on the Backplates and Bracket Cable Guides is found on page G28.



Large Backplate (p. G32)

Small Backplate (p. G32)



BCG - Bracket Cable Guide (p. G32)

32x20x8 Steel Enclosure

ETA Line

Overview

The BAPI 32208N1S is a NEMA 1, 14-gauge painted steel enclosure that weighs approximately 68 pounds. A permanent divider provides a high voltage compartment at the bottom of the enclosure for the power supply.

Flipping the enclosure 180 degrees accommodates left and right hand door openings. Mount the enclosure by drilling holes in the back to fit your application. No knockouts are provided; drill and punch where you need conduit openings.

Each BAPI BA/32208N1S comes with a medium backplate (not sold separately), a Small Backplate (BA/BP6X185) and two Bracket Cable Guides (BA/BCG).

Each BAPI enclosure is UL50 rated and carries a UL sticker. Enclosures are suitable for use in UL508 panels.



32208N1S - Steel Enclosure 32x20x8

Part Number	Description
BA/32208N1S	Steel Enclosure, 32x20x8

See end of Section G for list pricing.

20x20x8 Steel Enclosure

ETA Line

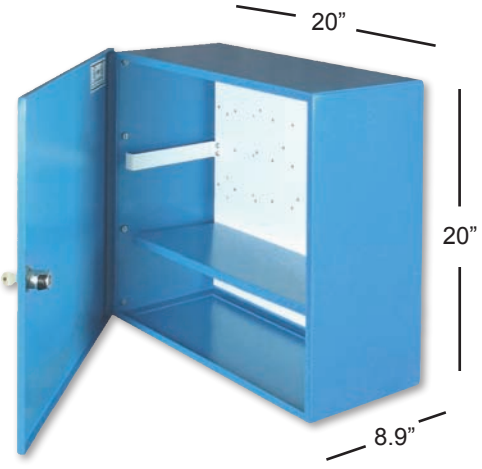
Overview

The BAPI 20208N1S is a NEMA 1, 14-gauge painted steel enclosure that weighs approximately 47 pounds. One field-installed divider provides a high voltage compartment in the enclosure to isolate a power supply.

Flipping the enclosure 180 degrees accommodates left and right hand door openings. Mount the enclosure by drilling holes in the back to fit your application. No knockouts are provided; drill and punch where you need conduit openings.

Each BAPI 20208N1S comes with a backplate and two Bracket Cable Guides (BCG).

Each BAPI enclosure is UL50 rated and carries a UL sticker. Enclosures are suitable for use in UL508 panels.



20208N1S - Painted Steel Enclosure 20x20x8

Part Number	Description
BA/20208N1S	Steel Enclosure, 20x20x8

See end of Section G for list pricing.

BP185X285 - Large Backplate (for 44x20x8)

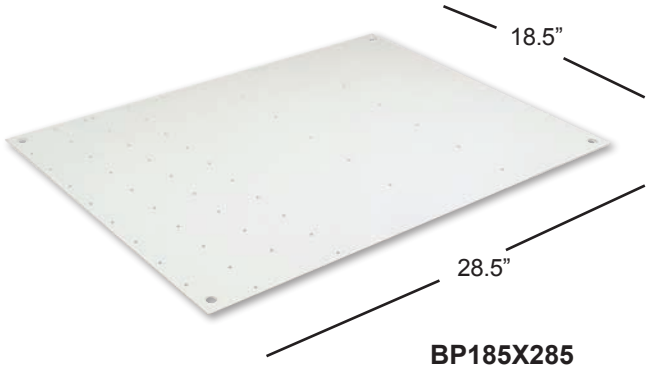
ETA Line

Rev. 10/16/12

Overview

The BP185x285 - Large Backplate is made of 12-gauge painted steel and pierced with a hole pattern that accommodates the BAPI TRK18, PAN16 and the Carrier® Comfort Controller 1600 and 6400.

The Large Backplate mounts to the enclosure with four threaded studs welded to the back of the enclosure.



BP185X285
Large Backplate
(for 44x20x8 Enclosure)

Part Number	Description
BA/BP185X285	Large Backplate (for 44x20x8 Encl.)

See end of Section G for list pricing.

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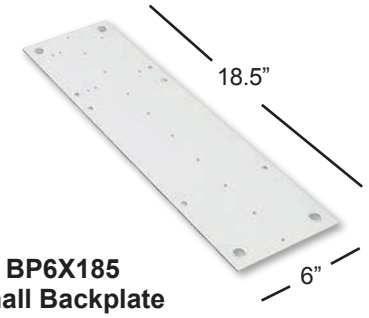
BP6X185 - Small Backplate

ETA Line

Overview

The BP6x185 - Small Backplate is made of 12-gauge painted steel and pierced with a hole pattern that accommodates the BAPI TRK18 and power transformers.

The Small Backplate mounts to the enclosure with four threaded studs welded to the back of the enclosure.



BP6X185
Small Backplate

Part Number	Description
BA/BP6X185	Small Backplate

See end of Section G for list pricing.

BCG - Bracket Cable Guide

ETA Line

Overview

The BCG - Bracket Cable Guide screws to the edge of the enclosure backplate. The non-pierced ear is placed against the enclosures lip forming a wire holding loop with the enclosure side. The 14-gauge BCG will hold all but the largest wire. The BCG measures 7” long by .79” high.



BCG -
Bracket Cable Guide

Part Number	Description
BA/BCG	Bracket Cable Guide (Set of 2)

See end of Section G for list pricing.

PLCON1 & 2 - PremierLink™ Connectors

Overview

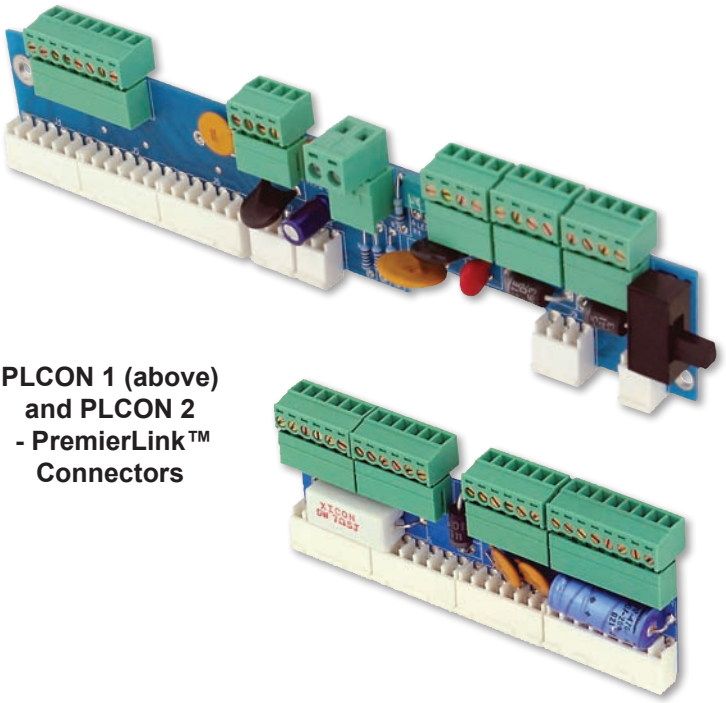
The PLCON modules are designed to simplify the field wiring of Carrier© PremierLink™ direct digital controllers. The modules provide an additional layer of protection for the controller, as well as a power ON/OFF switch and indicator light for future troubleshooting or controller resetting.

Field wiring is easier because the PLCON modules eliminate the need for special tools or hard-to-find connectors. All wires terminate in labeled, pluggable screw terminals on the PLCON so the only tools that a technician needs are a wire stripper and a small screwdriver.

The PLCON1 slips onto the power, communications, analog output and digital output connectors on the PremierLink™ controller. It includes a power ON/OFF switch, a power pilot light, a self-resetting 1.6 amp fuse and an MOV for an additional layer of protection against power surges.

The three communications connectors simplify system wiring and additional transient protection on the PLCON1 ensures reliable communications in the most challenging environments. A four-conductor plug on the PLCON1 provides power and feedback for the economizer actuator while the eight-pole connector provides termination for the relay outputs. A second transformer can be used to power the relay outputs by simply cutting a jumper wire on the PLCON1.

The PLCON2 module slips onto the analog and digital input connectors on the PremierLink™ controller. The PLCON2 provides a pluggable screw terminal for every input connection as well as a self-resetting 0.9 amp fuse for each air quality sensor.

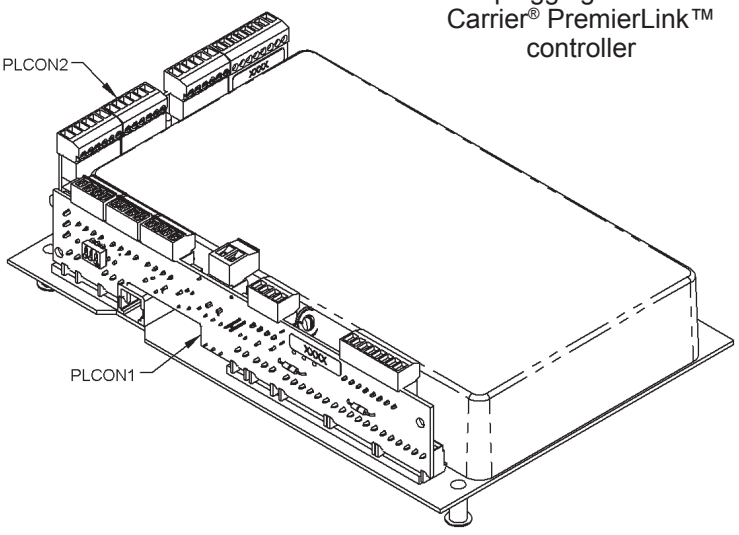


PLCON 1 (above) and PLCON 2 - PremierLink™ Connectors

Part Number	Description
BA/PLCON1	PremierLink™ Connector 1
BA/PLCON2	PremierLink™ Connector 2

See end of Section G for list pricing.

Specifications



PLCON1 & PLCON2 plugging into a Carrier® PremierLink™ controller

Input Voltage: 24 VAC

Input Current: 4 Amp max.

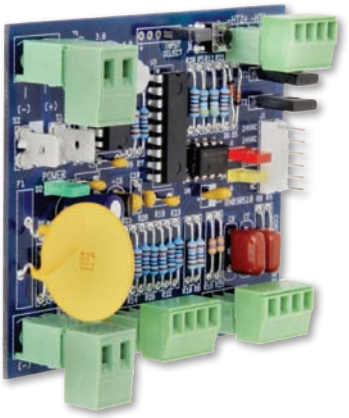
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AVI - Air Valve Interface

ETA Line

Rev. 10/16/12

Overview



AVI Module

The Air Valve Interface (AVI) connects long-running jack-screw style Variable Air Volume (VAV) floating point actuators with mechanical end switches to DDC controllers. The unit has two input signal modes;

PULSE
The DDC controller's 24 VAC actuator drive power pulses are timed, the timing is multiplied by the AVI's Gain Filter potentiometer setting and appropriately long 24 VAC power pulses are sent from the AVI to the air valve actuator.

ANALOG
A 0 to 10 VDC proportional control voltage is turned into 24 VAC power pulses to position the actuator accordingly, fully closed (0 VDC) to fully open (10 VDC). The Gain Filter potentiometer sets a hysteresis dead band for the input voltage to prevent motor wear due to controller hunting or noisy signal.

Additionally, the AVI provides;

- Self resetting 3-Ampere fuse
- Fused 24 VAC output to power auxiliary equipment (VAV Box Controller).
- Terminals to make wiring reheat control relays or actuators easier.
- 0 to 10 VDC proportional output that indicates damper position.
- Manual air valve actuator stroke time training switch used to calibrate the damper position proportional output voltage.
- Duty cycle protection to prevent actuator motor failure.

Ordering Information

Part Number	Description
BA/AVI	Air Valve Interface
BA/AVI-TRK	Air Valve Interface with 4" piece of 2.75" snaptrack

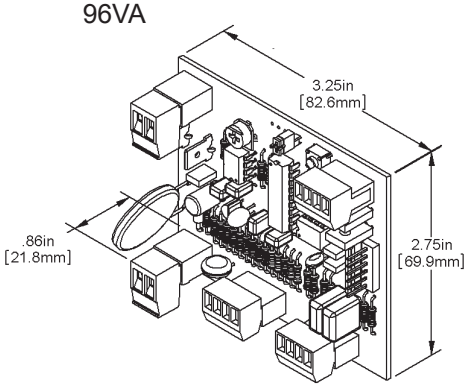
See end of Section G for list pricing.

Specifications

ELECTRICAL	MIN	TYP	MAX
Input Voltage, (J3, S1, J7)	18.0VAC	24VAC	32VAC Note: AC voltage ONLY
Input Voltage, (J5-IN 0-10V)	0VDC	-	10VDC
Output Voltage, (J4, J5-24)	Input voltage fused at 3 Amps		
Output Voltage, (J7 OUT DMPPOS)	0VDC	-	10VDC
Output Current, (J7 OUT DMPPOS)	0VDC	-	±10mA (short circuit limited)
Current Draw, Dependent on load			3A @ 24VAC
Triac Current, (J1-open, J1-close)	250mA	350mA	500mA
Power, Dependent on loads			96VA

ENVIRONMENTAL
Temperature – Operating: -20 to 70 °C
Temperature – Storage: -40 to 85 °C
Humidity: 0 to 95% RH, Non-condensing

MECHANICAL
Screw Terminals:
(J3, J4, J5, J6, J7), 28-16 AWG / 0.5-1.5mm
Enclosure: None
Mounting: 2.75" or 3.25" Snaptrack – not included
PCB: FR4, 94V0, 2.75" x 3.25" x 1.25"
Agencies: RoHS



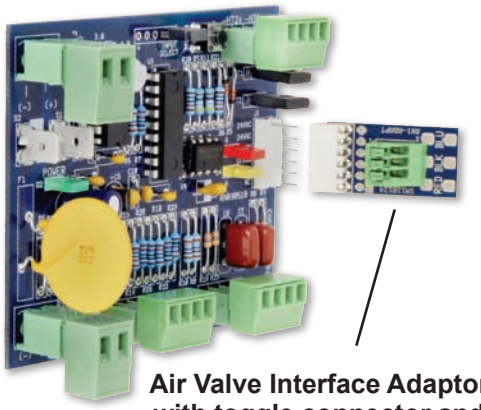
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AVI-ADAPT - Air Valve Interface Adapter

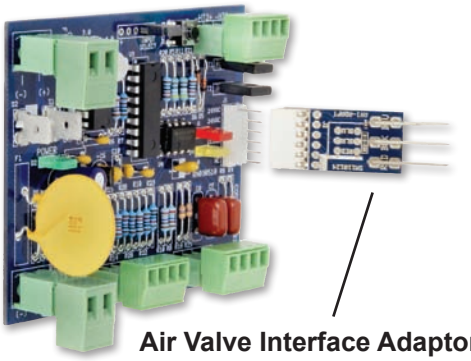
Overview

The **AVI-ADAPT - Air Valve Interface Adaptors** are used to connect a VAV actuator cable to an **AVI - Air Valve Interface** (pg. G31) when the factory installed connector is missing from the actuator cable.

The **Air Valve Interface Adaptors** are a press fit on the output connector of the Air Valve Interface module. One adaptor has a toggle type connector for the actuator cable while the other adaptor has 1/4" quick connects for the actuator cable.



Air Valve Interface Adaptor with toggle connector and the associated connector on the Air Valve Interface Module



Air Valve Interface Adaptor with 1/4" Quick Connects and the associated connector on the Air Valve Interface Module

Ordering Information

Part Number and Description

BA/AVI-ADAPT

Air Valve Interface Adapter with toggle connector

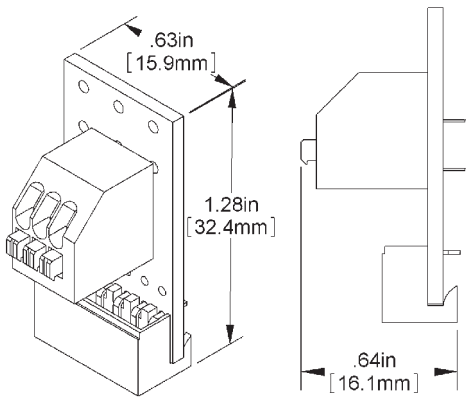
BA/AVI-ADAPT-QC

Air Valve Interface Adapter with 1/4" Quick Connects

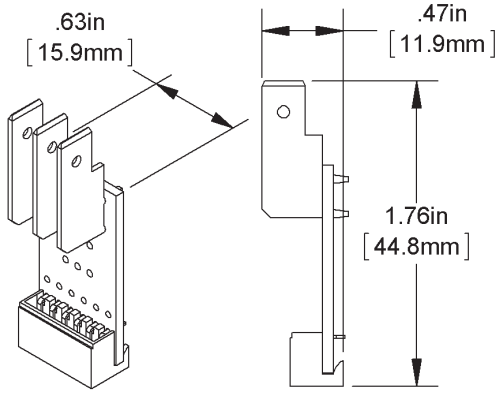
See end of Section G for list pricing.

Specifications

Wire Size: 20 to 26 Gauge
Voltage: NEC Class 2
Current: 500 mA Max



BA/AVI-ADAPT



BA/AVI-ADAPT-QC

ETA LIST PRICES

ETA Line

Rev. 10/16/12

Page	Part Number	Description	List Price
G4	**BA/DS8**	Discrete Summary Module, 8 Input	$95.00
G5	**BA/EA1**	2 Position Actuator Interface	$105.00
G6	**BA/EA2**	Modulating Acuator Interface	$87.00
G7	**BA/SQ4**	4-Step Sequence Module	$105.00
G7	**BA/SQ4-R**	4-Step Sequence Module (Rotational)	$105.00
G7	**BA/SQ4-A**	4-Step Sequence Module (with Alarm)	$280.00
G7	**BA/SQ4-RA**	4-Step Sequence Module (Rotational with Alarm)	$280.00
G8	**BA/CDSP**	Carbon Dioxide Sensor Power Supply	$60.00
G9	**BA/OAM**	Output Adjust Module	$23.00
G10	**BA/R49**	Relay Interface Module, 9 Output	$125.00
G11	**BA/DS6R**	Dry Switch Monitor, 30K Output	$95.00
G11	**BA/DS6R-10K**	Dry Switch Monitor, 10K Output	$95.00
G12	**BA/PMPB5**	Pulse Meter Pulse Buffer	$27.50
G12	**BA/TS1**	Transient Suppressor (voltage)	$7.50
G12	**BA/TS2**	Transient Suppressor (current)	$7.50
G13	**BA/TURB**	Terminal Unit Relay Board	$57.00
G13	**BA/TURB-TRK**	TURB with 4” piece of 2.75” snaptrack	$65.00
G14	**BA/BP2**	2-Position Interface Backplane	$30.00
G14	**BA/BP4**	4-Position Interface Backplane	$40.00
G14	**BA/BP8**	8-Position Interface Backplane	$65.00
G15	**BA/BP4-V**	Vertical Backplane	$40.00
G15	**BA/BP-BR**	Bridge (to connect Vertical Backplanes)	$22.00
G16	**BA/TRK01**	TR2 Snaptrack, 1.25” length	$5.00
G16	**BA/TRK02**	TR2 Snaptrack, 2” length	$6.00
G16	**BA/TRK04**	TR2 Snaptrack, 4” length	$8.00
G16	**BA/TRK08**	TR2 Snaptrack, 8” length	$10.00
G16	**BA/TRK12**	TR2 Snaptrack, 12” length	$12.00
G16	**BA/TRK18**	TR2 Snaptrack, 18” length	$14.00
G16	**BA/TRK48**	TR2 Snaptrack, 48” length	$40.00
G16	**BA/PAN16**	Panduit 1x3x16” Wire Duct	$39.00
G17	**BA/PS17**	Power Supply Fuse Block	$300.00
G17	**BA/PS17CB**	Power Supply with Circuit Breakers	$350.00

Gray shaded items follow the Buy and Resale Multiplier.

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Page	Part Number	Description	List Price
G18	**BA/VC2700-HW-STM**	2.7 Amp Volt. Conv., Half-Wave, Snaptrack Mountable	$220.00
G18	**BA/VC2700-FW-STM**	2.7 Amp Volt. Conv., Full-Wave, Snaptrack Mountable	$220.00
G19	**BA/LVTM**	Line Voltage Transformer Module with power cord connector	$110.00
G19	**BA/LVTM-TB**	Line Voltage Transformer Module with terminal block	$90.00
G19	**BA/PWR-CORD-18”**	18” Power Cord	$5.25
G19	**BA/PWR-CORD-36”**	36” Power Cord	$5.25
G19	**BA/TB4**	Terminal Block Module for the VC2700	$40.00
G19	**BA/TB4-VC100**	Terminal Block with VC100 for the VC2700	$65.00
G20	**BA/COMBLK**	Communications Cable Terminal Block	$65.00
G20	**BA/TB18**	Pluggable Terminal Block	$55.00
G20	**BA/TB18C**	Pluggable Terminal Block (odds common)	$90.00
G20	**BA/TB18C2**	Pluggable Terminal Block (odds common, evens common)	$125.00
G21	**BA/3312VC**	Voltage Converter (33VDC to 12VDC)	$120.00
G22	**BA/RPTR**	RS-485 Repeater	$215.00
G23	**BA/RPTR-KIT**	RS-485 Repeater Communication Kit	$335.00
G24	**BA/FOX**	RS-485 Fiber Optic Transceiver	$340.00
G25	**BA/FOX-KIT**	FOX Communication Kit	$460.00
G26	**BA/RBP**	Communications Repeater Backplane	$90.00
G26	**BA/RBP-TRK**	RBP with 4” piece of 2.75” snaptrack	$98.00
G27	**BA/SRBP**	Single Repeater Backplane	$50.00
G27	**BA/SRBP-TRK**	SRBP with 2” piece of 2.75” snaptrack	$56.00
G28	**BA/COMSRG**	Communications Surge Protector	$55.00
G29	**BA/TUCOM**	Terminal Unit Communications Block	$22.00
G29	**BA/BELCON**	Mating Pair of Belimo® Connectors	$12.00
G30	**BA/44208N1S**	Steel Enclosure, 44x20x8	$1,040.00
G30	**BA/44208N4XS**	Painted Steel Encl., 44x20x8	$3,020.00
G31	**BA/32208N1S**	Steel Enclosure, 32x20x8	$1,030.00
G31	**BA/20208N1S**	Steel Enclosure, 20x20x8	$970.00
G32	**BA/BP185X285**	Large Backplate (for 44x20x8 Encl.)	$80.00
G32	**BA/BP6X185**	Small Backplate	$35.00
G32	**BA/BCG**	Bracket Cable Guide (Set of 2)	$16.00
G33	**BA/PLCON1**	PremierLink™ Connector 1	$105.00
G33	**BA/PLCON2**	PremierLink™ Connector 2	$90.00
G34	**BA/AVI**	Air Valve Interface	$150.00
G34	**BA/AVI-TRK**	Air Valve Interface with 4” piece of 2.75” Snaptrack	$158.00
G35	**BA/AVI-ADAPT**	Air Valve Interface Adapter with toggle connector	$14.00
G35	**BA/AVI-ADAPT-QC**	Air Valve Interface Adapter with 1/4” Quick Connects	$18.00

Gray shaded items follow the Buy and Resale Multiplier.

The temperature sensor shouldn't have to be in your interior design plans.



The Button Sensor

Paintable • Inconspicuous • Highly Accurate

For videos & information
on the Button Sensor,
visit **www.bapihvac.com/button**!

Temperature, Humidity & Pressure Sensor Overview

There are many facilities and locations today that rely on temperature, pressure and humidity sensors and transmitters to provide a stable, secure environment, such as hospitals, clean rooms and data centers. The sensor or transmitter itself can make or break the system, therefore they must be dependable, accurate and 100% compatible with the building control system. More demanding environments, advances in technology, and changing customer needs keep the industry striving for new and improved sensors and transmitters. As the industry continues to change, BAPI will be at the forefront providing high performance solutions for real world applications.

BAPI offers a wide range of temperature, humidity and pressure sensors and transmitters in all of our room, duct, immersion and outside air units so that they are 100% compatible with the facility's control system.

Temperature Sensors & Transmitters

THERMISTORS - pages H2 - H14

Thermistors are thermally sensitive resistors known for exhibiting a large change in resistance with only a small change in temperature. A thermistor's change in resistance is non-linear. It follows a pre-defined curve which is provided by the thermistor manufacturer.

RTDs - pages H15 - H20

RTDs (Resistance Temperature Detectors) are thermally sensitive resistive elements that exhibit a small change in resistance per degree of temperature change. RTDs are especially recognized for excellent linearity throughout their temperature range with a high degree of accuracy and repeatability.

SEMICONDUCTORS - pages H21 - H23

Semiconductors are designed to exhibit a defined current output directly proportional to the absolute temperature (°K). This property makes them the most linear of all the common commercial HVAC/R sensing elements. By putting this current output across a resistor, a proportional output voltage is produced.

TEMPERATURE TRANSMITTERS - pages H24 - H25

Temperature transmitters incorporate a sensor —either a 10K thermistor or a platinum RTD (100 Ω or 1 kΩ)— and an amplifier. These devices provide an accurate and predictable 4 to 20mA output over a specified temperature range. They are specifically designed for temperature sensing and transmission over long distances without degradation of the 4 to 20mA signal.

Humidity Transmitters & Pressure Sensors

HUMIDITY TRANSMITTERS - pages H26 - H27

Humidity transmitters provide a high accuracy 4 to 20mA, 0 to 5V or 0 to 10V humidity measurement. Accuracies of 2% or 3% Relative Humidity (RH) are available. BAPI room units are protected by a molded housing with an integral filter, while duct and outside air units come with a removeable 100 micron sintered stainless steel filter. The sensor is unaffected by volatile organic compounds (VOC's) or surface contamination.

PRESSURE SENSORS - pages H28 - H34

The heart of every BAPI Pressure Sensor is a micro-machined, single-crystal silicon, piezoresistive pressure sensor that changes resistance as a function of applied pressure. Each sensor is fabricated using the same integrated circuit technology used to make millions of cell phones, game machines and personal computers. Since silicon strain gauges have high output levels in relation to the pressure applied, the pressure levels in the BAPI diaphragm can be lower than in other non-silicon strain gauges. This means a more accurate measurement of lower pressure levels.

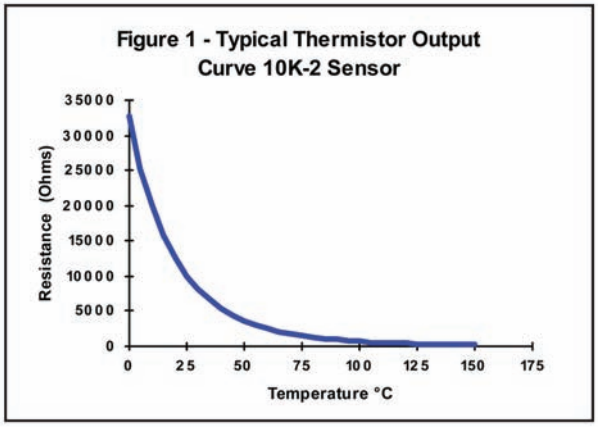
Thermistor Overview

BAPI Sensor Specifications

Rev. 10/16/12

Thermistor Description

BAPI Thermistors are thermally sensitive resistors known for exhibiting a large change in resistance with only a small change in temperature. It is important to note that a thermistor's change in resistance is non-linear. It follows a pre-defined curve which is provided by the thermistor manufacturer. An example of a thermistor output curve can be seen in **Figure 1**.



Thermistors are manufactured to follow a specific curve with a high degree of accuracy. All BAPI thermistors have a standard accuracy of ± 0.2 °C throughout the commercial temperature range of 0 to 70 °C. BAPI also has available a higher accuracy sensor for meeting tougher specs. The extra precision [XP] line has an initial accuracy of ± 0.1 °C throughout the commercial temperature range of 0 to 70 °C. Please call for availability and pricing on [XP] line thermistors. Both accuracy levels allow BAPI thermistors to be interchanged without the extra expense of offsetting the controller.

* All Passive Thermistors 10K Ω and smaller are CE compliant.

Thermistor Specifications

DEFINITION OF SPECIFICATION TERMS

Interchangeability Tolerance (Accuracy):
The maximum amount that thermistors following the same curve will differ from each other.

Dissipation Constant:
The power needed to raise the thermistor's body temperature by 1°C. At the heart of all BAPI thermistor products is a sensor with a 2.7 mW/°C dissipation constant to ensure that self-heating stays at an absolute minimum.

Stability (drift):
The amount that the resistance characteristics of a thermistor will change. BAPI uses only the highest quality, "pre-aged" thermistors with very small drift values. Over a ten year span, BAPI thermistors will not change more than 0.1°C.

Operating Range:
The operating range shown is for the thermistor only. The mounting package may further limit the operating range and is described on each mounting type specification. The thermal time constant will also be affected based on the added mass of the stainless steel probe and moisture protection encapsulation.

Thermal Time Constant
Bare sensors are typically measured and specified in still air and are timed at the statistical 63.2% of the step temperature change. A stirred liquid test will typically result in a much faster response time and is also timed at 63.2% of the step temperature change. The time constant is always the same whatever the temperature step change may be.

Thermistor Specifications

Interchangeability Tolerance (Accuracy):
Standard Sensor: ± 0.2 °C (0 to 70 °C)
Wide Range Standard: ± 0.4 °C (-55 to 150 °C)

High Accuracy [XP] Sensor: ± 0.1 °C (0 to 70 °C)
Wide Range High Accuracy: ± 0.2 °C (-55 to 150 °C)

Dissipation Constant: 2.7 mW/°C

Stability (drift): Less than 0.02 °C / year

Themal Time Constant: 5 seconds (bead in still air)
.5 seconds (stirred liquid)

Sensor Type	Reference Resistance	Operating Range
1.8K	1.8 KΩ @ 25 °C	-55 to 150 °C
2.2K	2.2 KΩ @ 25 °C	-55 to 150 °C
3K**	3 KΩ @ 25 °C	-55 to 150 °C
3.3K	3.3 KΩ @ 25 °C	-55 to 150 °C
10K-2**	10 KΩ @ 25 °C	-55 to 150 °C
10K-3**	10 KΩ @ 25 °C	-55 to 150 °C
10K-3(11K)**	5.2 KΩ @ 25 °C	-55 to 150 °C
20K**	20 KΩ @ 25 °C	-55 to 150 °C
47K	47 KΩ @ 25 °C	-55 to 150 °C
50K	50 KΩ @ 25 °C	-80 to 150 °C
100K**	100 KΩ @ 25 °C	-55 to 150 °C

Other Thermistors are available. Contact BAPI for availability and specifications of additional thermistors.

**Available as an [XP] high accuracy sensor.
Example: BA/10K-2[XP]-I-2" (immersion sensor)

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1.8K Thermistor Output Table

°F	°C	Ohms
-39	-39.44	34389
-37	-38.33	32336
-35	-37.22	30419
-33	-36.11	28628
-31	-35.00	26955
-29	-33.89	25390
-27	-32.78	23927
-25	-31.67	22557
-23	-30.56	21275
-21	-29.44	20064
-19	-28.33	18939
-17	-27.22	17885
-15	-26.11	16896
-13	-25.00	15969
-11	-23.89	15098
-9	-22.78	14281
-7	-21.67	13512
-5	-20.56	12791
-3	-19.44	12106
-1	-18.33	11468
1	-17.22	10868
3	-16.11	10303
5	-15.00	9771
7	-13.89	9270
9	-12.78	8798
11	-11.67	8352
13	-10.56	7933
15	-9.44	7533
17	-8.33	7159
19	-7.22	6807
21	-6.11	6473
23	-5.00	6159
25	-3.89	5861
27	-2.78	5580
29	-1.67	5314
31	-0.56	5062
33	0.56	4822
35	1.67	4596
37	2.78	4383
39	3.89	4180
41	5.00	3989
43	6.11	3807
45	7.22	3635
47	8.33	3471
49	9.44	3316
51	10.56	3167
53	11.67	3028
55	12.78	2895
57	13.89	2769
59	15.00	2649
61	16.11	2535
63	17.22	2426
65	18.33	2323
67	19.44	2225
69	20.56	2131
71	21.67	2042
73	22.78	1957
75	23.89	1877
77	25.00	1800
79	26.11	1727
81	27.22	1657
83	28.33	1590
85	29.44	1527
87	30.56	1466
89	31.67	1408
91	32.78	1353
93	33.89	1300
95	35.00	1250
97	36.11	1201
99	37.22	1155
101	38.33	1111
103	39.44	1069
105	40.56	1029
107	41.67	990
109	42.78	954
111	43.89	918
113	45.00	885
115	46.11	852
117	47.22	822
119	48.33	792
121	49.44	763
123	50.56	736
125	51.67	710
127	52.78	685
129	53.89	661
131	55.00	638
133	56.11	616
135	57.22	595
137	58.33	574
139	59.44	555
141	60.56	536
143	61.67	518
145	62.78	500
147	63.89	484
149	65.00	468
151	66.11	452
153	67.22	438
155	68.33	423
157	69.44	410
159	70.56	396
161	71.67	384
163	72.78	372
165	73.89	360
167	75.00	349
169	76.11	338
171	77.22	327
173	78.33	317
175	79.44	307
177	80.56	298
179	81.67	289
181	82.78	280
183	83.89	272
185	85.00	264
187	86.11	256

* All Passive Thermistors 10K Ω and smaller are CE compliant.

2.2K Thermistor Output Table CE*

BAPI Sensor Specifications

Rev. 10/16/12

2.2K Thermistor Output Table

°F	°C	Ohms	°F	°C	Ohms	°F	°C	Ohms
-39	-39.44	72730	37	2.78	6388	113	45.00	983
-37	-38.33	67606	39	3.89	6043	115	46.11	942
-35	-37.22	62878	41	5.00	5719	117	47.22	902
-33	-36.11	58513	43	6.11	5414	119	48.33	864
-31	-35.00	54481	45	7.22	5128	121	49.44	828
-29	-33.89	50753	47	8.33	4858	123	50.56	794
-27	-32.78	47306	49	9.44	4605	125	51.67	761
-25	-31.67	44116	51	10.56	4364	127	52.78	730
-23	-30.56	41162	53	11.67	4139	129	53.89	700
-21	-29.44	38403	55	12.78	3927	131	55.00	672
-19	-28.33	35869	57	13.89	3727	133	56.11	645
-17	-27.22	33519	59	15.00	3539	135	57.22	619
-15	-26.11	31338	61	16.11	3361	137	58.33	595
-13	-25.00	29314	63	17.22	3194	139	59.44	571
-11	-23.89	27434	65	18.33	3035	141	60.56	549
-9	-22.78	25687	67	19.44	2886	143	61.67	528
-7	-21.67	24063	69	20.56	2743	145	62.78	507
-5	-20.56	22552	71	21.67	2610	147	63.89	488
-3	-19.44	21134	73	22.78	2484	149	65.00	469
-1	-18.33	19826	75	23.89	2365	151	66.11	451
1	-17.22	18607	77	25.00	2252	153	67.22	434
3	-16.11	17471	79	26.11	2145	155	68.33	418
5	-15.00	16412	81	27.22	2044	157	69.44	402
7	-13.89	15424	83	28.33	1949	159	70.56	387
9	-12.78	14502	85	29.44	1858	161	71.67	373
11	-11.67	13641	87	30.56	1771	163	72.78	359
13	-10.56	12837	89	31.67	1690	165	73.89	346
15	-9.44	12079	91	32.78	1613	167	75.00	333
17	-8.33	11376	93	33.89	1540	169	76.11	321
19	-7.22	10719	95	35.00	1471	171	77.22	310
21	-6.11	10104	97	36.11	1405	173	78.33	299
23	-5.00	9529	99	37.22	1342	175	79.44	288
25	-3.89	8989	101	38.33	1283	177	80.56	278
27	-2.78	8484	103	39.44	1226	179	81.67	268
29	-1.67	8011	105	40.56	1172	181	82.78	259
31	-0.56	7566	107	41.67	1122	183	83.89	250
33	0.56	7146	109	42.78	1073	185	85.00	241
35	1.67	6755	111	43.89	1027	187	86.11	233

* All Passive Thermistors 10K Ω and smaller are CE compliant.

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3K Thermistor Output Table

°F	°C	Ohms
-39	-39.44	96941
-37	-38.33	90108
-35	-37.22	83804
-33	-36.11	77983
-31	-35.00	72607
-29	-33.89	67637
-27	-32.78	63041
-25	-31.67	58789
-23	-30.56	54851
-21	-29.44	51173
-19	-28.33	47795
-17	-27.22	44663
-15	-26.11	41756
-13	-25.00	39059
-11	-23.89	36553
-9	-22.78	34225
-7	-21.67	32061
-5	-20.56	30047
-3	-19.44	28157
-1	-18.33	26414
1	-17.22	24790
3	-16.11	23277
5	-15.00	21865
7	-13.89	20549
9	-12.78	19320
11	-11.67	18173
13	-10.56	17101
15	-9.44	16091
17	-8.33	15155
19	-7.22	14280
21	-6.11	13461
23	-5.00	12694
25	-3.89	11975
27	-2.78	11302
29	-1.67	10671
31	-0.56	10079
33	0.56	9519
35	1.67	8999
37	2.78	8510
39	3.89	8050
41	5.00	7619
43	6.11	7213
45	7.22	6831
47	8.33	6472
49	9.44	6134
51	10.56	5813
53	11.67	5513
55	12.78	5231
57	13.89	4965
59	15.00	4714
61	16.11	4478
63	17.22	4254
65	18.33	4043
67	19.44	3844
69	20.56	3655
71	21.67	3477
73	22.78	3309
75	23.89	3150
77	25.00	3000
79	26.11	2858
81	27.22	2723
83	28.33	2596
85	29.44	2475
87	30.56	2360
89	31.67	2252
91	32.78	2149
93	33.89	2051
95	35.00	1959
97	36.11	1871
99	37.22	1788
101	38.33	1709
103	39.44	1634
105	40.56	1562
107	41.67	1494
109	42.78	1430
111	43.89	1368
113	45.00	1310
115	46.11	1255
117	47.22	1202
119	48.33	1151
121	49.44	1104
123	50.56	1058
125	51.67	1014
127	52.78	973
129	53.89	933
131	55.00	895
133	56.11	860
135	57.22	825
137	58.33	793
139	59.44	761
141	60.56	731
143	61.67	703
145	62.78	676
147	63.89	650
149	65.00	625
151	66.11	601
153	67.22	578
155	68.33	556
157	69.44	536
159	70.56	516
161	71.67	496
163	72.78	478
165	73.89	461
167	75.00	444
169	76.11	428
171	77.22	413
173	78.33	398
175	79.44	384
177	80.56	370
179	81.67	357
181	82.78	345
183	83.89	333
185	85.00	321
187	86.11	310

* All Passive Thermistors 10K Ω and smaller are CE compliant.

3.25K Thermistor Output Table

BAPI Sensor Specifications

CE *

Rev. 10/16/12

3.25K Thermistor Output Table

°F	°C	Ohms	°F	°C	Ohms	°F	°C	Ohms
-39	-39.44	15186.56	37	2.78	6837.44	113	45.00	1585.94
-37	-38.33	15052.49	39	3.89	6609.89	115	46.11	1524.66
-35	-37.22	14911.96	41	5.00	6386.78	117	47.22	1465.89
-33	-36.11	14764.88	43	6.11	6168.32	119	48.33	1409.52
-31	-35.00	14611.20	45	7.22	5954.67	121	49.44	1355.46
-29	-33.89	14450.88	47	8.33	5745.99	123	50.56	1303.62
-27	-32.78	14283.92	49	9.44	5542.40	125	51.67	1253.90
-25	-31.67	14110.34	51	10.56	5344.00	127	52.78	1206.22
-23	-30.56	13930.19	53	11.67	5150.86	129	53.89	1160.50
-21	-29.44	13743.55	55	12.78	4963.05	131	55.00	1116.66
-19	-28.33	13550.53	57	13.89	4780.59	133	56.11	1074.61
-17	-27.22	13351.29	59	15.00	4603.49	135	57.22	1034.28
-15	-26.11	13145.98	61	16.11	4431.76	137	58.33	995.60
-13	-25.00	12934.84	63	17.22	4265.36	139	59.44	958.50
-11	-23.89	12718.09	65	18.33	4104.27	141	60.56	922.92
-9	-22.78	12496.01	67	19.44	3948.43	143	61.67	888.78
-7	-21.67	12268.90	69	20.56	3797.79	145	62.78	856.04
-5	-20.56	12037.10	71	21.67	3652.26	147	63.89	824.62
-3	-19.44	11800.96	73	22.78	3511.76	149	65.00	794.48
-1	-18.33	11560.87	75	23.89	3376.20	151	66.11	765.56
1	-17.22	11317.24	77	25.00	3245.47	153	67.22	737.80
3	-16.11	11070.48	79	26.11	3119.49	155	68.33	711.16
5	-15.00	10821.04	81	27.22	2998.12	157	69.44	685.59
7	-13.89	10569.37	83	28.33	2881.26	159	70.56	661.04
9	-12.78	10315.94	85	29.44	2768.79	161	71.67	637.48
11	-11.67	10061.23	87	30.56	2660.58	163	72.78	614.85
13	-10.56	9805.69	89	31.67	2556.51	165	73.89	593.12
15	-9.44	9549.82	91	32.78	2456.46	167	75.00	572.26
17	-8.33	9294.07	93	33.89	2360.31	169	76.11	552.21
19	-7.22	9038.90	95	35.00	2267.92	171	77.22	532.96
21	-6.11	8784.77	97	36.11	2179.17	173	78.33	514.46
23	-5.00	8532.11	99	37.22	2093.95	175	79.44	496.68
25	-3.89	8281.35	101	38.33	2012.12	177	80.56	479.60
27	-2.78	8032.88	103	39.44	1933.57	179	81.67	463.18
29	-1.67	7787.08	105	40.56	1858.18	181	82.78	447.40
31	-0.56	7544.32	107	41.67	1785.84	183	83.89	432.22
33	0.56	7304.92	109	42.78	1716.42	185	85.00	417.63
35	1.67	7069.20	111	43.89	1649.82	187	86.11	403.60

* All Passive Thermistors 10K Ω and smaller are CE compliant.

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3.3K Thermistor Output Table

°F	°C	Ohms
-39	-39.44	106795
-37	-38.33	99266
-35	-37.22	92318
-33	-36.11	85904
-31	-35.00	79980
-29	-33.89	74504
-27	-32.78	69440
-25	-31.67	64754
-23	-30.56	60416
-21	-29.44	56363
-19	-28.33	52642
-17	-27.22	49191
-15	-26.11	45989
-13	-25.00	43018
-11	-23.89	40257
-9	-22.78	37693
-7	-21.67	35308
-5	-20.56	33091
-3	-19.44	31009
-1	-18.33	29089
1	-17.22	27300
3	-16.11	25633
5	-15.00	24078
7	-13.89	22628
9	-12.78	21275
11	-11.67	20012
13	-10.56	18831
15	-9.44	17719
17	-8.33	16688
19	-7.22	15724
21	-6.11	14822
23	-5.00	13977
25	-3.89	13186
27	-2.78	12445
29	-1.67	11750
31	-0.56	11098
33	0.56	10481
35	1.67	9908
37	2.78	9369
39	3.89	8863
41	5.00	8388
43	6.11	7941
45	7.22	7521
47	8.33	7126
49	9.44	6753
51	10.56	6400
53	11.67	6070
55	12.78	5759
57	13.89	5466
59	15.00	5190
61	16.11	4929
63	17.22	4684
65	18.33	4451
67	19.44	4232
69	20.56	4023
71	21.67	3828
73	22.78	3643
75	23.89	3468
77	25.00	3303
79	26.11	3146
81	27.22	2998
83	28.33	2858
85	29.44	2725
87	30.56	2598
89	31.67	2479
91	32.78	2366
93	33.89	2258
95	35.00	2157
97	36.11	2060
99	37.22	1968
101	38.33	1881
103	39.44	1799
105	40.56	1719
107	41.67	1645
109	42.78	1574
111	43.89	1506
113	45.00	1442
115	46.11	1381
117	47.22	1323
119	48.33	1267
121	49.44	1215
123	50.56	1164
125	51.67	1116
127	52.78	1071
129	53.89	1027
131	55.00	986
133	56.11	946
135	57.22	908
137	58.33	872
139	59.44	838
141	60.56	805
143	61.67	774
145	62.78	744
147	63.89	715
149	65.00	688
151	66.11	661
153	67.22	636
155	68.33	612
157	69.44	590
159	70.56	567
161	71.67	546
163	72.78	526
165	73.89	507
167	75.00	489
169	76.11	471
171	77.22	454
173	78.33	438
175	79.44	422
177	80.56	407
179	81.67	393
181	82.78	379
183	83.89	366
185	85.00	354
187	86.11	341

* All Passive Thermistors 10K Ω and smaller are CE compliant.

10K-2 Thermistor Output Table

BAPI Sensor Specifications

CE *

Rev. 10/16/12

10K-2 Thermistor Output Table

°F	°C	Ohms
-39	-39.44	323839
-37	-38.33	300974
-35	-37.22	279880
-33	-36.11	260410
-31	-35.00	242427
-29	-33.89	225809
-27	-32.78	210443
-25	-31.67	196227
-23	-30.56	183068
-21	-29.44	170775
-19	-28.33	159488
-17	-27.22	149024
-15	-26.11	139316
-13	-25.00	130306
-11	-23.89	121939
-9	-22.78	114165
-7	-21.67	106939
-5	-20.56	100218
-3	-19.44	93909
-1	-18.33	88090
1	-17.22	82670
3	-16.11	77620
5	-15.00	72911
7	-13.89	68518
9	-12.78	64419
11	-11.67	60592
13	-10.56	57017
15	-9.44	53647
17	-8.33	50526
19	-7.22	47606
21	-6.11	44874
23	-5.00	42317
25	-3.89	39921
27	-2.78	37676
29	-1.67	35573
31	-0.56	33599
33	0.56	31732
35	1.67	29996
37	2.78	28365
39	3.89	26834
41	5.00	25395
43	6.11	24042
45	7.22	22770
47	8.33	21573
49	9.44	20446
51	10.56	19376
53	11.67	18378
55	12.78	17437
57	13.89	16550
59	15.00	15714
61	16.11	14925
63	17.22	14180
65	18.33	13478
67	19.44	12814
69	20.56	12182
71	21.67	11590
73	22.78	11030
75	23.89	10501
77	25.00	10000
79	26.11	9526
81	27.22	9078
83	28.33	8653
85	29.44	8251
87	30.56	7866
89	31.67	7505
91	32.78	7163
93	33.89	6838
95	35.00	6530
97	36.11	6238
99	37.22	5960
101	38.33	5697
103	39.44	5447
105	40.56	5207
107	41.67	4981
109	42.78	4766
111	43.89	4561
113	45.00	4367
115	46.11	4182
117	47.22	4006
119	48.33	3838
121	49.44	3679
123	50.56	3525
125	51.67	3380
127	52.78	3242
129	53.89	3111
131	55.00	2985
133	56.11	2865
135	57.22	2751
137	58.33	2642
139	59.44	2538
141	60.56	2438
143	61.67	2343
145	62.78	2252
147	63.89	2165
149	65.00	2082
151	66.11	2003
153	67.22	1927
155	68.33	1855
157	69.44	1785
159	70.56	1718
161	71.67	1655
163	72.78	1594
165	73.89	1536
167	75.00	1480
169	76.11	1427
171	77.22	1375
173	78.33	1326
175	79.44	1279
177	80.56	1234
179	81.67	1190
181	82.78	1149
183	83.89	1109
185	85.00	1070
187	86.11	1034

* All Passive Thermistors 10K Ω and smaller are CE compliant.

10K-3 Thermistor Output Table

°F	°C	Ohms
-39	-39.44	232032
-37	-38.33	217394
-35	-37.22	203774
-33	-36.11	191093
-31	-35.00	179281
-29	-33.89	168275
-27	-32.78	158013
-25	-31.67	148442
-23	-30.56	139511
-21	-29.44	131100
-19	-28.33	123317
-17	-27.22	116045
-15	-26.11	109247
-13	-25.00	102889
-11	-23.89	96941
-9	-22.78	91374
-7	-21.67	86160
-5	-20.56	81276
-3	-19.44	76659
-1	-18.33	72371
1	-17.22	68348
3	-16.11	64574
5	-15.00	61031
7	-13.89	57703
9	-12.78	54578
11	-11.67	51641
13	-10.56	48879
15	-9.44	46259
17	-8.33	43817
19	-7.22	41519
21	-6.11	39354
23	-5.00	37316
25	-3.89	35395
27	-2.78	33585
29	-1.67	31878
31	-0.56	30267
33	0.56	28735
35	1.67	27302
37	2.78	25948
39	3.89	24670
41	5.00	23462
43	6.11	22320
45	7.22	21241
47	8.33	20220
49	9.44	19254
51	10.56	18332
53	11.67	17467
55	12.78	16648
57	13.89	15872
59	15.00	15136
61	16.11	14439
63	17.22	13778
65	18.33	13151
67	19.44	12556
69	20.56	11987
71	21.67	11451
73	22.78	10942
75	23.89	10459
77	25.00	10000
79	26.11	9564
81	27.22	9149
83	28.33	8754
85	29.44	8379
87	30.56	8019
89	31.67	7679
91	32.78	7355
93	33.89	7047
95	35.00	6754
97	36.11	6474
99	37.22	6208
101	38.33	5954
103	39.44	5712
105	40.56	5479
107	41.67	5258
109	42.78	5048
111	43.89	4847
113	45.00	4656
115	46.11	4473
117	47.22	4298
119	48.33	4131
121	49.44	3971
123	50.56	3817
125	51.67	3671
127	52.78	3532
129	53.89	3398
131	55.00	3271
133	56.11	3149
135	57.22	3032
137	58.33	2920
139	59.44	2812
141	60.56	2709
143	61.67	2610
145	62.78	2516
147	63.89	2425
149	65.00	2339
151	66.11	2256
153	67.22	2176
155	68.33	2099
157	69.44	2026
159	70.56	1955
161	71.67	1887
163	72.78	1822
165	73.89	1760
167	75.00	1700
169	76.11	1642
171	77.22	1587
173	78.33	1534
175	79.44	1483
177	80.56	1433
179	81.67	1386
181	82.78	1341
183	83.89	1297
185	85.00	1255
187	86.11	1214

* All Passive Thermistors 10K Ω and smaller are CE compliant.

10K-3 (11K) Thermistor Output Table

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10K-3 (11K) Thermistor Output Table

°F	°C	Ohms
-39	-39.44	10502
-37	-38.33	10470
-35	-37.22	10437
-33	-36.11	10401
-31	-35.00	10364
-29	-33.89	10325
-27	-32.78	10284
-25	-31.67	10241
-23	-30.56	10196
-21	-29.44	10148
-19	-28.33	10099
-17	-27.22	10048
-15	-26.11	9994
-13	-25.00	9938
-11	-23.89	9879
-9	-22.78	9818
-7	-21.67	9755
-5	-20.56	9689
-3	-19.44	9620
-1	-18.33	9549
1	-17.22	9475
3	-16.11	9399
5	-15.00	9320
7	-13.89	9239
9	-12.78	9155
11	-11.67	9068
13	-10.56	8979
15	-9.44	8887
17	-8.33	8793
19	-7.22	8696
21	-6.11	8597
23	-5.00	8496
25	-3.89	8392
27	-2.78	8286
29	-1.67	8178
31	-0.56	8068
33	0.56	7955
35	1.67	7841
37	2.78	7725
39	3.89	7608
41	5.00	7489
43	6.11	7369
45	7.22	7247
47	8.33	7124
49	9.44	7001
51	10.56	6875
53	11.67	6749
55	12.78	6623
57	13.89	6497
59	15.00	6370
61	16.11	6244
63	17.22	6117
65	18.33	5990
67	19.44	5863
69	20.56	5736
71	21.67	5611
73	22.78	5486
75	23.89	5361
77	25.00	5238
79	26.11	5116
81	27.22	4995
83	28.33	4875
85	29.44	4756
87	30.56	4638
89	31.67	4522
91	32.78	4408
93	33.89	4295
95	35.00	4185
97	36.11	4076
99	37.22	3968
101	38.33	3863
103	39.44	3760
105	40.56	3657
107	41.67	3558
109	42.78	3460
111	43.89	3365
113	45.00	3271
115	46.11	3180
117	47.22	3090
119	48.33	3003
121	49.44	2918
123	50.56	2834
125	51.67	2753
127	52.78	2673
129	53.89	2596
131	55.00	2521
133	56.11	2448
135	57.22	2377
137	58.33	2307
139	59.44	2240
141	60.56	2173
143	61.67	2110
145	62.78	2048
147	63.89	1987
149	65.00	1929
151	66.11	1872
153	67.22	1817
155	68.33	1763
157	69.44	1711
159	70.56	1660
161	71.67	1611
163	72.78	1563
165	73.89	1517
167	75.00	1472
169	76.11	1429
171	77.22	1387
173	78.33	1346
175	79.44	1307
177	80.56	1268
179	81.67	1231
181	82.78	1195
183	83.89	1160
185	85.00	1126
187	86.11	1094

* All Passive Thermistors 10K Ω and smaller are CE compliant.

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20K Thermistor Output Table

°F	°C	Ohms
-39	-39.44	776470
-37	-38.33	719538
-35	-37.22	667144
-33	-36.11	618900
-31	-35.00	574453
-29	-33.89	533481
-27	-32.78	495691
-25	-31.67	460818
-23	-30.56	428619
-21	-29.44	398615
-19	-28.33	371140
-17	-27.22	345732
-15	-26.11	322223
-13	-25.00	300459
-11	-23.89	280301
-9	-22.78	261622
-7	-21.67	244304
-5	-20.56	228239
-3	-19.44	213201
-1	-18.33	199368
1	-17.22	186518
3	-16.11	174575
5	-15.00	163471
7	-13.89	153140
9	-12.78	143526
11	-11.67	134575
13	-10.56	126236
15	-9.44	118397
17	-8.33	111156
19	-7.22	104402
21	-6.11	98099
23	-5.00	92214
25	-3.89	86719
27	-2.78	81583
29	-1.67	76783
31	-0.56	72294
33	0.56	68057
35	1.67	64129
37	2.78	60451
39	3.89	57005
41	5.00	53777
43	6.11	50750
45	7.22	47912
47	8.33	45249
49	9.44	42750
51	10.56	40383
53	11.67	38180
55	12.78	36111
57	13.89	34165
59	15.00	32336
61	16.11	30615
63	17.22	28996
65	18.33	27472
67	19.44	26037
69	20.56	24674
71	21.67	23400
73	22.78	22200
75	23.89	21068
77	25.00	20001
79	26.11	18994
81	27.22	18043
83	28.33	17145
85	29.44	16297
87	30.56	15488
89	31.67	14731
91	32.78	14016
93	33.89	13339
95	35.00	12699
97	36.11	12092
99	37.22	11519
101	38.33	10975
103	39.44	10461
105	40.56	9969
107	41.67	9507
109	42.78	9069
111	43.89	8654
113	45.00	8260
115	46.11	7886
117	47.22	7531
119	48.33	7194
121	49.44	6874
123	50.56	6567
125	51.67	6278
127	52.78	6004
129	53.89	5742
131	55.00	5494
133	56.11	5258
135	57.22	5033
137	58.33	4819
139	59.44	4616
141	60.56	4420
143	61.67	4235
145	62.78	4059
147	63.89	3892
149	65.00	3732
151	66.11	3579
153	67.22	3434
155	68.33	3295
157	69.44	3163
159	70.56	3035
161	71.67	2914
163	72.78	2799
165	73.89	2689
167	75.00	2584
169	76.11	2484
171	77.22	2388
173	78.33	2296
175	79.44	2208
177	80.56	2123
179	81.67	2043
181	82.78	1966
183	83.89	1892
185	85.00	1822
187	86.11	1754

47K Thermistor Output Table

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47K Thermistor Output Table

°F	°C	Ohms
-39	-39.44	1531956
-37	-38.33	1425406
-35	-37.22	1326920
-33	-36.11	1235843
-31	-35.00	1151576
-29	-33.89	1073571
-27	-32.78	1001327
-25	-31.67	934386
-23	-30.56	872330
-21	-29.44	814274
-19	-28.33	760902
-17	-27.22	711353
-15	-26.11	665333
-13	-25.00	622569
-11	-23.89	582814
-9	-22.78	545838
-7	-21.67	511432
-5	-20.56	479403
-3	-19.44	449314
-1	-18.33	421538
1	-17.22	395646
3	-16.11	371501
5	-15.00	348974
7	-13.89	327948
9	-12.78	308315
11	-11.67	289975
13	-10.56	272835
15	-9.44	256671
17	-8.33	241692
19	-7.22	227677
21	-6.11	214557
23	-5.00	202271
25	-3.89	190762
27	-2.78	179975
29	-1.67	169862
31	-0.56	160377
33	0.56	151399
35	1.67	143050
37	2.78	135211
39	3.89	127847
41	5.00	120927
43	6.11	114422
45	7.22	108304
47	8.33	102549
49	9.44	97134
51	10.56	91991
53	11.67	87192
55	12.78	82672
57	13.89	78412
59	15.00	74395
61	16.11	70608
63	17.22	67035
65	18.33	63663
67	19.44	60480
69	20.56	57448
71	21.67	54611
73	22.78	51929
75	23.89	49395
77	25.00	46998
79	26.11	44731
81	27.22	42586
83	28.33	40557
85	29.44	38635
87	30.56	36799
89	31.67	35076
91	32.78	33443
93	33.89	31895
95	35.00	30428
97	36.11	29036
99	37.22	27715
101	38.33	26462
103	39.44	25272
105	40.56	24133
107	41.67	23061
109	42.78	22042
111	43.89	21073
113	45.00	20153
115	46.11	19278
117	47.22	18445
119	48.33	17653
121	49.44	16899
123	50.56	16175
125	51.67	15493
127	52.78	14842
129	53.89	14223
131	55.00	13632
133	56.11	13070
135	57.22	12533
137	58.33	12021
139	59.44	11533
141	60.56	11064
143	61.67	10620
145	62.78	10196
147	63.89	9791
149	65.00	9404
151	66.11	9035
153	67.22	8682
155	68.33	8345
157	69.44	8022
159	70.56	7711
161	71.67	7416
163	72.78	7135
165	73.89	6865
167	75.00	6607
169	76.11	6359
171	77.22	6123
173	78.33	5896
175	79.44	5679
177	80.56	5469
179	81.67	5270
181	82.78	5079
183	83.89	4896
185	85.00	4721
187	86.11	4552

50K Thermistor Output Table

°F	°C	Ohms
-39	-39.44	1956240
-37	-38.33	1812199
-35	-37.22	1679700
-33	-36.11	1557748
-31	-35.00	1445439
-29	-33.89	1341952
-27	-32.78	1246540
-25	-31.67	1158525
-23	-30.56	1077290
-21	-29.44	1001621
-19	-28.33	932353
-17	-27.22	868317
-15	-26.11	809086
-13	-25.00	754271
-11	-23.89	703517
-9	-22.78	656499
-7	-21.67	612919
-5	-20.56	572506
-3	-19.44	534686
-1	-18.33	499905
1	-17.22	467604
3	-16.11	437592
5	-15.00	409692
7	-13.89	383745
9	-12.78	359601
11	-11.67	337126
13	-10.56	316194
15	-9.44	296522
17	-8.33	278353
19	-7.22	261408
21	-6.11	245599
23	-5.00	230842
25	-3.89	217062
27	-2.78	204189
29	-1.67	192156
31	-0.56	180906
33	0.56	170291
35	1.67	160449
37	2.78	151235
39	3.89	142605
41	5.00	134519
43	6.11	126941
45	7.22	119834
47	8.33	113168
49	9.44	106912
51	10.56	100988
53	11.67	95475
55	12.78	90296
57	13.89	85428
59	15.00	80852
61	16.11	76547
63	17.22	72497
65	18.33	68685
67	19.44	65095
69	20.56	61685
71	21.67	58500
73	22.78	55499
75	23.89	52669
77	25.00	50000
79	26.11	47481
81	27.22	45104
83	28.33	42859
85	29.44	40739
87	30.56	38718
89	31.67	36826
91	32.78	35037
93	33.89	33345
95	35.00	31745
97	36.11	30230
99	37.22	28796
101	38.33	27438
103	39.44	26152
105	40.56	24923
107	41.67	23768
109	42.78	22674
111	43.89	21635
113	45.00	20651
115	46.11	19716
117	47.22	18829
119	48.33	17987
121	49.44	17187
123	50.56	16421
125	51.67	15699
127	52.78	15013
129	53.89	14360
131	55.00	13740
133	56.11	13150
135	57.22	12588
137	58.33	12053
139	59.44	11544
141	60.56	11055
143	61.67	10593
145	62.78	10154
147	63.89	9734
149	65.00	9335
151	66.11	8954
153	67.22	8590
155	68.33	8243
157	69.44	7912
159	70.56	7593
161	71.67	7292
163	72.78	7004
165	73.89	6729
167	75.00	6466
169	76.11	6215
171	77.22	5975
173	78.33	5745
175	79.44	5526
177	80.56	5314
179	81.67	5113
181	82.78	4921
183	83.89	4737
185	85.00	4561
187	86.11	4392

100K Thermistor Output Table

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100K Thermistor Output Table

°F	°C	Ohms	°F	°C	Ohms	°F	°C	Ohms
-39	-39.44	3916295	37	2.78	302466	113	45.00	41303
-37	-38.33	3627711	39	3.89	285206	115	46.11	39434
-35	-37.22	3362274	41	5.00	269035	117	47.22	37660
-33	-36.11	3117987	43	6.11	253877	119	48.33	35976
-31	-35.00	2893035	45	7.22	239664	121	49.44	34376
-29	-33.89	2685770	47	8.33	226331	123	50.56	32843
-27	-32.78	2494694	49	9.44	213819	125	51.67	31399
-25	-31.67	2318444	51	10.56	201971	127	52.78	30027
-23	-30.56	2155781	53	11.67	190946	129	53.89	28722
-21	-29.44	2004274	55	12.78	180588	131	55.00	27481
-19	-28.33	1865595	57	13.89	170853	133	56.11	26300
-17	-27.22	1737397	59	15.00	161700	135	57.22	25177
-15	-26.11	1618827	61	16.11	153092	137	58.33	24107
-13	-25.00	1509102	63	17.22	144992	139	59.44	23089
-11	-23.89	1407512	65	18.33	137367	141	60.56	22111
-9	-22.78	1313405	67	19.44	130189	143	61.67	21188
-7	-21.67	1226184	69	20.56	123368	145	62.78	20308
-5	-20.56	1145306	71	21.67	117000	147	63.89	19469
-3	-19.44	1069620	73	22.78	110998	149	65.00	18670
-1	-18.33	1000019	75	23.89	105338	151	66.11	17907
1	-17.22	935383	77	25.00	100000	153	67.22	17180
3	-16.11	875329	79	26.11	94963	155	68.33	16486
5	-15.00	819505	81	27.22	90208	157	69.44	15824
7	-13.89	767589	83	28.33	85719	159	70.56	15187
9	-12.78	719284	85	29.44	81479	161	71.67	14584
11	-11.67	674319	87	30.56	77438	163	72.78	14008
13	-10.56	632442	89	31.67	73654	165	73.89	13458
15	-9.44	593086	91	32.78	70076	167	75.00	12932
17	-8.33	556739	93	33.89	66692	169	76.11	12430
19	-7.22	522842	95	35.00	63491	171	77.22	11949
21	-6.11	491217	97	36.11	60461	173	78.33	11490
23	-5.00	461699	99	37.22	57594	175	79.44	11051
25	-3.89	434134	101	38.33	54878	177	80.56	10627
27	-2.78	408383	103	39.44	52306	179	81.67	10225
29	-1.67	384316	105	40.56	49847	181	82.78	9841
31	-0.56	361813	107	41.67	47538	183	83.89	9473
33	0.56	340581	109	42.78	45349	185	85.00	9121
35	1.67	320895	111	43.89	43273	187	86.11	8783

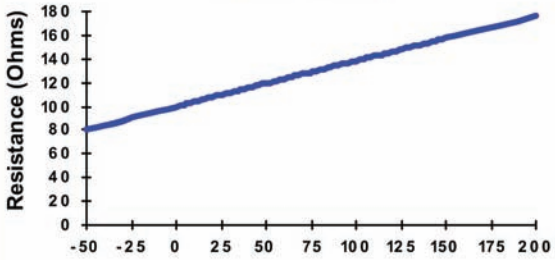
RTD Description

BAPI RTDs (Resistance Temperature Detectors) are thermally sensitive resistive elements that exhibit a small change in resistance per degree of temperature change. RTDs are especially recognized for excellent linearity throughout their temperature range with a high degree of accuracy and repeatability. An example of an RTD output curve can be seen in **Figure 2**.

RTDs supplied in BAPI products feature a standard interchangeability tolerance of ±0.3 °C measured at 0 °C. Higher accuracy sensors are also available. The Class A line [A] has an interchangeability tolerance of ± 0.15 °C measured at 0 °C. Please call for availability and pricing on Class A RTDs. Whether standard or Class A, BAPI RTDs have such a high accuracy that they can be interchanged without the expense of offsetting the controller.

Most RTD sensing elements can be packaged to withstand an extremely broad temperature range (-200 to 600°C). For most purposes, the standard operating range should be sufficient, but we also have RTDs with a higher or lower operating temperature range. BAPI offers 1 kΩ Platinum RTDs with the ranges shown in the table at right.

Figure 2 - Typical RTD Output Curve
100 Ohm Sensor



Standard & Extreme Temperature Ranges for the 1 KΩ Platinum RTD

Range	°C	°F
Standard	-60 to 150	-76 to 302
Low Temp **[1]**	-200 to 0	-328 to 32
High Temp **[2]**	100 to 210	212 to 410
Very High Temp **[3]**	200 to 600	392 to 1,112

When ordering a sensor with an "extreme" temperature range, include the number in brackets **[ ]** after the sensor type. Ex: **BA/1K[2]** is a 1 kΩ RTD with an operating range of 100 to 210°C.

RTD Specifications

Definition of Specification Terms

Tolerance of Resistance (Accuracy)

The maximum amount any RTD will differ from the standard resistance curve.

Stability (drift)

The amount that the resistance characteristics of a RTD will change over time under certain conditions.

Operating Range

The operating range shown is for the RTD sensor only. The mounting package may further limit the operating range and is described on each mounting type specification.

RTD Specifications

Tolerance of Resistance (Accuracy):
Single Point Standard: 0.12% at 0 °C
Single Point Class A: 0.06% at 0 °C
Averaging Standard: 0.2% at 0 °C

Tolerance in °C:
Single Point Standard: ±(0.3 + 0.005T); T= Temp in °C
Single Point Class A: ±(0.15 + 0.002T); T= Temp in °C
Averaging Standard: ±(0.5 + 0.005(T-25)); T= Temp in °C

Stability (drift):
0.14 °C with 6,000 continuous hours at 400 °C

Sensitivity:
1KΩ: 3.85Ω/°C (2.14Ω/°F) • 100KΩ: .385Ω/°C (.214Ω/°F)

Self Heating (1K RTD only):
0.4°C/mW at 0°C

Standardization:
DIN 43760-1980, IEC Pub 751-1983, JIS C1604-1989

Sensor Type	Reference Resistance	Temp. Coefficient	Operating Range
BA/100*	100Ω @ 0 °C	0.385Ω/°C	-60 to 150 °C
BA/100[3W]*	100Ω @ 0 °C	0.385Ω/°C	-60 to 150 °C
BA/1K[375]*	1 kΩ @ 0 °C	3.75Ω/°C	-60 to 150 °C
BA/1K[Ni]*	1 kΩ @21 °C	5.68Ω/°C	-60 to 200 °C
BA/1K*	1 kΩ @ 0 °C	3.85Ω/°C	-60 to 150 °C
BA/2K	2 kΩ @ 20 °C	8Ω/°C	-60 to 150 °C

*Available as an [A] high accuracy sensor.
Example: BA/1K[A]-I-2" (high accuracy immersion sensor)

100Ω & 100Ω (3W) Plat. RTD Output

BAPI Sensor Specifications

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100Ω & 100Ω (3W) Plat. RTD Output Table

°F	°C	Ohms	°F	°C	Ohms	°F	°C	Ohms
-40	-40.00	84.28	36	2.22	100.87	112	44.44	117.25
-38	-38.89	84.71	38	3.33	101.30	114	45.56	117.68
-36	-37.78	85.15	40	4.44	101.73	116	46.67	118.11
-34	-36.67	85.59	42	5.56	102.17	118	47.78	118.54
-32	-35.56	86.03	44	6.67	102.60	120	48.89	118.97
-30	-34.44	86.47	46	7.78	103.04	122	50.00	119.40
-28	-33.33	86.91	48	8.89	103.47	124	51.11	119.82
-26	-32.22	87.35	50	10.00	103.90	126	52.22	120.25
-24	-31.11	87.79	52	11.11	104.33	128	53.33	120.68
-22	-30.00	88.22	54	12.22	104.77	130	54.44	121.10
-20	-28.89	88.66	56	13.33	105.20	132	55.56	121.53
-18	-27.78	89.10	58	14.44	105.63	134	56.67	121.96
-16	-26.67	89.54	60	15.56	106.07	136	57.78	122.39
-14	-25.56	89.97	62	16.67	106.50	138	58.89	122.81
-12	-24.44	90.41	64	17.78	106.93	140	60.00	123.24
-10	-23.33	90.85	66	18.89	107.36	142	61.11	123.67
-8	-22.22	91.29	68	20.00	107.79	144	62.22	124.09
-6	-21.11	91.72	70	21.11	108.22	146	63.33	124.52
-4	-20.00	92.16	72	22.22	108.65	148	64.44	124.94
-2	-18.89	92.60	74	23.33	109.09	150	65.56	125.37
0	-17.78	93.03	76	24.44	109.52	152	66.67	125.80
2	-16.67	93.47	78	25.56	109.95	154	67.78	126.22
4	-15.56	93.91	80	26.67	110.38	156	68.89	126.65
6	-14.44	94.34	82	27.78	110.81	158	70.00	127.07
8	-13.33	94.78	84	28.89	111.24	160	71.11	127.50
10	-12.22	95.22	86	30.00	111.67	162	72.22	127.92
12	-11.11	95.65	88	31.11	112.10	164	73.33	128.35
14	-10.00	96.09	90	32.22	112.53	166	74.44	128.77
16	-8.89	96.52	92	33.33	112.96	168	75.56	129.20
18	-7.78	96.96	94	34.44	113.39	170	76.67	129.62
20	-6.67	97.39	96	35.56	113.82	172	77.78	130.05
22	-5.56	97.83	98	36.67	114.25	174	78.89	130.47
24	-4.44	98.26	100	37.78	114.68	176	80.00	130.89
26	-3.33	98.70	102	38.89	115.11	178	81.11	131.32
28	-2.22	99.13	104	40.00	115.54	180	82.22	131.74
30	-1.11	99.57	106	41.11	115.97	182	83.33	132.16
32	0.00	100.00	108	42.22	116.40	184	84.44	132.59
34	1.11	100.43	110	43.33	116.82	186	85.56	133.01

1K (375) Platinum RTD Output Table

°F	°C	Ohms
-40	-40.00	846.64
-38	-38.89	850.92
-36	-37.78	855.20
-34	-36.67	859.48
-32	-35.56	863.76
-30	-34.44	868.07
-28	-33.33	872.34
-26	-32.22	876.62
-24	-31.11	880.89
-22	-30.00	885.16
-20	-28.89	889.43
-18	-27.78	893.69
-16	-26.67	897.96
-14	-25.56	902.22
-12	-24.44	906.52
-10	-23.33	910.79
-8	-22.22	915.04
-6	-21.11	919.30
-4	-20.00	923.56
-2	-18.89	927.81
0	-17.78	932.07
2	-16.67	936.32
4	-15.56	940.57
6	-14.44	944.86
8	-13.33	949.11
10	-12.22	953.35
12	-11.11	957.60
14	-10.00	961.84
16	-8.89	966.08
18	-7.78	970.32
20	-6.67	974.56
22	-5.56	978.80
24	-4.44	983.07
26	-3.33	987.31
28	-2.22	991.54
30	-1.11	995.77
32	0.00	1,000.00
34	1.11	1,004.23
36	2.22	1,008.46
38	3.33	1,012.68
40	4.44	1,016.90
42	5.56	1,021.16
44	6.67	1,025.39
46	7.78	1,029.61
48	8.89	1,033.82
50	10.00	1,038.04
52	11.11	1,042.25
54	12.22	1,046.47
56	13.33	1,050.68
58	14.44	1,054.89
60	15.56	1,059.14
62	16.67	1,063.35
64	17.78	1,067.55
66	18.89	1,071.76
68	20.00	1,075.96
70	21.11	1,080.16
72	22.22	1,084.36
74	23.33	1,088.56
76	24.44	1,092.76
78	25.56	1,096.99
80	26.67	1,101.18
82	27.78	1,105.38
84	28.89	1,109.57
86	30.00	1,113.76
88	31.11	1,117.95
90	32.22	1,122.13
92	33.33	1,126.32
94	34.44	1,130.50
96	35.56	1,134.72
98	36.67	1,138.90
100	37.78	1,143.08
102	38.89	1,147.26
104	40.00	1,151.44
106	41.11	1,155.61
108	42.22	1,159.79
110	43.33	1,163.96
112	44.44	1,168.13
114	45.56	1,172.33
116	46.67	1,176.50
118	47.78	1,180.67
120	48.89	1,184.83
122	50.00	1,189.00
124	51.11	1,193.16
126	52.22	1,197.32
128	53.33	1,201.48
130	54.44	1,205.63
132	55.56	1,209.83
134	56.67	1,213.98
136	57.78	1,218.13
138	58.89	1,222.28
140	60.00	1,226.43
142	61.11	1,230.58
144	62.22	1,234.73
146	63.33	1,238.87
148	64.44	1,243.02
150	65.56	1,247.20
152	66.67	1,251.34
154	67.78	1,255.48
156	68.89	1,259.61
158	70.00	1,263.75
160	71.11	1,267.89
162	72.22	1,272.02
164	73.33	1,276.15
166	74.44	1,280.28
168	75.56	1,284.45
170	76.67	1,288.57
172	77.78	1,292.70
174	78.89	1,296.82
176	80.00	1,300.95
178	81.11	1,305.07
180	82.22	1,309.19
182	83.33	1,313.31
184	84.44	1,317.42
186	85.56	1,321.58

1K (Ni) Nickel RTD Output Table

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1K (Ni) Nickel RTD Output Table

°F	°C	Ohms
-40	-40.00	699.28
-38	-38.89	704.37
-36	-37.78	709.47
-34	-36.67	714.58
-32	-35.56	719.70
-30	-34.44	724.84
-28	-33.33	729.98
-26	-32.22	735.14
-24	-31.11	740.31
-22	-30.00	745.49
-20	-28.89	750.68
-18	-27.78	755.89
-16	-26.67	761.11
-14	-25.56	766.35
-12	-24.44	771.60
-10	-23.33	776.86
-8	-22.22	782.14
-6	-21.11	787.44
-4	-20.00	792.75
-2	-18.89	798.07
0	-17.78	803.41
2	-16.67	808.76
4	-15.56	814.13
6	-14.44	819.52
8	-13.33	824.92
10	-12.22	830.34
12	-11.11	835.77
14	-10.00	841.22
16	-8.89	846.69
18	-7.78	852.17
20	-6.67	857.66
22	-5.56	863.18
24	-4.44	868.71
26	-3.33	874.25
28	-2.22	879.81
30	-1.11	885.39
32	0.00	890.98
34	1.11	896.59
36	2.22	902.21
38	3.33	907.85
40	4.44	913.51
42	5.56	919.18
44	6.67	924.87
46	7.78	930.57
48	8.89	936.29
50	10.00	942.02
52	11.11	947.77
54	12.22	953.53
56	13.33	959.31
58	14.44	965.11
60	15.56	970.92
62	16.67	976.74
64	17.78	982.59
66	18.89	988.44
68	20.00	994.31
70	21.11	1000.20
72	22.22	1006.10
74	23.33	1012.02
76	24.44	1017.95
78	25.56	1023.89
80	26.67	1029.86
82	27.78	1035.83
84	28.89	1041.82
86	30.00	1047.83
88	31.11	1053.85
90	32.22	1059.89
92	33.33	1065.94
94	34.44	1072.00
96	35.56	1078.08
98	36.67	1084.18
100	37.78	1090.29
102	38.89	1096.42
104	40.00	1102.56
106	41.11	1108.71
108	42.22	1114.89
110	43.33	1121.07
112	44.44	1127.27
114	45.56	1133.49
116	46.67	1139.72
118	47.78	1145.97
120	48.89	1152.24
122	50.00	1158.52
124	51.11	1164.81
126	52.22	1171.12
128	53.33	1177.45
130	54.44	1183.79
132	55.56	1190.15
134	56.67	1196.53
136	57.78	1202.92
138	58.89	1209.33
140	60.00	1215.75
142	61.11	1222.19
144	62.22	1228.65
146	63.33	1235.12
148	64.44	1241.62
150	65.56	1248.13
152	66.67	1254.65
154	67.78	1261.20
156	68.89	1267.76
158	70.00	1274.34
160	71.11	1280.93
162	72.22	1287.55
164	73.33	1294.18
166	74.44	1300.83
168	75.56	1307.50
170	76.67	1314.19
172	77.78	1320.89
174	78.89	1327.62
176	80.00	1334.36
178	81.11	1341.12
180	82.22	1347.90
182	83.33	1354.70
184	84.44	1361.52
186	85.56	1368.36

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1KΩ Platinum RTD Output Table

°F	°C	Ohms
-40.00	-40.00	842.75
-38.00	-38.89	847.14
-36.00	-37.78	851.53
-34.00	-36.67	855.91
-32.00	-35.56	860.30
-30.00	-34.44	864.72
-28.00	-33.33	869.10
-26.00	-32.22	873.48
-24.00	-31.11	877.86
-22.00	-30.00	882.24
-20.00	-28.89	886.61
-18.00	-27.78	890.99
-16.00	-26.67	895.36
-14.00	-25.56	899.73
-12.00	-24.44	904.14
-10.00	-23.33	908.51
-8.00	-22.22	912.88
-6.00	-21.11	917.24
-4.00	-20.00	921.61
-2.00	-18.89	925.97
0.00	-17.78	930.33
2.00	-16.67	934.69
4.00	-15.56	939.05
6.00	-14.44	943.45
8.00	-13.33	947.80
10.00	-12.22	952.16
12.00	-11.11	956.51
14.00	-10.00	960.86
16.00	-8.89	965.21
18.00	-7.78	969.56
20.00	-6.67	973.91
22.00	-5.56	978.25
24.00	-4.44	982.64
26.00	-3.33	986.98
28.00	-2.22	991.32
30.00	-1.11	995.66
32.00	0.00	1000.00
34.00	1.11	1004.34
36.00	2.22	1008.67
38.00	3.33	1013.01
40.00	4.44	1017.34
42.00	5.56	1021.71
44.00	6.67	1026.04
46.00	7.78	1030.37
48.00	8.89	1034.70
50.00	10.00	1039.02
52.00	11.11	1043.35
54.00	12.22	1047.67
56.00	13.33	1051.99
58.00	14.44	1056.31
60.00	15.56	1060.67
62.00	16.67	1064.99
64.00	17.78	1069.30
66.00	18.89	1073.62
68.00	20.00	1077.93
70.00	21.11	1082.24
72.00	22.22	1086.55
74.00	23.33	1090.86
76.00	24.44	1095.17
78.00	25.56	1099.51
80.00	26.67	1103.81
82.00	27.78	1108.12
84.00	28.89	1112.42
86.00	30.00	1116.72
88.00	31.11	1121.02
90.00	32.22	1125.31
92.00	33.33	1129.61
94.00	34.44	1133.90
96.00	35.56	1138.24
98.00	36.67	1142.53
100.00	37.78	1146.82
102.00	38.89	1151.11
104.00	40.00	1155.39
106.00	41.11	1159.68
108.00	42.22	1163.96
110.00	43.33	1168.25
112.00	44.44	1172.53
114.00	45.56	1176.85
116.00	46.67	1181.12
118.00	47.78	1185.40
120.00	48.89	1189.68
122.00	50.00	1193.95
124.00	51.11	1198.22
126.00	52.22	1202.49
128.00	53.33	1206.76
130.00	54.44	1211.03
132.00	55.56	1215.34
134.00	56.67	1219.60
136.00	57.78	1223.87
138.00	58.89	1228.13
140.00	60.00	1232.39
142.00	61.11	1236.65
144.00	62.22	1240.91
146.00	63.33	1245.17
148.00	64.44	1249.42
150.00	65.56	1253.72
152.00	66.67	1257.97
154.00	67.78	1262.22
156.00	68.89	1266.47
158.00	70.00	1270.72
160.00	71.11	1274.97
162.00	72.22	1279.21
164.00	73.33	1283.46
166.00	74.44	1287.70
168.00	75.56	1291.98
170.00	76.67	1296.22
172.00	77.78	1300.46
174.00	78.89	1304.69
176.00	80.00	1308.93
178.00	81.11	1313.16
180.00	82.22	1317.40
182.00	83.33	1321.63
184.00	84.44	1325.86
186.00	85.56	1330.12

2KΩ Silicon RTD Output Table

BAPI Sensor Specifications

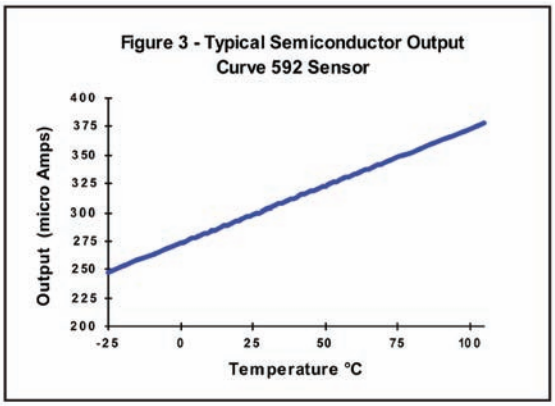
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2KΩ Silicon RTD Output Table

°F	°C	Ohms
-40	-40.00	1,583.9
-38	-38.89	1,591.0
-36	-37.78	1,598.1
-34	-36.67	1,605.3
-32	-35.56	1,612.4
-30	-34.44	1,619.7
-28	-33.33	1,626.9
-26	-32.22	1,634.1
-24	-31.11	1,641.4
-22	-30.00	1,648.7
-20	-28.89	1,656.0
-18	-27.78	1,663.3
-16	-26.67	1,670.6
-14	-25.56	1,678.0
-12	-24.44	1,685.5
-10	-23.33	1,692.9
-8	-22.22	1,700.3
-6	-21.11	1,707.8
-4	-20.00	1,715.3
-2	-18.89	1,722.8
0	-17.78	1,730.3
2	-16.67	1,737.9
4	-15.56	1,745.4
6	-14.44	1,753.1
8	-13.33	1,760.7
10	-12.22	1,768.4
12	-11.11	1,776.0
14	-10.00	1,783.7
16	-8.89	1,791.4
18	-7.78	1,799.2
20	-6.67	1,806.9
22	-5.56	1,814.7
24	-4.44	1,822.6
26	-3.33	1,830.4
28	-2.22	1,838.2
30	-1.11	1,846.1
32	0.00	1,854.0
34	1.11	1,861.9
36	2.22	1,869.9
38	3.33	1,877.8
40	4.44	1,885.8
42	5.56	1,893.9
44	6.67	1,901.9
46	7.78	1,909.9
48	8.89	1,918.0
50	10.00	1,926.1
52	11.11	1,934.2
54	12.22	1,942.4
56	13.33	1,950.5
58	14.44	1,958.7
60	15.56	1,967.0
62	16.67	1,975.2
64	17.78	1,983.5
66	18.89	1,991.8
68	20.00	2,000.1
70	21.11	2,008.4
72	22.22	2,016.7
74	23.33	2,025.1
76	24.44	2,033.5
78	25.56	2,042.0
80	26.67	2,050.4
82	27.78	2,058.8
84	28.89	2,067.3
86	30.00	2,075.8
88	31.11	2,084.4
90	32.22	2,092.9
92	33.33	2,101.5
94	34.44	2,110.1
96	35.56	2,118.8
98	36.67	2,127.4
100	37.78	2,136.0
102	38.89	2,144.7
104	40.00	2,153.4
106	41.11	2,162.2
108	42.22	2,170.9
110	43.33	2,179.7
112	44.44	2,188.5
114	45.56	2,197.4
116	46.67	2,206.2
118	47.78	2,215.1
120	48.89	2,224.0
122	50.00	2,232.9
124	51.11	2,241.8
126	52.22	2,250.8
128	53.33	2,259.7
130	54.44	2,268.7
132	55.56	2,277.8
134	56.67	2,286.9
136	57.78	2,295.9
138	58.89	2,305.0
140	60.00	2,314.1
142	61.11	2,323.3
144	62.22	2,332.4
146	63.33	2,341.6
148	64.44	2,350.8
150	65.56	2,360.1
152	66.67	2,369.4
154	67.78	2,378.6
156	68.89	2,387.9
158	70.00	2,397.2
160	71.11	2,406.6
162	72.22	2,415.9
164	73.33	2,425.3
166	74.44	2,434.7
168	75.56	2,444.2
170	76.67	2,453.7
172	77.78	2,463.2
174	78.89	2,472.7
176	80.00	2,482.2
178	81.11	2,491.7
180	82.22	2,501.3
182	83.33	2,510.9
184	84.44	2,520.5
186	85.56	2,530.2

Semiconductor Description

BAPI semiconductors are designed to exhibit a defined current output directly proportional to the absolute temperature (°K). This property makes them the most linear of all the common commercial HVAC sensing elements. By putting this current output across a resistor, a proportional output voltage is produced. An example of a semiconductor output curve can be seen in **Figure 3**.



The AD592 semiconductor temperature sensor supplied with BAPI products provides a two wire 248 to 378 micro amp output or a three wire 2.48 to 3.78 volt output over a range of -13 to 221 °F (-25 to 105 °C). These units are offset using equipment traceable to the National Institute of Standards and Technology (NIST). Each unit is then labeled with the actual temperature and the corresponding offset.

Semiconductor Specifications

Interchangeability Tolerance (Accuracy):
Offset to 0.1 °C (0.18 °F) - NIST Traceable

Offset: Required to achieve maximum accuracy. Each sensor includes a custom offset listed on each sensor.

Repeatability: ± 0.10 °C (± 0.18°F)

Linearity: ± 0.15 °C max from 0 to 70 °C
(± 0.27°F max from 32 to 158°F)

Sensor Range: -25 to 105 °C
(-13 to 221 °F) [248 to 378 °K]

Bias Voltage: 5 to 30 VDC

Accuracy Reference: 298.2 mA @ 25°C or 2.982 V @ 25°C

Temperature Output Coefficient:

2 wire:	1 µA/°C	(0.556 µA/°F)	[1 µA/°K]
3 wire	10 mV/°C	(5.556 mV/°F)	[10 mV/°K]

Definition of Specification Terms

Interchangeability Tolerance (Accuracy)
The maximum amount that sensors following the same curve will differ from each other.

Repeatability-
A measure of a sensor's ability to repeat the same output value for a given input value.

Custom Offset Definition and Example

This is how BAPI calculates the offset value provided on the sensor label:

Therm Reading_____
The actual temperature reading according to a thermometer that is certified traceable to recognized standards by the National Institute of Standards and Technology (NIST).

Sensor Reading _____
The temperature reading according to the AD592 sensor, using the output in either µA or mV and converting the output to a Fahrenheit temperature.

Offset_____
The difference between the Thermometer Reading and the Sensor Reading

To maximize the sensor accuracy, simply add the offset value of the sensor reading into the controller.

e.g. Therm Reading 74.6 Sensor Reading 73.0 Offset +1.6
Correction: Add (+1.6) °F to the sensor for an accurate reading: 73 + 1.6 = 74.6°F

e.g. Therm Reading 75.4 Sensor Reading 77.2 Offset -1.8
Correction: Add (-1.6) °F to the sensor for an accurate reading: 77.2 + (-1.8) = 75.4°F

AD592 Semiconductor Output Table

BAPI Sensor Specifications

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AD592 Semiconductor Output Table

°F	°C	µA	°F	°C	µA	°F	°C	µA
-40.0	-40.00	233.200	36.0	2.22	275.420	112.0	44.44	317.640
-38.0	-38.89	234.310	38.0	3.33	276.530	114.0	45.56	318.760
-36.0	-37.78	235.420	40.0	4.44	277.640	116.0	46.67	319.870
-34.0	-36.67	236.530	42.0	5.56	278.760	118.0	47.78	320.980
-32.0	-35.56	237.640	44.0	6.67	279.870	120.0	48.89	322.090
-30.0	-34.44	238.760	46.0	7.78	280.980	122.0	50.00	323.200
-28.0	-33.33	239.870	48.0	8.89	282.090	124.0	51.11	324.310
-26.0	-32.22	240.980	50.0	10.00	283.200	126.0	52.22	325.420
-24.0	-31.11	242.090	52.0	11.11	284.310	128.0	53.33	326.530
-22.0	-30.00	243.200	54.0	12.22	285.420	130.0	54.44	327.640
-20.0	-28.89	244.310	56.0	13.33	286.530	132.0	55.56	328.760
-18.0	-27.78	245.420	58.0	14.44	287.640	134.0	56.67	329.870
-16.0	-26.67	246.530	60.0	15.56	288.760	136.0	57.78	330.980
-14.0	-25.56	247.640	62.0	16.67	289.870	138.0	58.89	332.090
-12.0	-24.44	248.760	64.0	17.78	290.980	140.0	60.00	333.200
-10.0	-23.33	249.870	66.0	18.89	292.090	142.0	61.11	334.310
-8.0	-22.22	250.980	68.0	20.00	293.200	144.0	62.22	335.420
-6.0	-21.11	252.090	70.0	21.11	294.310	146.0	63.33	336.530
-4.0	-20.00	253.200	72.0	22.22	295.420	148.0	64.44	337.640
-2.0	-18.89	254.310	74.0	23.33	296.530	150.0	65.56	338.760
0.0	-17.78	255.420	76.0	24.44	297.640	152.0	66.67	339.870
2.0	-16.67	256.530	78.0	25.56	298.760	154.0	67.78	340.980
4.0	-15.56	257.640	80.0	26.67	299.870	156.0	68.89	342.090
6.0	-14.44	258.760	82.0	27.78	300.980	158.0	70.00	343.200
8.0	-13.33	259.870	84.0	28.89	302.090	160.0	71.11	344.310
10.0	-12.22	260.980	86.0	30.00	303.200	162.0	72.22	345.420
12.0	-11.11	262.090	88.0	31.11	304.310	164.0	73.33	346.530
14.0	-10.00	263.200	90.0	32.22	305.420	166.0	74.44	347.640
16.0	-8.89	264.310	92.0	33.33	306.530	168.0	75.56	348.760
18.0	-7.78	265.420	94.0	34.44	307.640	170.0	76.67	349.870
20.0	-6.67	266.530	96.0	35.56	308.760	172.0	77.78	350.980
22.0	-5.56	267.640	98.0	36.67	309.870	174.0	78.89	352.090
24.0	-4.44	268.760	100.0	37.78	310.980	176.0	80.00	353.200
26.0	-3.33	269.870	102.0	38.89	312.090	178.0	81.11	354.310
28.0	-2.22	270.980	104.0	40.00	313.200	180.0	82.22	355.420
30.0	-1.11	272.090	106.0	41.11	314.310	182.0	83.33	356.530
32.0	0.00	273.200	108.0	42.22	315.420	184.0	84.44	357.640
34.0	1.11	274.310	110.0	43.33	316.530	186.0	85.56	358.760

AD592-10K Semiconductor Output Table

AD592 Semiconductor with a 10K shunt resistor

°F	°C	Volts
-40.0	-40.00	2.332
-38.0	-38.89	2.343
-36.0	-37.78	2.354
-34.0	-36.67	2.365
-32.0	-35.56	2.376
-30.0	-34.44	2.388
-28.0	-33.33	2.399
-26.0	-32.22	2.410
-24.0	-31.11	2.421
-22.0	-30.00	2.432
-20.0	-28.89	2.443
-18.0	-27.78	2.454
-16.0	-26.67	2.465
-14.0	-25.56	2.476
-12.0	-24.44	2.488
-10.0	-23.33	2.499
-8.0	-22.22	2.510
-6.0	-21.11	2.521
-4.0	-20.00	2.532
-2.0	-18.89	2.543
0.0	-17.78	2.554
2.0	-16.67	2.565
4.0	-15.56	2.576
6.0	-14.44	2.588
8.0	-13.33	2.599
10.0	-12.22	2.610
12.0	-11.11	2.621
14.0	-10.00	2.632
16.0	-8.89	2.643
18.0	-7.78	2.654
20.0	-6.67	2.665
22.0	-5.56	2.676
24.0	-4.44	2.688
26.0	-3.33	2.699
28.0	-2.22	2.710
30.0	-1.11	2.721
32.0	0.00	2.732
34.0	1.11	2.743
36.0	2.22	2.754
38.0	3.33	2.765
40.0	4.44	2.776
42.0	5.56	2.788
44.0	6.67	2.799
46.0	7.78	2.810
48.0	8.89	2.821
50.0	10.00	2.832
52.0	11.11	2.843
54.0	12.22	2.854
56.0	13.33	2.865
58.0	14.44	2.876
60.0	15.56	2.888
62.0	16.67	2.899
64.0	17.78	2.910
66.0	18.89	2.921
68.0	20.00	2.932
70.0	21.11	2.943
72.0	22.22	2.954
74.0	23.33	2.965
76.0	24.44	2.976
78.0	25.56	2.988
80.0	26.67	2.999
82.0	27.78	3.010
84.0	28.89	3.021
86.0	30.00	3.032
88.0	31.11	3.043
90.0	32.22	3.054
92.0	33.33	3.065
94.0	34.44	3.076
96.0	35.56	3.088
98.0	36.67	3.099
100.0	37.78	3.110
102.0	38.89	3.121
104.0	40.00	3.132
106.0	41.11	3.143
108.0	42.22	3.154
110.0	43.33	3.165
112.0	44.44	3.176
114.0	45.56	3.188
116.0	46.67	3.199
118.0	47.78	3.210
120.0	48.89	3.221
122.0	50.00	3.232
124.0	51.11	3.243
126.0	52.22	3.254
128.0	53.33	3.265
130.0	54.44	3.276
132.0	55.56	3.288
134.0	56.67	3.299
136.0	57.78	3.310
138.0	58.89	3.321
140.0	60.00	3.332
142.0	61.11	3.343
144.0	62.22	3.354
146.0	63.33	3.365
148.0	64.44	3.376
150.0	65.56	3.388
152.0	66.67	3.399
154.0	67.78	3.410
156.0	68.89	3.421
158.0	70.00	3.432
160.0	71.11	3.443
162.0	72.22	3.454
164.0	73.33	3.465
166.0	74.44	3.476
168.0	75.56	3.488
170.0	76.67	3.499
172.0	77.78	3.510
174.0	78.89	3.521
176.0	80.00	3.532
178.0	81.11	3.543
180.0	82.22	3.554
182.0	83.33	3.565
184.0	84.44	3.576
186.0	85.56	3.588

H24 Temperature Transmitter Overview

BAPI Sensor Specifications

Rev. 10/16/12

Temperature Transmitter Description

BAPI temperature transmitters incorporate a sensor - either a 10KΩ thermistor or a platinum 100Ω or 1kΩ RTD - and a transducer. These devices provide an accurate two-wire, 4 to 20mA output over a specified range. They are specifically designed for temperature sensing and transmission over long distances without degradation of the 4 to 20mA signal. The thermistor transmitter also comes in a 0 to 5 VDC or 0 to 10 VDC output.

The thermistor transmitter **(BA/T10K)** is microprocessor based and does not allow or require field calibration. The thermistor transmitter is first programmed for the specified range and tested using an electronic interface. After connecting a thermistor to the transducer, the output is verified at one temperature.

The RTD transmitters **(BA/T100 & BA/T1K)** are first calibrated with simulated RTD resistances for the specified range. Then an RTD is connected to the transmitter and the output is verified at one temperature. RTD transmitters have non-interacting zero and span potentiometers that are field adjustable.

BAPI has verified over 200 temperature ranges for the BA/T100 and BA/T1K transmitters. If we don't currently offer the exact range you're looking for, call your BAPI representative to see if we can create a special range.

Additionally, BAPI can provide matched RTD-based units, **BA/T100M** and **BA/T1KM**. Matched (sensor-transmitter pair) units utilize the tight tolerance of Class A RTDs to improve overall accuracy. The matched unit is tested in an environmental chamber against an NIST traceable reference thermometer. Each matched pair is provided with a "Certificate of Calibration" which lists the tested and calculated offset values, and identifies the equipment, products and people involved in the calibration process. The overall accuracy of the matched pair now becomes a function of the transmitter linearity, RTD linearity and reference thermometer uncertainty.

Matched errors are ±((Span * Linearity Error) + (Reference Thermometer uncertainty)

Where linearity error = Square Root((Transmitter Linearity)^2 + (RTD Linearity)^2) = Square Root((0.125%)^2 + (0.2%)^2) = 0.234%

Examples:

BA/T1K(-30 to 130F)
Span = 130 - (-30) = 160
Matched error = ±((160*0.234%) + (0.05°F)= ±0.42°F

BA/T1K(45 to 95F)
Span = 95 - 45 = 50
Matched error = ±((50*0.234%) + (0.05°F)= ±0.17°F

These accuracies are for the entire range of the sensor, although the accuracies in the midband of the sensor will be tighter than those near the endpoints of the specified range. Other matching and/or certification options may be available, please contact your BAPI representative for details.

BAPI temperature transmitters come in a ruggedized package for all non-room configurations where moisture or condensation may be a problem. The potting material used to ruggedize the transmitters has high thermal conductivity to eliminate circuit overheating and low thermal expansion to minimize the stress on the circuit components. Due to the extremely low moisture absorption properties of the potting material, a ruggedized transmitter will remain operational even if temporarily immersed in water.

Specifications

T10K Transmitter

Sensor: 10KΩ Thermistor
Output: 4 to 20 mA, 0 to 5 V, or 0 to 10 V
Supply Voltage:
10 to 35 VDC (0-5 VDC or 4-20 mA Outputs)
15 to 35 VDC (0-10 VDC Output)
12 to 24 VAC (0-5 VDC Outputs)
15 to 24 VAC (0-10 VDC Output)
Maximum Loop Resistance:
700Ω at 24 VDC (4 to 20 mA Output)
Impedance: >10K ohms (Voltage Output)
Calibration Range: -40 to 85°C (-40 to 185°F)
Accuracy: ±1.015°C (0 to 65°C)
Linearity: ±0.065°C (0 to 65°C)
Temperature Resolution: Span/1024
Operating Temperature:
Transmitter: 0 to 70°C
Sensor: -65 to 105°C (standard)
-40 to 155°C (available)

T100 and T1K Transmitters

Sensor: 100Ω or 1000Ω Platinum RTD
Supply Voltage: 7 to 40 VDC
Output: 4 to 20 mA
Max. Loop Resistance: 850Ω at 24VDC
Span: Min 16.6°C (30°F), Max 555°C (1000°F)
Zero: Min -100°C (-148°F), Max 482°C (900°F)
Field Adjustments: (Unit is factory calibrated, field adjustment will void calibration warranty)
Zero: +/- 10% • Span: +/- 10%
Accuracy: ±0.065% of Span (8 & 16mA outputs)
Linearity: ±0.125% of Span
Operational Humidity:
0 to 95%, non-condensing
0 to 100%, condensing for short intervals
Output Current limits:
Less than 1mA and 22.35 ± 0.15 mA
Power Output Shift:
±0.009% of Span 7 to 40VDC
Connections: Four 22-gauge etched Teflon leads or terminal blocks
Operating Temperature:
Transmitter: -20 to 70°C
Sensor: -65 to 105°C (standard)
-200 to 600°C (available)

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0-100 ºF Temp. Transmitter Output Table

°F	°C	mA	5V	10V
0	-17.78	4.000	1.00	2.00
1	-17.22	4.160	1.04	2.08
2	-16.67	4.320	1.08	2.16
3	-16.11	4.480	1.12	2.24
4	-15.56	4.640	1.16	2.32
5	-15.00	4.800	1.20	2.40
6	-14.44	4.960	1.24	2.48
7	-13.89	5.120	1.28	2.56
8	-13.33	5.280	1.32	2.64
9	-12.78	5.440	1.36	2.72
10	-12.22	5.600	1.40	2.80
11	-11.67	5.760	1.44	2.88
12	-11.11	5.920	1.48	2.96
13	-10.56	6.080	1.52	3.04
14	-10.00	6.240	1.56	3.12
15	-9.44	6.400	1.60	3.20
16	-8.89	6.560	1.64	3.28
17	-8.33	6.720	1.68	3.36
18	-7.78	6.880	1.72	3.44
19	-7.22	7.040	1.76	3.52
20	-6.67	7.200	1.80	3.60
21	-6.11	7.360	1.84	3.68
22	-5.56	7.520	1.88	3.76
23	-5.00	7.680	1.92	3.84
24	-4.44	7.840	1.96	3.92
25	-3.89	8.000	2.00	4.00
26	-3.33	8.160	2.04	4.08
27	-2.78	8.320	2.08	4.16
28	-2.22	8.480	2.12	4.24
29	-1.67	8.640	2.16	4.32
30	-1.11	8.800	2.20	4.40
31	-0.56	8.960	2.24	4.48
32	0.00	9.120	2.28	4.56
33	0.56	9.280	2.32	4.64
34	1.11	9.440	2.36	4.72
35	1.67	9.600	2.40	4.80
36	2.22	9.760	2.44	4.88
37	2.78	9.920	2.48	4.96
38	3.33	10.080	2.52	5.04
39	3.89	10.240	2.56	5.12
40	4.44	10.400	2.60	5.20
41	5.00	10.560	2.64	5.28
42	5.56	10.720	2.68	5.36
43	6.11	10.880	2.72	5.44
44	6.67	11.040	2.76	5.52
45	7.22	11.200	2.80	5.60
46	7.78	11.360	2.84	5.68
47	8.33	11.520	2.88	5.76
48	8.89	11.680	2.92	5.84
49	9.44	11.840	2.96	5.92

°F	°C	mA	5V	10V
50	10.00	12.000	3.00	6.00
51	10.56	12.160	3.04	6.08
52	11.11	12.320	3.08	6.16
53	11.67	12.480	3.12	6.24
54	12.22	12.640	3.16	6.32
55	12.78	12.800	3.20	6.40
56	13.33	12.960	3.24	6.48
57	13.89	13.120	3.28	6.56
58	14.44	13.280	3.32	6.64
59	15.00	13.440	3.36	6.72
60	15.56	13.600	3.40	6.80
61	16.11	13.760	3.44	6.88
62	16.67	13.920	3.48	6.96
63	17.22	14.080	3.52	7.04
64	17.78	14.240	3.56	7.12
65	18.33	14.400	3.60	7.20
66	18.89	14.560	3.64	7.28
67	19.44	14.720	3.68	7.36
68	20.00	14.880	3.72	7.44
69	20.56	15.040	3.76	7.52
70	21.11	15.200	3.80	7.60
71	21.67	15.360	3.84	7.68
72	22.22	15.520	3.88	7.76
73	22.78	15.680	3.92	7.84
74	23.33	15.840	3.96	7.92
75	23.89	16.000	4.00	8.00
76	24.44	16.160	4.04	8.08
77	25.00	16.320	4.08	8.16
78	25.56	16.480	4.12	8.24
79	26.11	16.640	4.16	8.32
80	26.67	16.800	4.20	8.40
81	27.22	16.960	4.24	8.48
82	27.78	17.120	4.28	8.56
83	28.33	17.280	4.32	8.64
84	28.89	17.440	4.36	8.72
85	29.44	17.600	4.40	8.80
86	30.00	17.760	4.44	8.88
87	30.56	17.920	4.48	8.96
88	31.11	18.080	4.52	9.04
89	31.67	18.240	4.56	9.12
90	32.22	18.400	4.60	9.20
91	32.78	18.560	4.64	9.28
92	33.33	18.720	4.68	9.36
93	33.89	18.880	4.72	9.44
94	34.44	19.040	4.76	9.52
95	35.00	19.200	4.80	9.60
96	35.56	19.360	4.84	9.68
97	36.11	19.520	4.88	9.76
98	36.67	19.680	4.92	9.84
99	37.22	19.840	4.96	9.92
100	37.78	20.000	5.00	10.00

Humidity Transmitter Overview

BAPI Sensor Specifications

Rev. 10/16/12

Humidity Transmitter Description

BAPI humidity transmitters provide a high accuracy 4 to 20mA, 0 to 5V or 0 to 10V humidity measurement. Accuracies of 2% or 3% RH are available. Duct and outside air units come with a removeable sintered stainless steel filter. On duct and outside air units, the filter may be cleaned with warm, distilled water.

These units are microprocessor based and do not require any field calibration.

For all non-room configurations, BAPI humidity transmitters come standard in a ruggedized package. Ruggedized transmitters are suitable for locations where moisture or condensation may be a problem. The potting material used to ruggedize the transmitters has a high thermal conductivity to eliminate circuit overheating and a low thermal expansion to minimize the stress on the circuit components. Due to the extremely low moisture absorption properties of the epoxy, a ruggedized transmitter will remain operational even if temporarily immersed in water.

Many tests and studies have been conducted on the sensor incorporated into these humidity transmitters to assure that they provide long-term accuracy and durability. For applications requiring even higher accuracy, however, certified units are available which have been tested and offset against an NIST traceable reference. Please call for details or with specific requirements.

General Specifications

Output Ranges:
4 to 20 mA, 0 to 5 V, or 0 to 10 V

Power:
10 to 35 VDC (0 to 5 VDC or 4 to 20 mA outputs)
15 to 35 VDC (0 to 10 VDC Output)
12 to 27 VAC (0 to 5 VDC Output)
15 to 27 VAC (0 to 10 VDC Output)

Power Consumption:
22 mA max. DC (0 to 5 VDC or 4 to 20 mA Outputs)
6 mA max. DC (0 to 10 VDC Output)
0.53 VA max. AC (0 to 5 VDC or 4 to 20 mA Outputs)
0.14 VA max. AC (0 to 10 VDC Output)

Sensing Element:
Capacitive type humidity sensor

Operating RH Range:
0 to 100 %RH (non-condensing)

Operating Temperature Range:
Room: 0 to 70°C (32 to 158°F)
Duct & Outside: -20 to 70°C (-4 to 158°F)

Accuracy Range: from 10 to 90% RH at 25°C

Response Time: 8 seconds in moving air for a 63% step

Drift: <0.5%RH per year



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Humidity Transmitter Output Table

%RH	5V	10V	mA
0	0.00	0.00	4.000
1	0.05	0.10	4.160
2	0.10	0.20	4.320
3	0.15	0.30	4.480
4	0.20	0.40	4.640
5	0.25	0.50	4.800
6	0.30	0.60	4.960
7	0.35	0.70	5.120
8	0.40	0.80	5.280
9	0.45	0.90	5.440
10	0.50	1.00	5.600
11	0.55	1.10	5.760
12	0.60	1.20	5.920
13	0.65	1.30	6.080
14	0.70	1.40	6.240
15	0.75	1.50	6.400
16	0.80	1.60	6.560
17	0.85	1.70	6.720
18	0.90	1.80	6.880
19	0.95	1.90	7.040
20	1.00	2.00	7.200
21	1.05	2.10	7.360
22	1.10	2.20	7.520
23	1.15	2.30	7.680
24	1.20	2.40	7.840
25	1.25	2.50	8.000
26	1.30	2.60	8.160
27	1.35	2.70	8.320
28	1.40	2.80	8.480
29	1.45	2.90	8.640
30	1.50	3.00	8.800
31	1.55	3.10	8.960
32	1.60	3.20	9.120
33	1.65	3.30	9.280
34	1.70	3.40	9.440
35	1.75	3.50	9.600
36	1.80	3.60	9.760
37	1.85	3.70	9.920
38	1.90	3.80	10.080
39	1.95	3.90	10.240
40	2.00	4.00	10.400
41	2.05	4.10	10.560
42	2.10	4.20	10.720
43	2.15	4.30	10.880
44	2.20	4.40	11.040
45	2.25	4.50	11.200
46	2.30	4.60	11.360
47	2.35	4.70	11.520
48	2.40	4.80	11.680
49	2.45	4.90	11.840

%RH	5V	10V	mA
50	2.50	5.00	12.000
51	2.55	5.10	12.160
52	2.60	5.20	12.320
53	2.65	5.30	12.480
54	2.70	5.40	12.640
55	2.75	5.50	12.800
56	2.80	5.60	12.960
57	2.85	5.70	13.120
58	2.90	5.80	13.280
59	2.95	5.90	13.440
60	3.00	6.00	13.600
61	3.05	6.10	13.760
62	3.10	6.20	13.920
63	3.15	6.30	14.080
64	3.20	6.40	14.240
65	3.25	6.50	14.400
66	3.30	6.60	14.560
67	3.35	6.70	14.720
68	3.40	6.80	14.880
69	3.45	6.90	15.040
70	3.50	7.00	15.200
71	3.55	7.10	15.360
72	3.60	7.20	15.520
73	3.65	7.30	15.680
74	3.70	7.40	15.840
75	3.75	7.50	16.000
76	3.80	7.60	16.160
77	3.85	7.70	16.320
78	3.90	7.80	16.480
79	3.95	7.90	16.640
80	4.00	8.00	16.800
81	4.05	8.10	16.960
82	4.10	8.20	17.120
83	4.15	8.30	17.280
84	4.20	8.40	17.440
85	4.25	8.50	17.600
86	4.30	8.60	17.760
87	4.35	8.70	17.920
88	4.40	8.80	18.080
89	4.45	8.90	18.240
90	4.50	9.00	18.400
91	4.55	9.10	18.560
92	4.60	9.20	18.720
93	4.65	9.30	18.880
94	4.70	9.40	19.040
95	4.75	9.50	19.200
96	4.80	9.60	19.360
97	4.85	9.70	19.520
98	4.90	9.80	19.680
99	4.95	9.90	19.840
100	5.00	10.00	20.000

Pressure Sensor Overview

BAPI Sensor Specifications

Rev. 10/16/12

Pressure Sensor Description

The focal point of any sensor is the sensing element itself, and BAPI has gone to great lengths to produce one of the best sensors on the market today. The heart of every BAPI unit is a micro-machined, single-crystal silicon, pressure sensor. Each sensor is fabricated using the same integrated circuit technology used to make millions of cell phones, game machines and personal computers. To control and maintain the quality of these sensors, BAPI is involved in all phases of production from design to use.

Silicon does bring with it one undesired trait—thermal sensitivity. The traditional method of compensating for this thermal sensitivity is an external circuit with discreet resistors, some of which have their own temperature dependencies, introducing more error. BAPI uses a different, unique approach. We employ a custom compensation ASIC (Application Specific Integrated Circuit) that uses digital compensation while maintaining an analog signal path, producing a sensor that is precise and interchangeable. The result is a pressure sensor that offers the ultimate in high accuracy, while preserving the fast response and smooth output inherent to silicon sensors.

Because of the innovative sensor and digital temperature compensation circuit, we are able to produce a highly accurate and stable product. This accuracy is verified during final calibration at our factory using a pressure-controlled source accurate to 0.00015 inch of water and traceable to NIST standards.

Specifications

Output Ranges:
4 to 20 mA, 0 to 5 V or 0 to 10V

Power:
7 to 45 VDC *(4-20 mA output)*
7 to 45 VDC or 7 to 32 VAC (*0-5 VDC output)*
13 to 45 VDC or 13 to 32 VAC (*0-10 VDC output)*

Power Consumption:
4.9 mA max DC at 0-5 VDC or 0-10 VDC Output
0.12 VA max AC at 0-5 VDC or 0-10 VDC Output
20 mA max, DC only at 4-20 mA Output

Pressure Ranges

Inches W.C.

Low Range Unidirectional
0 to 0.10”, 0 to 0.25”, 0 to 0.50”, 0 to 0.75”, 0 to 1.00”
Low Range Bi-directional
±0.10”, ±0.25”, ±0.50”, ±0.75”, ±1.00”
Standard Range Unidirectional
0 to 1.00”, 0 to 2.00”, 0 to 2.50”, 0 to 3.00”, 0 to 5.00”
Standard Range Bi-directional
±1.00”, ±2.00”, ±2.50”, ±3.00”, ±5.00”
High Range Unidirectional
0 to 5”, 0 to 10”, 0 to 15”, 0 to 25”, 0 to 30”

Pascals

Low Range Unidirectional
0 to 30, 0 to 50, 0 to 100, 0 to 175, 0 to 250
Low Range Bi-directional
±30, ±50, ±100, ±175, ±250
Standard Range Unidirectional
0 to 250, 0 to 300, 0 to 500, 0 to 1,000, 0 to 1,250
Standard Range Bi-directional
±250, ±300, ±500, ±1,000, ±1.250
High Range Unidirectional
0 to 1,250, 0 to 2,500, 0 to 4,000, 0 to 6,000, 0 to 7,400

Accuracy at 72°F (22.2°C)

Low Range
±0.5% of W.C. ranges 0 to 0.1”, 0 to 0.25”, ±0.1” and ±0.25”
±0.5% of Pa ranges 0 to 30, 0 to 50, ±30 and ±50 Pa
±0.25% of range all other ranges

Standard and High Range
±0.25% of range

Temperature Limits
Storage: -40°F to 203°F (-40°C to 95°C)
Operational: 32°F to 140°F (0°C to 95°C)
Compensated: 50°F to 104°F (10°C to 40°C)

Operating RH Range:
0 to 95% non-condensing

Media:
Non-Ionic, Non-Corrosive, Clean, Dry Gasses

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WC Ranges: 0 to 0.1", -0.1 to 0.1", 0 to 0.25", -0.25 to 0.25"

Pressure Range 0 to 0.10" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.004	1.00	4.64	0.20	0.40
0.008	1.99	5.28	0.40	0.80
0.012	2.99	5.92	0.60	1.20
0.016	3.99	6.56	0.80	1.60
0.020	4.98	7.20	1.00	2.00
0.024	5.98	7.84	1.20	2.40
0.028	6.97	8.48	1.40	2.80
0.032	7.97	9.12	1.60	3.20
0.036	8.97	9.76	1.80	3.60
0.040	9.96	10.40	2.00	4.00
0.044	10.96	11.04	2.20	4.40
0.048	11.96	11.68	2.40	4.80
0.052	12.95	12.32	2.60	5.20
0.056	13.95	12.96	2.80	5.60
0.060	14.95	13.60	3.00	6.00
0.064	15.94	14.24	3.20	6.40
0.068	16.94	14.88	3.40	6.80
0.072	17.93	15.52	3.60	7.20
0.076	18.93	16.16	3.80	7.60
0.080	19.93	16.80	4.00	8.00
0.084	20.92	17.44	4.20	8.40
0.086	21.42	17.76	4.30	8.60
0.088	21.92	18.08	4.40	8.80
0.092	22.92	18.72	4.60	9.20
0.096	23.91	19.36	4.80	9.60
0.100	24.91	20.00	5.00	10.00

Pressure Range 0 to 0.25" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.010	2.49	4.64	0.20	0.40
0.020	4.98	5.28	0.40	0.80
0.030	7.47	5.92	0.60	1.20
0.040	9.96	6.56	0.80	1.60
0.050	12.45	7.20	1.00	2.00
0.060	14.95	7.84	1.20	2.40
0.070	17.44	8.48	1.40	2.80
0.080	19.93	9.12	1.60	3.20
0.090	22.42	9.76	1.80	3.60
0.100	24.91	10.40	2.00	4.00
0.110	27.40	11.04	2.20	4.40
0.120	29.89	11.68	2.40	4.80
0.130	32.38	12.32	2.60	5.20
0.140	34.87	12.96	2.80	5.60
0.150	37.36	13.60	3.00	6.00
0.160	39.85	14.24	3.20	6.40
0.170	42.35	14.88	3.40	6.80
0.180	44.84	15.52	3.60	7.20
0.190	47.33	16.16	3.80	7.60
0.200	49.82	16.80	4.00	8.00
0.210	52.31	17.44	4.20	8.40
0.215	53.55	17.76	4.30	8.60
0.220	54.80	18.08	4.40	8.80
0.230	57.29	18.72	4.60	9.20
0.240	59.78	19.36	4.80	9.60
0.250	62.27	20.00	5.00	10.00

Pressure Range -0.10 to 0.10" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-0.100	-24.91	4.00	0.00	0.00
-0.092	-22.92	4.64	0.20	0.40
-0.084	-20.92	5.28	0.40	0.80
-0.076	-18.93	5.92	0.60	1.20
-0.068	-16.94	6.56	0.80	1.60
-0.060	-14.95	7.20	1.00	2.00
-0.052	-12.95	7.84	1.20	2.40
-0.044	-10.96	8.48	1.40	2.80
-0.036	-8.97	9.12	1.60	3.20
-0.028	-6.97	9.76	1.80	3.60
-0.020	-4.98	10.40	2.00	4.00
-0.012	-2.99	11.04	2.20	4.40
-0.004	-1.00	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.004	1.00	12.32	2.60	5.20
0.012	2.99	12.96	2.80	5.60
0.020	4.98	13.60	3.00	6.00
0.028	6.97	14.24	3.20	6.40
0.036	8.97	14.88	3.40	6.80
0.044	10.96	15.52	3.60	7.20
0.052	12.95	16.16	3.80	7.60
0.060	14.95	16.80	4.00	8.00
0.068	16.94	17.44	4.20	8.40
0.076	18.93	18.08	4.40	8.80
0.084	20.92	18.72	4.60	9.20
0.092	22.92	19.36	4.80	9.60
0.100	24.91	20.00	5.00	10.00

Pressure Range -0.25 to 0.25" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-0.250	-62.27	4.00	0.00	0.00
-0.230	-57.29	4.64	0.20	0.40
-0.210	-52.31	5.28	0.40	0.80
-0.190	-47.33	5.92	0.60	1.20
-0.170	-42.35	6.56	0.80	1.60
-0.150	-37.36	7.20	1.00	2.00
-0.130	-32.38	7.84	1.20	2.40
-0.110	-27.40	8.48	1.40	2.80
-0.090	-22.42	9.12	1.60	3.20
-0.070	-17.44	9.76	1.80	3.60
-0.050	-12.45	10.40	2.00	4.00
-0.030	-7.47	11.04	2.20	4.40
-0.010	-2.49	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.010	2.49	12.32	2.60	5.20
0.030	7.47	12.96	2.80	5.60
0.050	12.45	13.60	3.00	6.00
0.070	17.44	14.24	3.20	6.40
0.090	22.42	14.88	3.40	6.80
0.110	27.40	15.52	3.60	7.20
0.130	32.38	16.16	3.80	7.60
0.150	37.36	16.80	4.00	8.00
0.170	42.35	17.44	4.20	8.40
0.190	47.33	18.08	4.40	8.80
0.210	52.31	18.72	4.60	9.20
0.230	57.29	19.36	4.80	9.60
0.250	62.27	20.00	5.00	10.00

Pressure Sensor Output Table

BAPI Sensor Specifications

Rev. 10/16/12

WC Ranges: 0 to 0.5”, -0.5 to 0.5”, 0 to 0.75”, -0.75 to 0.75”

Pressure Range 0 to 0.50" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.020	4.98	4.64	0.20	0.40
0.040	9.96	5.28	0.40	0.80
0.060	14.95	5.92	0.60	1.20
0.080	19.93	6.56	0.80	1.60
0.100	24.91	7.20	1.00	2.00
0.120	29.89	7.84	1.20	2.40
0.140	34.87	8.48	1.40	2.80
0.160	39.85	9.12	1.60	3.20
0.180	44.84	9.76	1.80	3.60
0.200	49.82	10.40	2.00	4.00
0.220	54.80	11.04	2.20	4.40
0.240	59.78	11.68	2.40	4.80
0.260	64.76	12.32	2.60	5.20
0.280	69.74	12.96	2.80	5.60
0.300	74.73	13.60	3.00	6.00
0.320	79.71	14.24	3.20	6.40
0.340	84.69	14.88	3.40	6.80
0.360	89.67	15.52	3.60	7.20
0.380	94.65	16.16	3.80	7.60
0.400	99.64	16.80	4.00	8.00
0.420	104.62	17.44	4.20	8.40
0.430	107.11	17.76	4.30	8.60
0.440	109.60	18.08	4.40	8.80
0.460	114.58	18.72	4.60	9.20
0.480	119.56	19.36	4.80	9.60
0.500	124.54	20.00	5.00	10.00

Pressure Range 0 to 0.75" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.030	7.47	4.64	0.20	0.40
0.060	14.95	5.28	0.40	0.80
0.090	22.42	5.92	0.60	1.20
0.120	29.89	6.56	0.80	1.60
0.150	37.36	7.20	1.00	2.00
0.180	44.84	7.84	1.20	2.40
0.210	52.31	8.48	1.40	2.80
0.240	59.78	9.12	1.60	3.20
0.270	67.25	9.76	1.80	3.60
0.300	74.73	10.40	2.00	4.00
0.330	82.20	11.04	2.20	4.40
0.360	89.67	11.68	2.40	4.80
0.390	97.14	12.32	2.60	5.20
0.420	104.62	12.96	2.80	5.60
0.450	112.09	13.60	3.00	6.00
0.480	119.56	14.24	3.20	6.40
0.510	127.04	14.88	3.40	6.80
0.540	134.51	15.52	3.60	7.20
0.570	141.98	16.16	3.80	7.60
0.600	149.45	16.80	4.00	8.00
0.630	156.93	17.44	4.20	8.40
0.645	160.66	17.76	4.30	8.60
0.660	164.40	18.08	4.40	8.80
0.690	171.87	18.72	4.60	9.20
0.720	179.34	19.36	4.80	9.60
0.750	186.82	20.00	5.00	10.00

Pressure Range -0.50 to 0.50" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-0.500	-124.54	4.00	0.00	0.00
-0.460	-114.58	4.64	0.20	0.40
-0.420	-104.62	5.28	0.40	0.80
-0.380	-94.65	5.92	0.60	1.20
-0.340	-84.69	6.56	0.80	1.60
-0.300	-74.73	7.20	1.00	2.00
-0.260	-64.76	7.84	1.20	2.40
-0.220	-54.80	8.48	1.40	2.80
-0.180	-44.84	9.12	1.60	3.20
-0.140	-34.87	9.76	1.80	3.60
-0.100	-24.91	10.40	2.00	4.00
-0.060	-14.95	11.04	2.20	4.40
-0.020	-4.98	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.020	4.98	12.32	2.60	5.20
0.060	14.95	12.96	2.80	5.60
0.100	24.91	13.60	3.00	6.00
0.140	34.87	14.24	3.20	6.40
0.180	44.84	14.88	3.40	6.80
0.220	54.80	15.52	3.60	7.20
0.260	64.76	16.16	3.80	7.60
0.300	74.73	16.80	4.00	8.00
0.340	84.69	17.44	4.20	8.40
0.380	94.65	18.08	4.40	8.80
0.420	104.62	18.72	4.60	9.20
0.460	114.58	19.36	4.80	9.60
0.500	124.54	20.00	5.00	10.00

Pressure Range -0.75 to 0.75" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-0.750	-186.82	4.00	0.00	0.00
-0.690	-171.87	4.64	0.20	0.40
-0.630	-156.93	5.28	0.40	0.80
-0.570	-141.98	5.92	0.60	1.20
-0.510	-127.04	6.56	0.80	1.60
-0.450	-112.09	7.20	1.00	2.00
-0.390	-97.14	7.84	1.20	2.40
-0.330	-82.20	8.48	1.40	2.80
-0.270	-67.25	9.12	1.60	3.20
-0.210	-52.31	9.76	1.80	3.60
-0.150	-37.36	10.40	2.00	4.00
-0.090	-22.42	11.04	2.20	4.40
-0.030	-7.47	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.030	7.47	12.32	2.60	5.20
0.090	22.42	12.96	2.80	5.60
0.150	37.36	13.60	3.00	6.00
0.210	52.31	14.24	3.20	6.40
0.270	67.25	14.88	3.40	6.80
0.330	82.20	15.52	3.60	7.20
0.390	97.14	16.16	3.80	7.60
0.450	112.09	16.80	4.00	8.00
0.510	127.04	17.44	4.20	8.40
0.570	141.98	18.08	4.40	8.80
0.630	156.93	18.72	4.60	9.20
0.690	171.87	19.36	4.80	9.60
0.750	186.82	20.00	5.00	10.00

WC Ranges: 0 to 1.0”, -1.0 to 1.0”, 0 to 2.0”, -2.0 to 2.0”

Pressure Range 0 to 1.00" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.040	9.96	4.64	0.20	0.40
0.080	19.93	5.28	0.40	0.80
0.120	29.89	5.92	0.60	1.20
0.160	39.85	6.56	0.80	1.60
0.200	49.82	7.20	1.00	2.00
0.240	59.78	7.84	1.20	2.40
0.280	69.74	8.48	1.40	2.80
0.320	79.71	9.12	1.60	3.20
0.360	89.67	9.76	1.80	3.60
0.400	99.64	10.40	2.00	4.00
0.440	109.60	11.04	2.20	4.40
0.480	119.56	11.68	2.40	4.80
0.520	129.53	12.32	2.60	5.20
0.560	139.49	12.96	2.80	5.60
0.600	149.45	13.60	3.00	6.00
0.640	159.42	14.24	3.20	6.40
0.680	169.38	14.88	3.40	6.80
0.720	179.34	15.52	3.60	7.20
0.760	189.31	16.16	3.80	7.60
0.800	199.27	16.80	4.00	8.00
0.840	209.23	17.44	4.20	8.40
0.860	214.22	17.76	4.30	8.60
0.880	219.20	18.08	4.40	8.80
0.920	229.16	18.72	4.60	9.20
0.960	239.13	19.36	4.80	9.60
1.000	249.09	20.00	5.00	10.00

Pressure Range 0 to 2.00" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.080	19.93	4.64	0.20	0.40
0.160	39.85	5.28	0.40	0.80
0.240	59.78	5.92	0.60	1.20
0.320	79.71	6.56	0.80	1.60
0.400	99.64	7.20	1.00	2.00
0.480	119.56	7.84	1.20	2.40
0.560	139.49	8.48	1.40	2.80
0.640	159.42	9.12	1.60	3.20
0.720	179.34	9.76	1.80	3.60
0.800	199.27	10.40	2.00	4.00
0.880	219.20	11.04	2.20	4.40
0.960	239.13	11.68	2.40	4.80
1.040	259.05	12.32	2.60	5.20
1.120	278.98	12.96	2.80	5.60
1.200	298.91	13.60	3.00	6.00
1.280	318.83	14.24	3.20	6.40
1.360	338.76	14.88	3.40	6.80
1.440	358.69	15.52	3.60	7.20
1.520	378.62	16.16	3.80	7.60
1.600	398.54	16.80	4.00	8.00
1.680	418.47	17.44	4.20	8.40
1.720	428.43	17.76	4.30	8.60
1.760	438.40	18.08	4.40	8.80
1.840	458.32	18.72	4.60	9.20
1.920	478.25	19.36	4.80	9.60
2.000	498.18	20.00	5.00	10.00

Pressure Range -1.00 to 1.00" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-1.000	-249.09	4.00	0.00	0.00
-0.920	-229.16	4.64	0.20	0.40
-0.840	-209.23	5.28	0.40	0.80
-0.760	-189.31	5.92	0.60	1.20
-0.680	-169.38	6.56	0.80	1.60
-0.600	-149.45	7.20	1.00	2.00
-0.520	-129.53	7.84	1.20	2.40
-0.440	-109.60	8.48	1.40	2.80
-0.360	-89.67	9.12	1.60	3.20
-0.280	-69.74	9.76	1.80	3.60
-0.200	-49.82	10.40	2.00	4.00
-0.120	-29.89	11.04	2.20	4.40
-0.040	-9.96	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.040	9.96	12.32	2.60	5.20
0.120	29.89	12.96	2.80	5.60
0.200	49.82	13.60	3.00	6.00
0.280	69.74	14.24	3.20	6.40
0.360	89.67	14.88	3.40	6.80
0.440	109.60	15.52	3.60	7.20
0.520	129.53	16.16	3.80	7.60
0.600	149.45	16.80	4.00	8.00
0.680	169.38	17.44	4.20	8.40
0.760	189.31	18.08	4.40	8.80
0.840	209.23	18.72	4.60	9.20
0.920	229.16	19.36	4.80	9.60
1.000	249.09	20.00	5.00	10.00

Pressure Range -2.00 to 2.00" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-2.000	-498.18	4.00	0.00	0.00
-1.840	-458.32	4.64	0.20	0.40
-1.680	-418.47	5.28	0.40	0.80
-1.520	-378.62	5.92	0.60	1.20
-1.360	-338.76	6.56	0.80	1.60
-1.200	-298.91	7.20	1.00	2.00
-1.040	-259.05	7.84	1.20	2.40
-0.880	-219.20	8.48	1.40	2.80
-0.720	-179.34	9.12	1.60	3.20
-0.560	-139.49	9.76	1.80	3.60
-0.400	-99.64	10.40	2.00	4.00
-0.240	-59.78	11.04	2.20	4.40
-0.080	-19.93	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.080	19.93	12.32	2.60	5.20
0.240	59.78	12.96	2.80	5.60
0.400	99.64	13.60	3.00	6.00
0.560	139.49	14.24	3.20	6.40
0.720	179.34	14.88	3.40	6.80
0.880	219.20	15.52	3.60	7.20
1.040	259.05	16.16	3.80	7.60
1.200	298.91	16.80	4.00	8.00
1.360	338.76	17.44	4.20	8.40
1.520	378.62	18.08	4.40	8.80
1.680	418.47	18.72	4.60	9.20
1.840	458.32	19.36	4.80	9.60
2.000	498.18	20.00	5.00	10.00

Pressure Sensor Output Table

BAPI Sensor Specifications

Rev. 10/16/12

WC Ranges: 0 to 2.5”, -2.5 to 2.5”, 0 to 3.0”, -3.0 to 3.0”

Pressure Range 0 to 2.50" W.C.				
W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.100	24.91	4.64	0.20	0.40
0.200	49.82	5.28	0.40	0.80
0.300	74.73	5.92	0.60	1.20
0.400	99.64	6.56	0.80	1.60
0.500	124.54	7.20	1.00	2.00
0.600	149.45	7.84	1.20	2.40
0.700	174.36	8.48	1.40	2.80
0.800	199.27	9.12	1.60	3.20
0.900	224.18	9.76	1.80	3.60
1.000	249.09	10.40	2.00	4.00
1.100	274.00	11.04	2.20	4.40
1.200	298.91	11.68	2.40	4.80
1.300	323.82	12.32	2.60	5.20
1.400	348.72	12.96	2.80	5.60
1.500	373.63	13.60	3.00	6.00
1.600	398.54	14.24	3.20	6.40
1.700	423.45	14.88	3.40	6.80
1.800	448.36	15.52	3.60	7.20
1.900	473.27	16.16	3.80	7.60
2.000	498.18	16.80	4.00	8.00
2.100	523.09	17.44	4.20	8.40
2.150	535.54	17.76	4.30	8.60
2.200	548.00	18.08	4.40	8.80
2.300	572.90	18.72	4.60	9.20
2.400	597.81	19.36	4.80	9.60
2.500	622.72	20.00	5.00	10.00

Pressure Range 0 to 3.00" W.C.				
W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.120	29.89	4.64	0.20	0.40
0.240	59.78	5.28	0.40	0.80
0.360	89.67	5.92	0.60	1.20
0.480	119.56	6.56	0.80	1.60
0.600	149.45	7.20	1.00	2.00
0.720	179.34	7.84	1.20	2.40
0.840	209.23	8.48	1.40	2.80
0.960	239.13	9.12	1.60	3.20
1.080	269.02	9.76	1.80	3.60
1.200	298.91	10.40	2.00	4.00
1.320	328.80	11.04	2.20	4.40
1.440	358.69	11.68	2.40	4.80
1.560	388.58	12.32	2.60	5.20
1.680	418.47	12.96	2.80	5.60
1.800	448.36	13.60	3.00	6.00
1.920	478.25	14.24	3.20	6.40
2.040	508.14	14.88	3.40	6.80
2.160	538.03	15.52	3.60	7.20
2.280	567.92	16.16	3.80	7.60
2.400	597.81	16.80	4.00	8.00
2.520	627.70	17.44	4.20	8.40
2.580	642.65	17.76	4.30	8.60
2.640	657.59	18.08	4.40	8.80
2.760	687.49	18.72	4.60	9.20
2.880	717.38	19.36	4.80	9.60
3.000	747.27	20.00	5.00	10.00

Pressure Range -2.50 to 2.50" W.C.				
W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-2.500	-622.72	4.00	0.00	0.00
-2.300	-572.90	4.64	0.20	0.40
-2.100	-523.09	5.28	0.40	0.80
-1.900	-473.27	5.92	0.60	1.20
-1.700	-423.45	6.56	0.80	1.60
-1.500	-373.63	7.20	1.00	2.00
-1.300	-323.82	7.84	1.20	2.40
-1.100	-274.00	8.48	1.40	2.80
-0.900	-224.18	9.12	1.60	3.20
-0.700	-174.36	9.76	1.80	3.60
-0.500	-124.54	10.40	2.00	4.00
-0.300	-74.73	11.04	2.20	4.40
-0.100	-24.91	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.100	24.91	12.32	2.60	5.20
0.300	74.73	12.96	2.80	5.60
0.500	124.54	13.60	3.00	6.00
0.700	174.36	14.24	3.20	6.40
0.900	224.18	14.88	3.40	6.80
1.100	274.00	15.52	3.60	7.20
1.300	323.82	16.16	3.80	7.60
1.500	373.63	16.80	4.00	8.00
1.700	423.45	17.44	4.20	8.40
1.900	473.27	18.08	4.40	8.80
2.100	523.09	18.72	4.60	9.20
2.300	572.90	19.36	4.80	9.60
2.500	622.72	20.00	5.00	10.00

Pressure Range -3.00 to 3.00" W.C.				
W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-3.000	-747.27	4.00	0.00	0.00
-2.760	-687.49	4.64	0.20	0.40
-2.520	-627.70	5.28	0.40	0.80
-2.280	-567.92	5.92	0.60	1.20
-2.040	-508.14	6.56	0.80	1.60
-1.800	-448.36	7.20	1.00	2.00
-1.560	-388.58	7.84	1.20	2.40
-1.320	-328.80	8.48	1.40	2.80
-1.080	-269.02	9.12	1.60	3.20
-0.840	-209.23	9.76	1.80	3.60
-0.600	-149.45	10.40	2.00	4.00
-0.360	-89.67	11.04	2.20	4.40
-0.120	-29.89	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.120	29.89	12.32	2.60	5.20
0.360	89.67	12.96	2.80	5.60
0.600	149.45	13.60	3.00	6.00
0.840	209.23	14.24	3.20	6.40
1.080	269.02	14.88	3.40	6.80
1.320	328.80	15.52	3.60	7.20
1.560	388.58	16.16	3.80	7.60
1.800	448.36	16.80	4.00	8.00
2.040	508.14	17.44	4.20	8.40
2.280	567.92	18.08	4.40	8.80
2.520	627.70	18.72	4.60	9.20
2.760	687.49	19.36	4.80	9.60
3.000	747.27	20.00	5.00	10.00

WC Ranges: 0 to 5.0”, -5.0 to 5.0”

Pressure Range 0 to 5.00" W.C.				
W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.200	49.82	4.64	0.20	0.40
0.400	99.64	5.28	0.40	0.80
0.600	149.45	5.92	0.60	1.20
0.800	199.27	6.56	0.80	1.60
1.000	249.09	7.20	1.00	2.00
1.200	298.91	7.84	1.20	2.40
1.400	348.72	8.48	1.40	2.80
1.600	398.54	9.12	1.60	3.20
1.800	448.36	9.76	1.80	3.60
2.000	498.18	10.40	2.00	4.00
2.200	548.00	11.04	2.20	4.40
2.400	597.81	11.68	2.40	4.80
2.600	647.63	12.32	2.60	5.20
2.800	697.45	12.96	2.80	5.60
3.000	747.27	13.60	3.00	6.00
3.200	797.08	14.24	3.20	6.40
3.400	846.90	14.88	3.40	6.80
3.600	896.72	15.52	3.60	7.20
3.800	946.54	16.16	3.80	7.60
4.000	996.36	16.80	4.00	8.00
4.200	1046.17	17.44	4.20	8.40
4.300	1071.08	17.76	4.30	8.60
4.400	1095.99	18.08	4.40	8.80
4.600	1145.81	18.72	4.60	9.20
4.800	1195.63	19.36	4.80	9.60
5.000	1245.44	20.00	5.00	10.00

Pressure Range -5.00 to 5.00" W.C.				
W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
-5.000	-1245.44	4.00	0.00	0.00
-4.600	-1145.81	4.64	0.20	0.40
-4.200	-1046.17	5.28	0.40	0.80
-3.800	-946.54	5.92	0.60	1.20
-3.400	-846.90	6.56	0.80	1.60
-3.000	-747.27	7.20	1.00	2.00
-2.600	-647.63	7.84	1.20	2.40
-2.200	-548.00	8.48	1.40	2.80
-1.800	-448.36	9.12	1.60	3.20
-1.400	-348.72	9.76	1.80	3.60
-1.000	-249.09	10.40	2.00	4.00
-0.600	-149.45	11.04	2.20	4.40
-0.200	-49.82	11.68	2.40	4.80
0.000	0.00	12.00	2.50	5.00
0.200	49.82	12.32	2.60	5.20
0.600	149.45	12.96	2.80	5.60
1.000	249.09	13.60	3.00	6.00
1.400	348.72	14.24	3.20	6.40
1.800	448.36	14.88	3.40	6.80
2.200	548.00	15.52	3.60	7.20
2.600	647.63	16.16	3.80	7.60
3.000	747.27	16.80	4.00	8.00
3.400	846.90	17.44	4.20	8.40
3.800	946.54	18.08	4.40	8.80
4.200	1046.17	18.72	4.60	9.20
4.600	1145.81	19.36	4.80	9.60
5.000	1245.44	20.00	5.00	10.00

Pressure Sensor Output Table

BAPI Sensor Specifications

Rev. 10/16/12

WC Ranges: 0 to 10”, 0 to 15”, 0 to 25”, 0 to 30”

Pressure Range 0 to 10" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.400	99.64	4.64	0.20	0.40
0.800	199.27	5.28	0.40	0.80
1.200	298.91	5.92	0.60	1.20
1.600	398.54	6.56	0.80	1.60
2.000	498.18	7.20	1.00	2.00
2.400	597.81	7.84	1.20	2.40
2.800	697.45	8.48	1.40	2.80
3.200	797.08	9.12	1.60	3.20
3.600	896.72	9.76	1.80	3.60
4.000	996.36	10.40	2.00	4.00
4.400	1095.99	11.04	2.20	4.40
4.800	1195.63	11.68	2.40	4.80
5.200	1295.26	12.32	2.60	5.20
5.600	1394.90	12.96	2.80	5.60
6.000	1494.53	13.60	3.00	6.00
6.400	1594.17	14.24	3.20	6.40
6.800	1693.80	14.88	3.40	6.80
7.200	1793.44	15.52	3.60	7.20
7.600	1893.08	16.16	3.80	7.60
8.000	1992.71	16.80	4.00	8.00
8.400	2092.35	17.44	4.20	8.40
8.600	2142.16	17.76	4.30	8.60
8.800	2191.98	18.08	4.40	8.80
9.200	2291.62	18.72	4.60	9.20
9.600	2391.25	19.36	4.80	9.60
10.000	2490.89	20.00	5.00	10.00

Pressure Range 0 to 25" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
1.000	249.09	4.64	0.20	0.40
2.000	498.18	5.28	0.40	0.80
3.000	747.27	5.92	0.60	1.20
4.000	996.36	6.56	0.80	1.60
5.000	1245.44	7.20	1.00	2.00
6.000	1494.53	7.84	1.20	2.40
7.000	1743.62	8.48	1.40	2.80
8.000	1992.71	9.12	1.60	3.20
9.000	2241.80	9.76	1.80	3.60
10.000	2490.89	10.40	2.00	4.00
11.000	2739.98	11.04	2.20	4.40
12.000	2989.07	11.68	2.40	4.80
13.000	3238.16	12.32	2.60	5.20
14.000	3487.24	12.96	2.80	5.60
15.000	3736.33	13.60	3.00	6.00
16.000	3985.42	14.24	3.20	6.40
17.000	4234.51	14.88	3.40	6.80
18.000	4483.60	15.52	3.60	7.20
19.000	4732.69	16.16	3.80	7.60
20.000	4981.78	16.80	4.00	8.00
21.000	5230.87	17.44	4.20	8.40
21.500	5355.41	17.76	4.30	8.60
22.000	5479.96	18.08	4.40	8.80
23.000	5729.04	18.72	4.60	9.20
24.000	5978.13	19.36	4.80	9.60
25.000	6227.22	20.00	5.00	10.00

Pressure Range 0 to 15" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
0.600	149.45	4.64	0.20	0.40
1.200	298.91	5.28	0.40	0.80
1.800	448.36	5.92	0.60	1.20
2.400	597.81	6.56	0.80	1.60
3.000	747.27	7.20	1.00	2.00
3.600	896.72	7.84	1.20	2.40
4.200	1046.17	8.48	1.40	2.80
4.800	1195.63	9.12	1.60	3.20
5.400	1345.08	9.76	1.80	3.60
6.000	1494.53	10.40	2.00	4.00
6.600	1643.99	11.04	2.20	4.40
7.200	1793.44	11.68	2.40	4.80
7.800	1942.89	12.32	2.60	5.20
8.400	2092.35	12.96	2.80	5.60
9.000	2241.80	13.60	3.00	6.00
9.600	2391.25	14.24	3.20	6.40
10.200	2540.71	14.88	3.40	6.80
10.800	2690.16	15.52	3.60	7.20
11.400	2839.61	16.16	3.80	7.60
12.000	2989.07	16.80	4.00	8.00
12.600	3138.52	17.44	4.20	8.40
12.900	3213.25	17.76	4.30	8.60
13.200	3287.97	18.08	4.40	8.80
13.800	3437.43	18.72	4.60	9.20
14.400	3586.88	19.36	4.80	9.60
15.000	3736.33	20.00	5.00	10.00

Pressure Range 0 to 30" W.C.

W.C.	Pasc.	4 to 20mA	0 to 5V	0 to 10V
0.000	0.00	4.00	0.00	0.00
1.200	298.91	4.64	0.20	0.40
2.400	597.81	5.28	0.40	0.80
3.600	896.72	5.92	0.60	1.20
4.800	1195.63	6.56	0.80	1.60
6.000	1494.53	7.20	1.00	2.00
7.200	1793.44	7.84	1.20	2.40
8.400	2092.35	8.48	1.40	2.80
9.600	2391.25	9.12	1.60	3.20
10.800	2690.16	9.76	1.80	3.60
12.000	2989.07	10.40	2.00	4.00
13.200	3287.97	11.04	2.20	4.40
14.400	3586.88	11.68	2.40	4.80
15.600	3885.79	12.32	2.60	5.20
16.800	4184.69	12.96	2.80	5.60
18.000	4483.60	13.60	3.00	6.00
19.200	4782.51	14.24	3.20	6.40
20.400	5081.41	14.88	3.40	6.80
21.600	5380.32	15.52	3.60	7.20
22.800	5679.23	16.16	3.80	7.60
24.000	5978.13	16.80	4.00	8.00
25.200	6277.04	17.44	4.20	8.40
25.800	6426.49	17.76	4.30	8.60
26.400	6575.95	18.08	4.40	8.80
27.600	6874.85	18.72	4.60	9.20
28.800	7173.76	19.36	4.80	9.60
30.000	7472.67	20.00	5.00	10.00

BAPI-GUARD

The BAPI-Guard prevents tampering, physical damage and unauthorized adjustment of thermostats. The attractive, low-profile design is available in two sizes to fit most thermostats. It is made of thick, durable polycarbonate and features exceptional airflow, key lock protection, horizontal or vertical mounting and easy installation with hardware included.



For videos & information
on the BAPI-Guard,
visit **www.bapihvac.com/bapiguard**!

Your time is valuable. So is your business.

Confidently enjoy both with **BAPI Wireless Asset Monitoring.**



With the **BAPI Wireless Asset Monitoring** system, you can be confident while you're away that your assets are being monitored.

- Receive alerts via e-mail, text or phone message
- Access your data from anywhere in the world
- Monitor real-time temperature and humidity
- View historical trends

For videos & information on BAPI Wireless Asset Monitoring system, visit **www.bapihvac.com/wam**!

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Additional Application Notes Available at www.bapihvac.com

In addition to the Application Notes available in this catalog, BAPI also has many Application Notes available online at our website at www.bapihvac.com. Below is a list of some of the Application Notes available online:

Ground Loops
Understanding Grounds Loops and Avoiding Ground Loops

Current Loops
4 to 20 mA Configurations
Understanding 4 to 20 mA Current Loops
Designing 4 to 20 mA Current Loops

Other Application Notes
Understanding Full Wave and Half Wave Power Supplies

Determining Air Flow in Cubic Feet per Minute (CFM)

Understanding Noise from AC Power

Themal Buffer Temperature Sensing

Setpoint Output Ranges for BAPI Room Sensors

				BAPI Room Sensors														
				Units Without Display			Units With Display									Units With or Without Display		
	Designator	Output Range	Span	Delta Style	Wall Plate w/ Rotary Setpoint	BAPI-Stat 2 BAPI-Stat 4	RµP	RµPM	RµPS	Decora	BAPI-Stat 2M BAPI-Stat 4M	BAPI-Stat 2S BAPI-Stat 4S	X-Combo***	T1K/T100* B, B4	BAPI-Stat* BAPI Stat 3*	BAPI-Stat 2* BAPI-Stat 4* with Humidity or Dew Point	VOC & CO2	BAPI-Com (BAPI-Stat 4 Encl.)
Volts	00	0 to 5 V	5 Volts	x	x	x	x	x	x	x	x	x	Ch 1,2,3		x	x	x	x
	01	1 to 5 V	4 Volts	x	x	x	x	x		x	x				x			x
	02	3.7 to 0.85 V	2.85 Volts	x	x	x	x	x		x	x				x			x
	03	5 to 0 V	5 Volts	x	x	x	x	x	x	x	x	x	Ch 3		x		x	x
	04	4.2 to 1.2 V	3 Volts	x	x	x	x	x		x	x				x			x
	07	2.773 to 0.43 V	2.343 Volts	x	x	x	x	x		x	x				x			x
	10	0 to 10 V	10 Volts	x	x	x		x		x	x	x			x	x	x	x
	11	2 to 10 V	8 Volts	x	x	x		x		x	x				x			x
Current	16	4-20 mA	16 mA										Ch 1,2	x	x	X (RH only)		
<1kΩ Span	20	889 to 111 Ω	778 Ω				x	x		x	x				x			
	21	792 to 208 Ω	584 Ω				x	x		x	x				x			
	22	695 to 305 Ω	390 Ω				x	x		x	x				x			
	23	674 to 274 Ω	400 Ω	x	x	x	x	x	x	x	x	x		x	x	x	x	
	24	597 to 305 Ω	292 Ω				x	x		x	x				x			
	25	800 to 1200	400 Ω	x	x	x	x	x	x	x	x	x		x	x	x	x	
	26	909 to 1309	400 Ω	x	x	x	x	x	x	x	x	x		x	x	x	x	
	27	1800 to 2200	400 Ω	x	x	x	x	x	x	x	x	x		x	x	x	x	
	28	865 to1286	400 Ω	x	x	x	x	x	x	x	x	x		x	x	x	x	
	29	700 to 300	400 Ω	x	x	x	x	x	x	x	x	x		x	x	x	x	
1kΩ Span	40	0 to 1 kΩ	1 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
	41	500 to 1500 Ω	1 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
	42	2 to 3 kΩ	1 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
	43	249 to 1249 Ω	1 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
	44	10 to 11 kΩ	1 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
	45	12.5K-11.5K Ω	1 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
	46	1K to 0 Ω	1 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
	47	182 to 1182 Ω	1 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
2kΩ Span	48	0 to 2 kΩ	2 kΩ					x			x		x					
	55	0 to 1.5 kΩ	2 kΩ															
5kΩ Span	50	0 to 5 kΩ	5 kΩ	x			x	x		x	x				x			
	51	7.87k to 2.87kΩ	5 kΩ	x			x	x		x	x				x			
	52	10.0k to 15.0kΩ	5 kΩ	x			x	x		x	x				x			
	53	2.5k to 7.5kΩ	5 kΩ	x			x	x		x	x				x			
	54	1k to 6kΩ	5 kΩ	x			x	x		x	x				x			
10kΩ Span	60	0 to 10 kΩ	10 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	61	15k to 5 kΩ	10 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	62	9577 to 1422 Ω	8.16K				x	x		x	x		x		x			
	63	1 to 11 kΩ	10 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	64	200 to 10.2 kΩ	10 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	65	10.4k to 400Ω	10 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	66	10 kΩ to 0	10 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	67	5k to 15 kΩ	10 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	68	9629 to 806 Ω	~10 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	[XL]**	10.6K to 600Ω	9.62 kΩ	x	x	x	x	x	x	x	x	x	x					
20kΩ Span	80	0 to 20 kΩ	20 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	81	4.75 to 24.75 kΩ	20 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	82	6.19 to 26.19 kΩ	20 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	83	7.87 to 27.87 kΩ	20 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	84	10 to 30 kΩ	20 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	85	24.75 to 4.75 kΩ	20 kΩ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
100kΩ	90	0 to 100 kΩ	100 kΩ	x	x	x	x	x	x	x	x	x		x	x	x	x	
50kΩ	91	25K to 75 kΩ	50 kΩ				x	x		x	x				x			

An "x" in the box indicates that the output range is available for that room unit.

Note: RuP options 60, 61 and 62 are not available for large display spans. Contact your BAPI representative for additional information.

*Setpoint range must be within displayed temperature range

**XL10 Option

***The X-Combo unit uses a unique set of designators for the ranges, not the designators listed on this page. See the X-Combo ordering grid for the designators.

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Setpoint Display Ranges for BAPI Room Sensors

Designator	Setpoint Display Range**				BAPI Room Sensors With Display									
	°F	°C	Humidity	Generic	RµP	RµPM	RµPS	Decora	BAPI-Stat 2 BAPI-Stat 4	X-Combo*	T1K/T100* Room Sensor	BAPI-Stat* BAPI Stat 3*	VOC and CO2 in BAPI-Stat 3	BAPI-Com**
A				-3 to +3	x	x	x	x	x	x	x	x	x	x
B				-5 to +5	x	x	x	x	x	x	x	x	x	x
C	50 to 90°F	10 to 32°C			x	x	x	x	x	x	x	x	x	x
D	55 to 85°F	13 to 30°C			x	x	x	x	x	x	x	x	x	x
E	60 to 80°F	15 to 27°C			x	x	x	x	x	x	x	x	x	x
F	65 to 80°F	18 to 27°C			x	x	x	x	x	x	x	x	x	x
G	45 to 96°F	7 to 35°C			x			x	x	x	x	x	x	x
H	-20 to 120°F	-29 to 49°C									x		x	x
J	68 to 78°F	20 to 26°C			x		x	x	x	x	x	x	x	x
K	65 to 95°F	18 to 35°C			x			x	x	x	x	x	x	x
L	70 to 74°F	21 to 23°C			x		x	x	x	x	x	x	x	x
M			0 to 100%RH							x		x		x
N			35 to 70%RH							x		x		x
P				-2 to +2	x		x	x	x	x	x	x	x	x
X	40 to 80°F	4 to 27°C			x		x	x	x	x	x	x	x	x
AA	60 to 85°F	15 to 30°C			x			x	x	x	x	x	x	x
BB	54 to 90°F	12 to 32°C			x			x	x	x	x	x	x	x
CC	41 to 85°F	5 to 30°C			x			x	x	x	x	x	x	x
DD	32 to 100°F	0 to 38°C			x			x	x	x	x	x	x	x
EE	67 to 77°F	19 to 25°C			x			x	x	x	x	x	x	x
FF				-10 to +10	x			x	x	x	x	x	x	x
GG	0 to 100°F	-18 to 38°C									x		x	x
JJ	40 to 90°F	4 to 32°C			x			x	x	x	x	x	x	x
KK	32 to 185°F	0 to 85°C									x		x	x
MM	-40 to 140°F	-40 to 60°C									x		x	x
NN	69 to 75°F	21 to 24°C			x			x	x	x	x	x	x	x
PP				-4 to +4	x			x	x	x	x	x	x	x
QQ	55 to 95°F	13 to 35°C			x			x	x	x	x	x	x	x
RR	32 to 212°F	0 to 100°C									x			
SS	25 to 50°F	-4 to 10°C									x		x	x
	Maximum Temperaure Display Range ->				32 to 110°F 0 to 43°C	32 to 110°F 0 to 43°C	32 to 110°F 0 to 43°C	32 to 140°F 0 to 60°C	32 to 110°F 0 to 43°C	32 to 158°F 0 to 70°C	-147 to 1766°F -99 to 999°C	32 to 110°F 0 to 43°C	-40 to 140°F -40 to 60°C	-40 to 140°F -40 to 60°C

An "x" in the box indicates that the output range is available for that room unit.
*Setpoint range must be within displayed temperature range
**Range describes the Output Module Range as well as the Display Range if used with the BAPI-Com.

Resistance Output Values for Units with Fan Speed Control

Designator	Fan Speed Control Selection and Resistance Output Value						Room Sensor Models
	OFF	AUTO	LO	MED	HI	ON	
XLD	5k	10k	15k	20k	25k		RuPM, BAPIStat 2 & 4
X01	4.89k	2.33k	10.63k	13.24k	16.33k		RuPM, BAPIStat 2 & 4
X02	2k	4k	6k	8k	10k		RuPM, BAPIStat 2 & 4
X03	5k	10k				15k	RuPM, BAPIStat 2 & 4
X05	4.89k	2.33k				15.8k	RuPM, BAPIStat 2 & 4
X06	6.5k		8.5k	10.5k	12k		BAPIStat 2 & 4 Only
X07	5k					15k	BAPIStat 2 & 4 Only
X08	12.686k	11.86k				13.86k	RuPM, BAPIStat 2 & 4

Resistance Output Values for Units with Heat/Off/Cool Mode and On/Auto Fan Control

Designator	Mode Control Selection and Resistance Output Value						Room Sensor Models
	Heat/Auto	Off/Auto	Cool/Auto	Heat/On	Off/On	Cool/On	
HCF	5k	10k	15k	20k	25k	30k	RuPM, BAPIStat 2 & 4
H01	0k	2k	4k	6k	8k	10k	RuPM, BAPIStat 2 & 4

Resistance Output Values for BAPI-Stat 2 & 4 Units with Heat/Cool and Off/Auto Control

Designator	Mode Control Selection and Resistance Output Value						Room Sensor Models
		Heat	Cool	Auto	Off		
H02		5K	10K	15K	20K		BAPIStat 2 & 4 Only

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BAPI Non-Room Enclosure Styles

BAPI Application Notes

Rev. 06/06/13

BAPI offers four weatherproof enclosure styles for duct, immersion and outdoor sensors. They are the Weatherproof Enclosure (**WP**) which is commonly referred to as a "Bell Box", the Weather Tight Enclosure (**EU**) and the BAPI-Box (**BB**) and BAPI-Box 2 (**BB2**) enclosures.

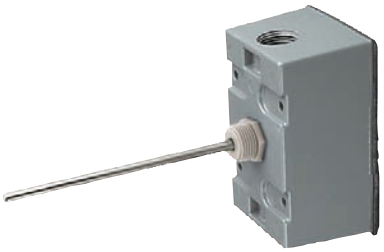
BAPI also offers a nylon and plastic BAPI-Box 4 (**BB4**) enclosure with an IP44 rating.

Weatherproof Enclosure (Commonly Referred to as a "Bell Box")

BAPI's Weatherproof Enclosure (**WP**) carries a NEMA 3R rating which is equivalent to an IP14 rating.

> **NEMA 3R:** Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow; and that will be undamaged by the external formation of ice on the enclosure.
>
> **IP14:** Protected against solid foreign objects greater than 50mm diameter and protected against spashing water.

Note: The Weatherproof Enclosure is not watertight and may fill with water. Weatherproof Enclosures that will be subjected to driving rain, sprinkler systems or jets of water from washdown operation may need a 3/16" weep hole drilled in the lowest horizontal face of the box.



Weatherproof (WP)

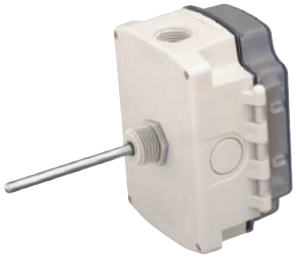


Weather Tight (EU)

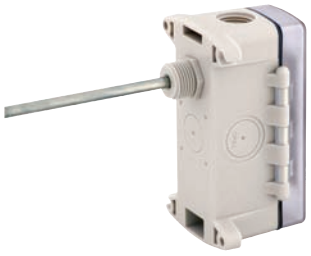
BAPI Weather Tight, BAPI-Box and BAPI-Box 2 Enclosures

BAPI's Weather Tight (**EU**), BAPI-Box (**BB**) and BAPI-Box 2 (**BB2**) enclosures are watertight and carry an IP66 rating which is equivalent to a NEMA 4X rating.

> **IP66:** Dust tight and protected against powerful water jets from any direction.
>
> **NEMA 4X:** Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, hose-directed water; and corrosion; and that will be undamaged by the external formation of ice on the enclosure.



BAPI-Box (BB)



BAPI-Box 2 (BB2)

BAPI-Box 4 Enclosure

BAPI's nylon and plastic BAPI-Box 4 (**BB4**) carries an IP44 rating.

> **IP44:** Protected against solid foreign objects greater than 1mm diameter and protected against splashing water.

Note: For more information about NEMA and IEC enclosure ratings see BAPI's application note NEMA Enclosure Ratings and IEC Enclosure Ratings.



BAPI-Box 4 (BB4)

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The **N**ational **E**lectrical **M**anufacturers **A**ssociation **(NEMA)** Standards Publication No. 250 defines 13 different enclosure "types" for non-hazardous locations. These NEMA types define the applications and the environmental conditions that enclosures are designed to protect against when properly installed.

Type 1: Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment, and to provide a degree of protection against falling dirt.

Type 2: Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment, to provide a degree of protection against falling dirt, and to provide a degree of protection against dripping and light splashing of liquids.

Type 3: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, and windblown dust; and that will be undamaged by the external formation of ice on the enclosure.

Type 3R: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow; and that will be undamaged by the external formation of ice on the enclosure.

Type 3S: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, and windblown dust; and in which the external mechanism(s) remain operable when ice laden.

Type 4: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water; and that will be undamaged by the external formation of ice on the enclosure.

Type 4X Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, hose-directed water; and corrosion; and that will be undamaged by the external formation of ice on the enclosure.

Type 5: Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against settling airborne dust, lint and fiber flyings; and to provide a degree of protection against dripping and light splashing of liquids.

Type 6: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against hose directed water and the entry of water during occasional temporary submersion at a limited depth; and that will be undamaged by the external formation of ice on the enclosure.

Type 6P: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against hose directed water and the entry of water during prolonged submersion at a limited depth; and that will be undamaged by the external formation of ice on the enclosure.

Type 12: Enclosures constructed (without knockouts) for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against circulating dust, lint and fiber flyings; and against dripping and light splashing of liquids.

Type 12K: Enclosures constructed (with knockouts) for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against circulating dust, lint, fiber flyings; and against dripping and light splashing of liquids.

Type 13: Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against circulating dust, lint and fiber flyings; and against spraying splashing, and seepage of water, oil and noncorrosive coolants.If you have any questions about BAPI enclosures or NEMA ratings, please call your BAPI representative.

Reference: NEMA Standard 250-1997, "Enclosures for Electrical Equipment (1000 Volts Maximum)"

IEC Enclosure Ratings

BAPI Application Notes

Rev. 10/16/12

The IEC (International Electrotechnical Commision) is an international committee that developes and publishes its recommendations for standardising international wiring devices and products. Ingress Protection (IP) is the grades of protection against external solids contacting the conductors of a wiring device and against the penetration of liquids into the wiring device.

The IP designation consists of the letters IP followed by two numerals. The first characteristic numeral indicates the degree of protection provided by the enclosure with respect to persons and solid foreign objects entering the enclosure. The second characteristic numeral indicates the degree of protection provided by the enclosure with respect to the harmful ingress of water. The degrees of protection are listed below:

1st IP#	Degree of protection against access to hazardous parts and ingress of solid objects
0	No protection
1	Protected against solid foreign objects greater than 50mm diameter
2	Protected against solid foreign objects greater than 12.5mm diameter
3	Protected against solid foreign objects greater than 2.5mm diameter
4	Protected against solid foreign objects greater than 1.0mm diameter
5	Dust Protected
6	Dust tight

2nd IP#	Degree of protection against the ingress of water
0	No protection
1	Protected against vertically falling water drops
2	Protected against vertically falling water drops when enclosure titled up 15°
3	Protected against spraying water
4	Protected against splashing water
5	Protected against water jets
6	Protected against powerful jets from any direction
7	Protected against the effects of total water immersion up to 1M
8	Protected against the effects of total water immersion beyond 1M

Therefore an IP66 rated enclosure is “dust tight and protected against powerful jets of water from any direction.”

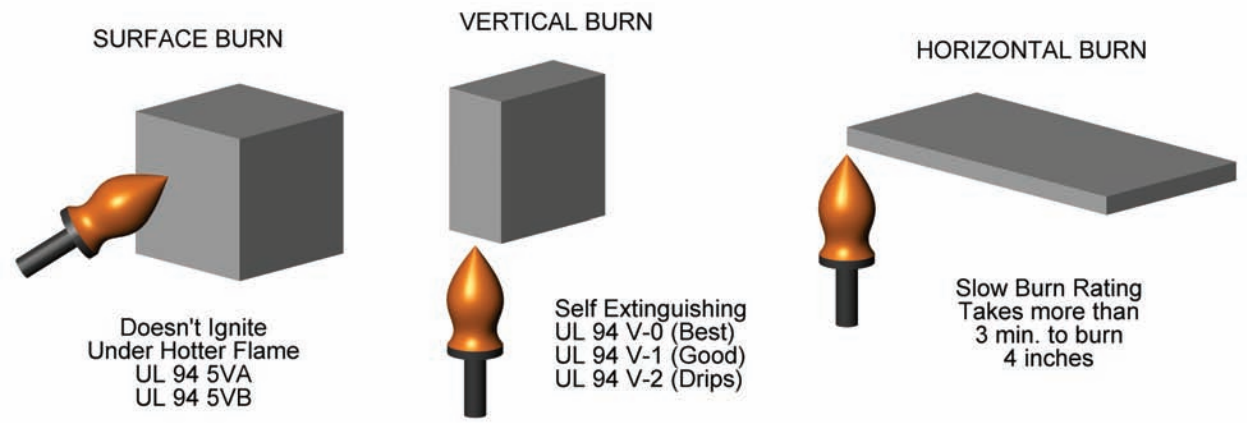
If you have any questions about BAPI enclosures please call your BAPI representative.

Reference: IEC Publication 60529 - Classification of Degrees of Protection Provided by Enclosures

All of BAPI's indoor sensor bodies and transmitter enclosures are made from UL94, V-0 rated plastics.

UL94 serves as a preliminary indication of a plastic's acceptability for use as part of a device or appliance with respect to its flammability. It is not intended to reflect the hazards of a material under actual fire conditions.

The 94HB test describes the Horizontal Burn method. Methods 94V and 94VTM are used for Vertical Burn, a more stringent test than 94HB. The 94-5V test is for enclosures for products that are not easily moved or are attached to a conduit system. The 94HBF and HF are used for nonstructural foam materials.



UL 94 Flammability Rating Summary	
5VA Surface Burn	Burning stops within 60 seconds after five applications of five seconds each of a flame (larger than that used in Vertical Burn testing) to a test bar. Test specimens MAY NOT have a burn-through (no hole). This is the highest (most flame retardant) UL94 rating.
5VB Surface Burn	Burning stops within 60 seconds after five applications of five seconds each of a flame (larger than that used in Vertical Burn testing) to a test bar. Test specimens MAY HAVE a burn-through (a hole).
V-0 Vertical Burn	Burning stops within 10 seconds after two applications of ten seconds each of a flame to a test bar. NO flaming drips are allowed.
V-1 Vertical Burn	Burning stops within 60 seconds after two applications of ten seconds each of a flame to a test bar. NO flaming drips are allowed.
V-2 Vertical Burn	Burning stops within 60 seconds after two applications of ten seconds each of a flame to a test bar. Flaming drips ARE allowed.
H-B Horizontal Burn	Slow horizontal burning on a 3mm thick specimen with a burning rate is less than 3"/min or stops burning before the 5" mark. H-B rated materials are considered "self-extinguishing". This is the lowest (least flame retardant) UL94 rating.

If you have any questions about BAPI enclosures please call your BAPI representative.

100% Compatibility Guarantee

BAPI Application Notes

Rev. 10/16/12



100% Compatibility Guarantee

Any BAPI device that has been installed in an application approved by a BAPI Key Account Specialist or BAPI Engineer is GUARANTEED to be 100% compatible with your HVAC/R system. If the BAPI device proves to be incompatible with your system, BAPI will pay the cost of any **LABOR** charges incurred to replace this device with another BAPI device only.

Unit must be installed per industry standards and must prove to be installed in the application as originally approved by the BAPI Key Account Specialist or BAPI Engineer.

To be eligible for BAPI's Compatibility Guarantee, the **Application Guarantee Number** must be requested during the engineering phase of the project. A BAPI Engineer will validate your application and issue your **Application Guarantee Number**. (AGN) The AGN will be valid for one year from date of assignment. Call BAPI for more details.

Ten LCD display options are available on the BAPI-Stat 2 and BAPI-Stat 4 room units when the “Override as a Latching Switch” (-L) option is selected from the ordering grid. The chart at right shows the 10 options and what the LCD will display when the latching relay is open and what the LCD will display when the latching relay is closed.

Note: If one of the “Fanspeed/Mode” options is selected from the ordering grid, then you MUST use the latching display Option 9.

In the “Override as Latching Display” Option, pressing the Override button closes the override relay contacts (Terminals OVR1 & OVR2). They will remain closed until the “Override” button is pressed again, then they will open and remain open until the Override button is pressed again. See the installation and Operation sheets for the BAPI-Stat 2 and BAPI-Stat 4 units for examples of “Override as a Latching Switch” circuits.

BAPI-MAN ICON

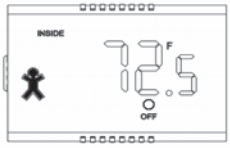
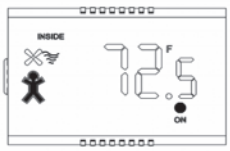
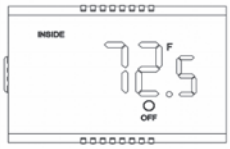
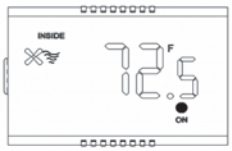
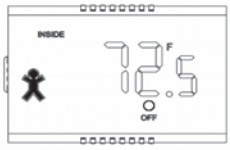
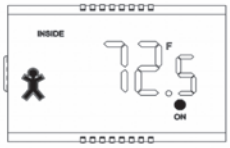
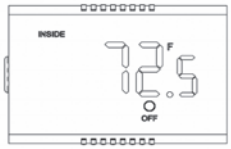
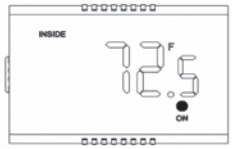
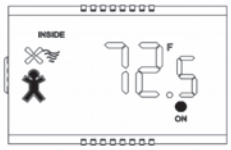
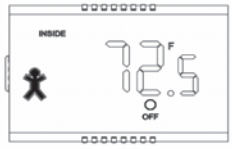
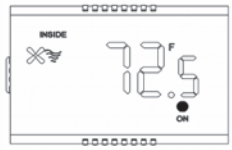
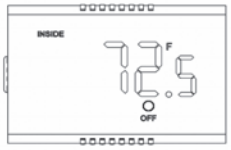
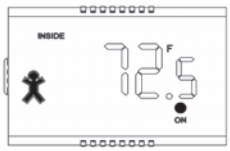
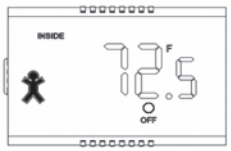
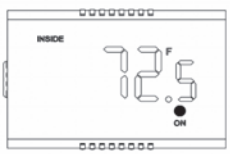
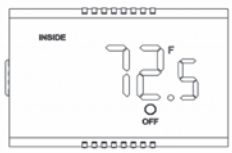
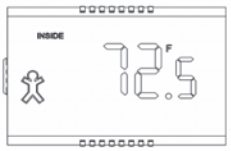
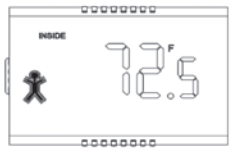
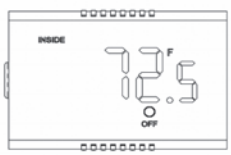
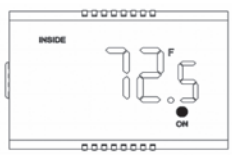
On **Options 2, 4, 6, 8 & 10**, the BAPI-Man Icon is disabled and will not show on the display, even when the Override button is pushed.

On **Options 1, 3, 5 & 7**, the BAPI-Man Icon is filled or solid for 3 to 5 seconds after the Override button is pushed, but it will only remain solid or filled when there is a ground signal to the EXT OVR terminal of the unit.

For **Option 9**, the BAPI-Man Icon stays filled or solid when the relay is closed and hollow when the relay is open.

For **Option 10**, the BAPI-Man Icon is disabled but the “ON” or “OFF” Dot on the display is controlled by the EXT OVR terminal. When there is a ground signal at the EXT OVR terminal, the “ON” dot is lit. Otherwise the “OFF” and hollow dot are lit.

Note: The Override Terminals OVR1 and OVR2 are NOT latching in Option 10. These terminals close MOMENTARILY in this option.

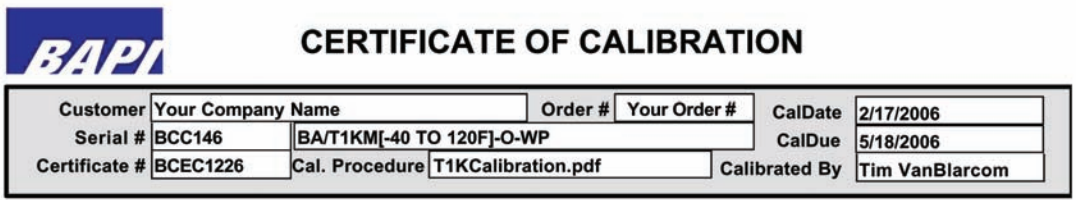
Option	Override Relay Open	Override Relay Closed
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

BAPI Certification Form Overview

BAPI Application Notes

Rev. 10/16/12

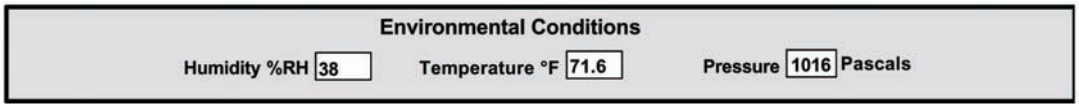
Recently BAPI changed its certification form to match the requirements of the National Institute of Standards and Technology data reporting standard.



CERTIFICATE OF CALIBRATION

Customer	Your Company Name	Order #	Your Order #	CalDate	2/17/2006
Serial #	BCC146	BA/T1KM[-40 TO 120F]-O-WP		CalDue	5/18/2006
Certificate #	BCEC1226	Cal. Procedure	T1KCalibration.pdf	Calibrated By	Tim VanBlarcom

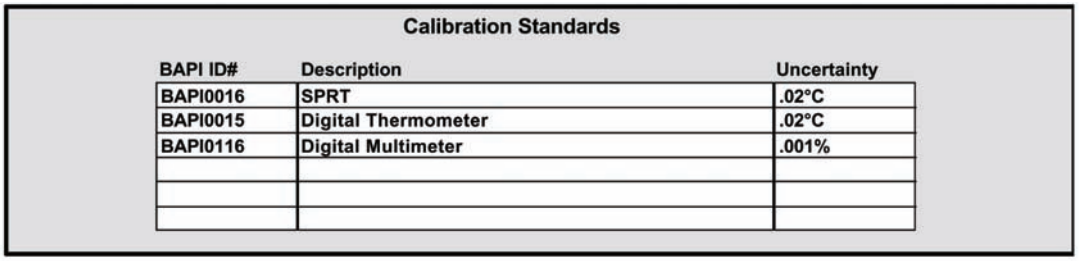
The first section (shown above) indicates the product being certified, the customer and the order number.



Environmental Conditions

Humidity %RH 38 Temperature °F 71.6 Pressure 1016 Pascals

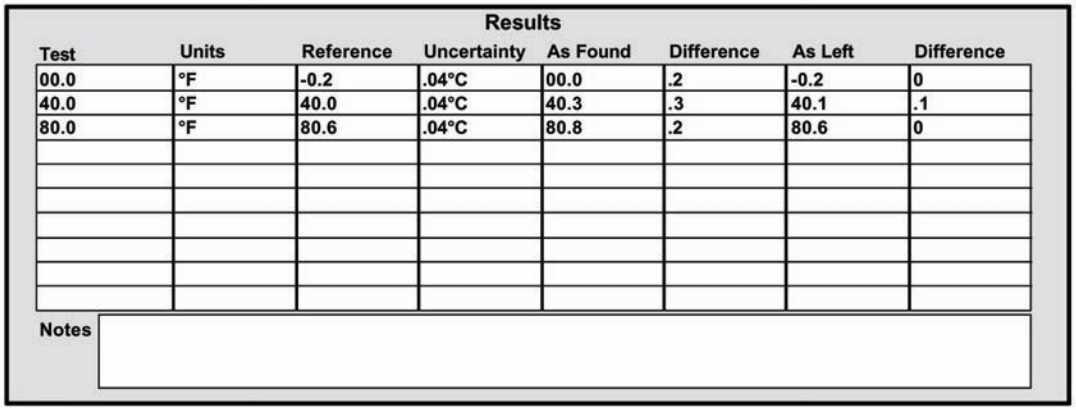
The second section (shown above) records the relative humidity, temperature and atmospheric pressure of the test laboratory.



Calibration Standards

BAPI ID#	Description	Uncertainty
BAPI0016	SPRT	.02°C
BAPI0015	Digital Thermometer	.02°C
BAPI0116	Digital Multimeter	.001%

The third section (shown above) is an inventory of the equipment used to perform the certification. Uncertainty is the tolerance of the instrument's measurement as determined during its last calibration at a NIST certified calibration center.



Results

Test	Units	Reference	Uncertainty	As Found	Difference	As Left	Difference
00.0	°F	-0.2	.04°C	00.0	.2	-0.2	0
40.0	°F	40.0	.04°C	40.3	.3	40.1	.1
80.0	°F	80.6	.04°C	80.8	.2	80.6	0

Notes

The fourth section (shown above) details the certification results. The column labeled Test defines the test procedure or procedures that were used to certify the product. The column labeled Units defines the units of measure used for the test. The three test conditions for this certification were 0°F, 40°F and 80°F.

The column labeled Reference is the actual test condition as measured by the Calibration Standards referenced in the inventory described above. For the test shown, the test condition at 0°F was actually -0.2°F, we achieved 40°F and 80°F was actually 80.6°F. The next column labeled Uncertainty is the tolerance of Calibration standards used to measure the test condition temperature.

The column labeled As Found is the transmitters output before any corrections are made to the transmitter. If the output is a 4 to 20mA current loop, the output is changed to the units of the parameter being measured, in this case Fahrenheit temperature. The next column labeled Difference is the difference or offset of the As Found to the Reference.

The column labeled As Left is the transmitters output after any corrections are made to the transmitter. This is how the equipment is sent to you. If the output is a 4 to 20mA current loop, the output is changed to the units of the parameter being measured, in this case Fahrenheit temperature. The next column labeled Difference is the difference or offset of the As Left to the Reference. This last Difference column is the offset you should use in your controller to correct the temperature.

This notification serves to certify that the unit described above has been inspected and tested in accordance with specifications published by Building Automation Products Inc.

The accuracy and calibration of this instrument are traceable through reference standards that are compared, at planned intervals, to national standards maintained by the National Institute of Standards and Technology (NIST), by comparison to natural physical constants.

The measurement standards which support this calibration are calibrated on a schedule to maintain the required accuracy level.

For recalibration and recertification of this unit or for other testing or calibration services contact:

Building Automation Products, Inc.
750 North Royal Avenue
Gays Mills,WI 54631

Phone (608) 735-4800
Fax (608) 735-4804

The last section (shown above) notifies you that all instruments used to certify the equipment are properly calibrated and traceable to NIST.

Additional information on specific Temperature, Pressure and Humidity Certification documents is found on the following three pages.

If you have any questions about the certification documents, please contact your BAPI representative.

Temperature Transmitter Certification

BAPI Application Notes

Shown below is a calibration certificate for a recent T1K order.

Each transmitter is calibrated for its range using precision resistors. A Class A RTD is given a unique serial number and attached to the transmitter. The RTD is subjected to each temperature certification point and the temperature transmitter's output is recorded at each point. BAPI normally tests at 25%, 50% and 75% of temperature span. BAPI will test at any temperature that you specify. BAPI can generate and certify temperatures between -50°C and 150°C.

If you require the temperature transmitter to be certified at more than the three standard temperatures, please contact your BAPI representative for pricing. If you have any questions about the certification document, please contact your BAPI representative.

CERTIFICATE OF CALIBRATION

Customer	Your Company Name	Order #	Your Order #	CalDate	2/17/2006
Serial #	BCC146	BA/T1KM[-40 TO 120F]-O-WP		CalDue	5/18/2006
Certificate #	BCEC1226	Cal. Procedure	T1KCalibration.pdf	Calibrated By	Tim VanBlarcom

Environmental Conditions

Humidity %RH 38 Temperature °F 71.6 Pressure 1016 Pascals

Calibration Standards

BAPI ID#	Description	Uncertainty
BAPI0016	SPRT	.02°C
BAPI0015	Digital Thermometer	.02°C
BAPI0116	Digital Multimeter	.001%

Results

Test	Units	Reference	Uncertainty	As Found	Difference	As Left	Difference
00.0	°F	-0.2	.04°C	00.0	.2	-0.2	0
40.0	°F	40.0	.04°C	40.3	.3	40.1	.1
80.0	°F	80.6	.04°C	80.8	.2	80.6	0

Notes

This notification serves to certify that the unit described above has been inspected and tested in accordance with specifications published by Building Automation Products Inc.

The accuracy and calibration of this instrument are traceable through reference standards that are compared, at planned intervals, to national standards maintained by the National Institute of Standards and Technology (NIST), by comparison to natural physical constants.

The measurement standards which support this calibration are calibrated on a schedule to maintain the required accuracy level.

For recalibration and recertification of this unit or for other testing or calibration services contact:

Building Automation Products, Inc.
750 North Royal Avenue
Gays Mills,WI 54631

Phone (608) 735-4800
Fax (608) 735-4804

BAPI measures and records the output of every ZPS pressure transmitter at several points before we send them to our customers. For calibration, BAPI has a digital pressure controller that produces pressures accurate to ±0.0011 inches of water. When a customer requests a calibration certificate, the data for that specific sensor is collected from our calibration database. Because the data is kept in our calibration database, customers may request certifications at any time. Please provide the transmitter serial number for ease of retrieval. The figure below is actual data from an order. If you have any questions about the certification documents, please contact your BAPI representative.

CERTIFICATE OF CALIBRATION

Customer	Your Company Name	Order #	Your Order #	CalDate	2/17/2006
Serial #	BCC146	ZPS-20-SR07-NT-250-FMK		CalDue	5/18/2006
Certificate #	BCEC1226	Cal. Procedure	Test calibration filename	Calibrated By	Tim VanBlarcom

Environmental Conditions

Humidity %RH 38 Temperature °F 71.6 Pressure 1016 Pascals

Calibration Standards

BAPI ID#	Description	Uncertainty
BAPI0002	Digital Pressure Controller	0.0011" h2o
BAPI0119	Digital Multimeter	.001%
BAPI0018	Power supply	1%

Results

Test	Units	Reference	Uncertainty	As Found	Difference	As Left	Difference
0 To .10	in W.C.	.070	.001%	.0697	-.0003	.0697	-.0003
-0.10 to 0.10	in W.C.	.070	.001%	.0698	-.0002	.0698	-.0002
-0.25 to 0.25	in W.C.	.070	.001%	.0704	.0004	.0704	.0004
0 to 0.25	in W.C.	.070	.001%	.0709	.0009	.0709	.0009
0 to 1.00	in W.C.	.50	.001%	.5007	.0007	.5007	.0007
-1.00 to 1.00	in W.C.	.50	.001%	.5011	.0011	.5011	.0011
-2.5 to 2.5	in W.C.	2.00	.001%	2.0115	.0115	2.0115	.0115
0 to 2.50	in W.C.	2.00	.001%	2.0070	.007	2.0070	.007
0 to 5.00	in W.C.	2.00	.001%	2.0065	.0065	2.0065	.0065
-5.00 to 5.00	in W.C.	2.00	.001%	2.0220	.022	2.0220	.022

Notes

This notification serves to certify that the unit described above has been inspected and tested in accordance with specifications published by Building Automation Products Inc.

The accuracy and calibration of this instrument are traceable through reference standards that are compared, at planned intervals, to national standards maintained by the National Institute of Standards and Technology (NIST), by comparison to natural physical constants.

The measurement standards which support this calibration are calibrated on a schedule to maintain the required accuracy level.

For recalibration and recertification of this unit or for other testing or calibration services contact:

Building Automation Products, Inc.
750 North Royal Avenue
Gays Mills,WI 54631

Phone (608) 735-4800
Fax (608) 735-4804

Humidity Transmitter Certification

BAPI Application Notes

Rev. 10/16/12

BAPI's standard product accuracy is either ±3.0% or ±2.0% relative humidity. BAPI can provide a Sensor Certification for each transmitter that corrects each sensor and transmitter assembly to ±1% relative humidity as shown in the figure below. Each certified sensor/transmitter pair will ship with a unique certification. BAPI retains certification data for future reference.

Each sensor is placed into a precision humidity chamber that can hold a relative humidity condition to within ±0.5%RH. An independent instrument, with an annual NIST calibration accurate to ±0.5%RH, samples the inside of the chamber to verify the humidity reading. The humidity transmitter's output is recorded at each humidity certification point. BAPI normally tests at 25%, 50% and 75% relative humidity at one customer specified temperature. BAPI will test at any relative humidity and temperature that you specify. BAPI's humidity chamber has temperature test limits of 0 to 70°C and humidity test limits of 15%RH to 95%RH.

If you require the humidity reading to be certified at more than one temperature, please contact your BAPI representative for pricing. Please allow additional lead time when ordering certified units. If you have any questions about the certification documents, please contact your BAPI representative.

CERTIFICATE OF CALIBRATION

Customer	Your Company Name	Order #	Your Order #	CalDate	2/17/2006
Serial #	BCC146	BA/H200-D-EU		CalDue	5/18/2006
Certificate #	BCEC1226	Cal. Procedure	HumidityCalibration.pdf	Calibrated By	Tim VanBlarcom

Environmental Conditions

Humidity %RH 38 Temperature °F 77 Pressure 1016 Pascals

Calibration Standards

BAPI ID#	Description	Uncertainty
BAPI0003	Humidity Chamber	1%RH
BAPI0004	Humidity Reference	.5%RH
BAPI0116	Digital Multimeter	.001%
BAPI0016	SPRT	.02°C
BAPI0015	Digital Thermometer	.02°C

Results

Test	Units	Reference	Uncertainty	As Found	Difference	As Left	Difference
20	%RH	20	.5	18.83	-1.17	18.83	-1.17
50	%RH	50	.5	49.72	-.28	49.72	-.28
80	%RH	80	.5	80.72	.72	80.72	.72

Notes

This notification serves to certify that the unit described above has been inspected and tested in accordance with specifications published by Building Automation Products Inc.

The accuracy and calibration of this instrument are traceable through reference standards that are compared, at planned intervals, to national standards maintained by the National Institute of Standards and Technology (NIST), by comparison to natural physical constants.

The measurement standards which support this calibration are calibrated on a schedule to maintain the required accuracy level.

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Building Automation Products, Inc.
750 North Royal Avenue
Gays Mills,WI 54631

Phone (608) 735-4800
Fax (608) 735-4804

BAPI Commits to RoHS Compliance

Building Automation Products, Inc. (BAPI), a leading manufacturer of HVAC/R control system sensors and peripherals, is committed to environmentally responsible manufacturing practices. BAPI has been working since early 2005 to remove environmentally harmful materials from our products and we support the European Union's RoHS directive, which restricts the use of certain hazardous substances, such as lead and mercury, in electrical and electronic equipment.

Even though many manufacturers of HVAC/R monitoring and control equipment are claiming exemption from RoHS compliance, BAPI is developing its new products and revising current products to comply with the RoHS directive. In fact, the majority of BAPI products were RoHS compliant as of March 2006.

European Union's RoHS Directive

RoHS is the shorthand for the European Union's legislation, Reduction of Hazardous Substances in Electronics Manufacturing. The RoHS directive places restrictions on the use of six hazardous substances in electrical and electronic equipment. These substances are lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and polybrominated diphenyl ethers.

The intent of RoHS is to reduce the amount of these hazardous substances which enter the waste stream where they can impact soils and groundwater. In general, the RoHS directive is aimed at consumer-level finished electronic products that have relatively short life spans and enter the waste stream at high rates. The directive does not target electrical and electronic equipment that is permanently mounted in a fixed installation inside a building, such as HVAC/R control system equipment. Such items have very long lives and are not disposed of in quantities that significantly impact the concentration of hazardous substances in the community waste stream. Therefore, many manufacturers of such equipment have claimed exemption from the RoHS directive. BAPI, however, has chosen to comply with the RoHS directive because of our committment to environmentally responsible manufacturing practices.

Pressure Sensor Terms Defined

BAPI Application Notes

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Below is a list of Pressure Sensor Terms and their definitions:

1. **Burst pressure**
   Maximum pressure that may be applied to the sensor without rupture. No physical damage is allowed to the sensor, but it may need factory recalibration as it may strain the sensors internal mounting. BAPI's ZPS burst pressure is 10psi. To date, no ZPS unit has required factory recalibration when subjected to these pressures.
2. **Proof pressure**
   Maximum pressure that may be applied without changing the transducer performance beyond specified tolerances. BAPI's ZPS proof pressure is 5psi.
3. **Bidirectional**
   Takes the specified range and turns it into plus or minus of that range. The output signal is at the center of the range at zero pressure. The procedure used to turn the ZPS into a bidirectional unit is in the ZPS Installation and Operation document 13086_ins_zps_display.pdf available through your friendly BAPI representative.
4. **Auto Zero**
   Field calibration of the zero pressure output. The procedure used to auto zero the ZPS is in the ZPS Installation and Operation document 13086_ins_zps_display.pdf available through your friendly BAPI representative.
5. **Range**
   Specified endpoint pressures
6. **Span**
   Arithmetic difference between two pressure endpoints
7. **Sensitivity**
   Ratio of output signal change to a corresponding input pressure change
8. **Pressure**
   Force per unit area
9. **Velocity**
   Displacement per unit time
10. **Absolute Pressure**
    Pressure measured relative to a perfect vacuum
11. **Differential Pressure**
    Pressure difference measured between two pressure sources
12. **Gauge Pressure**
    Differential pressure between the local ambient pressure and another pressure source
13. **Static pressure**
    Pressure on the walls of a vessel at right angle to any flow. Static pressure is usually measured with a static pressure probe. ZPS/ACC07 or ZPS/ACC08
14. **Velocity pressure**
    Pressure caused by the momentum of moving air Velocity pressure is usually measured with a pitot tube assembly. ZPS/ACC11 or ZPS/ACC12
15. **Total pressure**
    Arithmetic sum of static pressure and velocity pressure. Total pressure is usually measured with a total pressure tube.

If you have any additional questions, please contact your BAPI representative.

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Recommended wire lengths for various power loads

When an electric current flows through a wire there is a drop in voltage due to the resistance of the wire. The voltage drop is found from Ohm's Law: ***E=IR***, or ***Voltage Drop = Wire Resistance x Amps of Current***.

The wire length recommendations below represent a 10% voltage drop in a 24 VAC or VDC circuit for various wire gauges and maximum currents. The voltage drop is linear, therefore cutting the wire length in half would result in a 5% voltage drop rather than a 10% voltage drop. The currents in the two tables represent the various models of power supplies and voltage converters available from BAPI.

Wire length recommendations in Table 1 are based on a wire temperature of 70 ºF. If the wire is run in a portion of the building where temperatures can increase to 140 ºF, such as an unventilated attic, then decrease the recommended wire length by 5%, as shown in Table 2.

The minimum wire gauge is determined by the maximum worst-case load. When in doubt, use the next larger size wire. All wiring must comply with the National Electric Code (NEC) and local codes.

Table 1: Recommended wire lengths at 70 ºF and below (10% maximum drop in voltage)

Wire gauge	Ω/1000 ft (305 M) @ 70ºF	Distance @ 75 mA	Distance @ 100 mA	Distance @ 350 mA	Distance @ 1.5 Amp	Distance @ 3 Amps
22	16.8	1905 ft (581 M)	1429 ft (435 M)	408 ft (124 M)	95 ft (29 M)	48 ft (15 M)
20	10.5	3048 ft (929 M)	2286 ft (697 M)	653 ft (199 M)	152 ft (46 M)	76 ft (23 M)
18	6.6	4848 ft (1478 M)	3636 ft (1109 M)	1039 ft (317 M)	242 ft (74 M)	121 ft (37 M)
16	4.2	7619 ft (2322 M)	5714 ft (1742 M)	1633 ft (498 M)	381 ft (116 M)	190 ft (58 M)

Table 2: Recommended wire lengths above 70 ºF (10% maximum drop in voltage)

Wire gauge	Ω/1000 ft (305 M) @ 70ºF	Distance @ 75 mA	Distance @ 100 mA	Distance @ 350 mA	Distance @ 1.5 Amp	Distance @ 3 Amps
22	16.8	1810 ft (522 M)	1357 ft (414 M)	388 ft (118 M)	90 ft (27 M)	45 ft (14 M)
20	10.5	2895 ft (882 M)	2171 ft (662 M)	620 ft (189 M)	145 ft (44 M)	72 ft (22 M)
18	6.6	4606 ft (1404 M)	3455 ft (1053 M)	987 ft (301 M)	230 ft (70 M)	115 ft (35 M)
16	4.2	7238 ft (2206 M)	5429 ft (1655 M)	1551 ft (473 M)	362 ft (110 M)	181 ft (55 M)

If you have any additional questions, please contact your BAPI representative.

Mounting Outdoor Sensors

BAPI Application Notes

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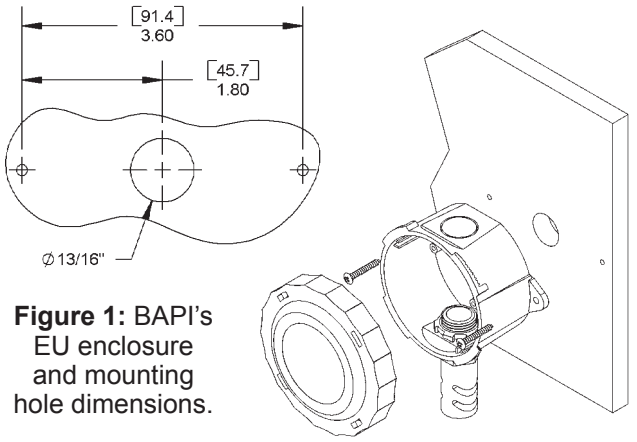


Figure 1: BAPI's EU enclosure and mounting hole dimensions.

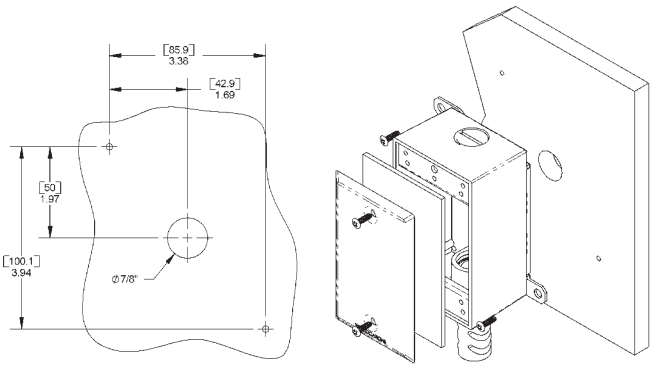


Figure 2: BAPI's WP enclosure and mounting hole dimensions.

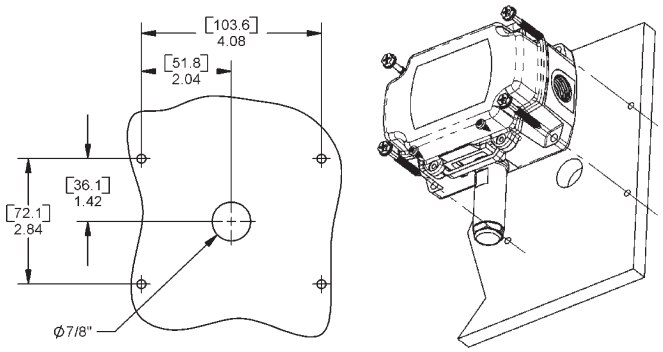


Figure 3: The BAPI-Box enclosure and mounting hole dimensions.

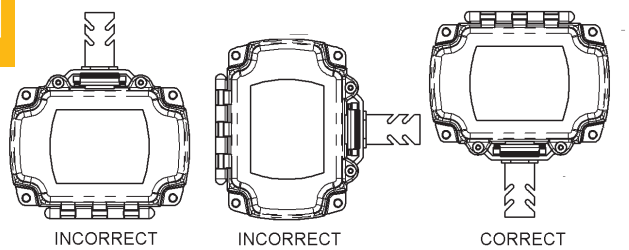


Figure 4: Proper orientation of the BAPI-Box enclosure.

Proper Procedure for Mounting BAPI Outdoor Sensors

The physical placement of BAPI outdoor temperature and humidity sensors depends on its application.

If the outside air is being used for economizing, the sensor should be placed close to the economizer damper without being in the air draft. If the economizer damper is on the roof, the sensor should be on the roof. If the economizer damper comes through the building wall, the sensor should be on the wall. If you want meteorological data, showing building occupants the outdoor weather conditions, mount the sensor on the side of building.

Place the sensor in a location where it does not receive direct sunlight because this can affect humidity readings. BAPI's tests show that humidity readings can be affected by as much as 30% RH when the sensor is in direct sunlight. In far northern or southern latitudes, be aware that at sunrise or sunset the sun can illuminate all sides of a building.

Drill the mounting holes as shown in the sensor's installation instructions. The best practice is to mount the unit with the sensor probes pointing down at a minimum of four feet above the ground or roof. Four feet isolates the sensor from any water puddles that would cause erroneous readings.

Water is the enemy of building materials and electrical connections. Carefully seal everything to get a good watertight seal. Be sure to seal the box plugs, conduit and conduit fittings.

Attach the sensor with the mounting hardware provided. **DO NOT** drill through the back of weatherproof boxes. Holes destroy the integrity of the box and may void the warranty.

Route the wires into the box and terminate with sealant filled connectors. BAPI's sealant filled connectors (BA/SFC1000 - Crimp-On Style or BA/SFC2000 - Twist-On Style) prevent water from attacking the connection, thereby preventing costly callbacks. The best practice is to seal the wiring hole after the wires are installed.

If you need any help mounting BAPI products or have any additional questions, please call your BAPI representative.

References

http://weather.gov/om/coop/standards.htm

The State Climatologist (1985) Publication of the American Association of State Climatologists: Heights and Exposure Standards for Sensors on Automated Weather Stations, v. 9, No. 4 October, 1985.

EPA (1987). On-Site Meteorological Program Guidance for Regulatory Modeling Applications, EPA-450/4-87-013. Office of Air Quality Planning and Standards, Research Triangle Parks, North Carolina 27711.

WMO (1983). Guide to Meteorological Instruments and Methods of Observation. World Meteorological Organization No. 8, 5th edition, Geneva Switzerland.

Measuring the Temp. of Small Pipes

When thermowells are too big to fit into small pipes, you can still measure water temperature by strapping a small, wired temperature probe to the pipe. BAPI recommends using the remote probe with FEP jacketed cable (pages A54-55 of the Temperature section) because of its moisture resistance and because of the higher temperatures encountered in this application.

There are two ways to mount the sensor to the pipe.

Figure 1 shows the probe strapped to the pipe with cable ties. Hose clamps may be used too.

Make sure the probe is securely touching the pipe before clipping the ends off the cable ties. Secure the sensor lead to the pipe for strain relief. Wrap insulation a minimum of 1/2 inch thick around the probe and 4 inches to either side of it. Polyester quilt batting, purchased at a craft store, makes a good insulation that won't make your skin itch. Preformed, molded rubber or fiberglass pipe insulation works well too. Spray foam insulation is another alternative. Any standard insulation material may be used. If necessary, protect the insulation with an over-wrap of tape.

Using BAPI's Foamback Insulator (as shown in Figure 2 below) is another easy way to mount and insulate the probe. The Foamback Insulator (page E9 of the Accessories section) is made from medical grade, closed cell foam, insuring that the probe is reading the pipe temperature, not the room temperature.

Clean and dry the pipe. Peel off the protective cover from the foamback's adhesive side and stick the probe to the adhesive. Stick the foamback/probe assembly to the pipe. Add cable ties or hose clamps to ensure that the sensor always stays attached to the pipe, avoiding costly callbacks.

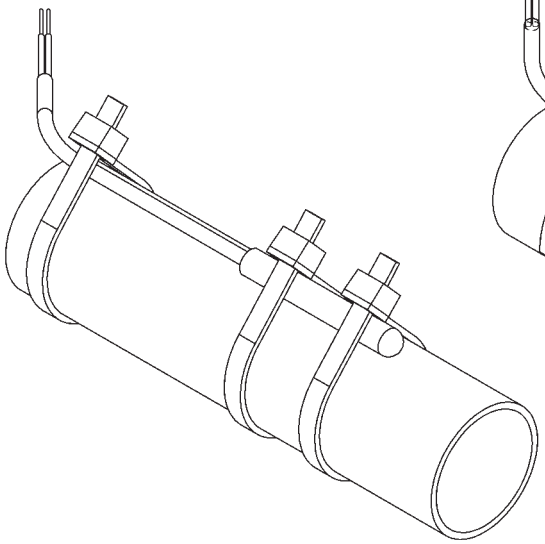


Figure 1: Remote probe with FEP jacketed cable strapped directly to pipe.

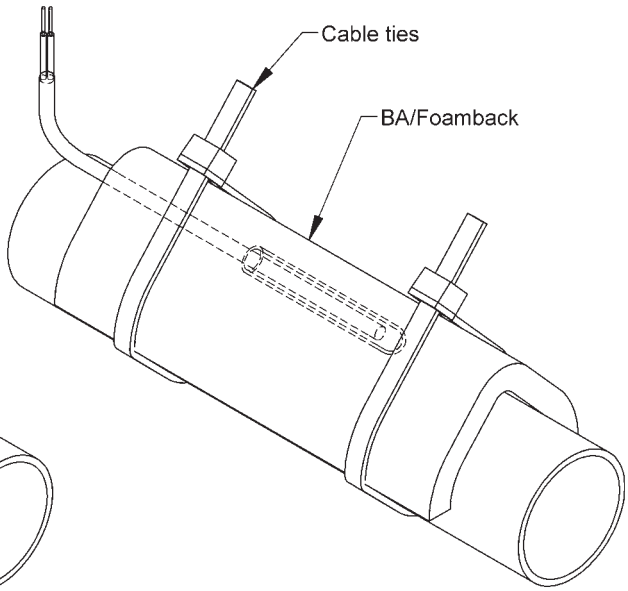
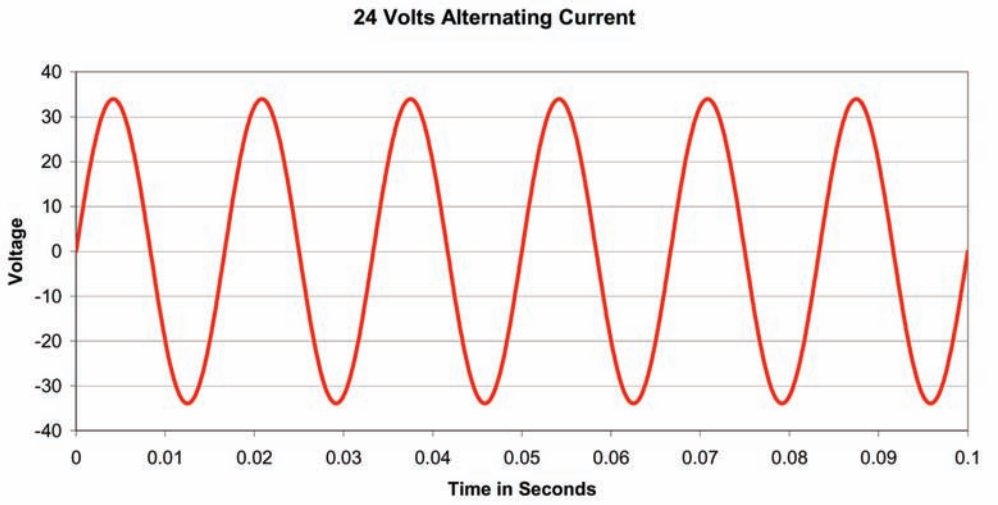


Figure 2: Remote probe with FEP jacketed cable applied beneath a FOAMBACK insulator.

NOTE: 1.25 inch diameter pipe shown, this technique may be used for any diameter pipe.

24 VAC

If you were to connect an oscilloscope to the output of a 24 VAC transformer, you would see the waveform below.



The voltage starts at zero, climbs to a peak, returns to zero, falls to a negative peak and returns to zero; sixty times a second for 60Hz and 50 times a second for 50Hz.

Half-Wave Power Supply

Half-wave power supplies only take power from the AC line during the positive half of the AC waveform. Most controllers use half-wave power supplies.

BAPI's VC75, VC100, and VC350 are half-wave power supplies. Half-wave power supplies may be powered from the same transformer that powers the controller if the controller has a half-wave power supply and the capacity of the transformer is not exceeded.

Transformers used in half-wave power supplies have one of their output leads connected to ground. When powering multiple half-wave power supplies from one transformer, be sure to check for proper transformer connections.

Since only half of the incoming AC is used, half-wave power supplies in 24 VAC systems can only source approximately 1.5 amps of DC maximum.

Full-Wave Power Supply

Full-wave power supplies take power during both halves of the AC waveform.

BAPI's VC1500 and VC3000 can be set to be full-wave power supplies.

Transformers used in full-wave power supplies cannot have either of their output leads connected to ground. DO NOT try to power half-wave power supplies and full-wave power supplies from the same transformer. If you do, you will short out the transformer.

Half-wave and full-wave power supplies can coexist in the same control system but they must be powered by separate transformers.

Since both halves of the incoming AC are used, full-wave power supplies in 24 VAC systems can source approximately 3 amps of DC maximum.

If you need more information, please call your BAPI representative and ask for Application Note The Science Behind Full or Half Wave Power Supplies or find it online at www.bapihvac.com.

Why Use DC Power Instead of AC Power on a Sensor?

Most modern HVAC control systems have 24 VAC available, and most of BAPI's products can run on 24 VAC, yet BAPI recommends powering them with DC voltage. Why?

Twisted wire cables have high wire-to-wire capacitance. Capacitors totally block DC voltage, but allow a little bit of AC voltages to couple from wire to wire. A portion of the 50 Hz or 60 Hz, 24 VAC running through one pair of wires in a multi-wire cable will combine with the normal signals on all the other wires in the cable. The Laws of physics mandate that this will happen no matter whose sensor is used.

The AC noise coupled into a sensor signal in a multi-wire cable may cause the controller to think that the measured parameter is changing back and forth rapidly. The controller may drive the mechanical equipment into an oscillation that overdrives the actuators and causes the mechanical equipment to wear out prematurely. For example, in a room at 72°F, BAPI's tests show that for a nominal 25-foot sensor wire length, the 60Hz noise in a multi-wire cable can change a 10K thermistor's temperature measurement from 69.4°F to 74.7°F. The controller thinks that the zone temperature is fluctuating by 5°F and drives the output actuators more than necessary.

There are two ways to avoid this situation. The first way is to convert the AC power to DC power with a voltage converter (such as BAPI's VC75, VC100 or VC350) at the controller end of the cable. If you power the sensor with DC voltage, then there is no AC noise within the multi-wire cable to influence the temperature reading. But remember, the DC converter has to be mounted at the controller end of the wire, not at the sensor end, othewise there will still be AC power within the multi-wire cable.

If you choose to power the sensor with 24 VAC, then the second way to avoid the AC noise is to run the AC power in a separate, shielded cable with the shield connected to a good building ground at the controller end. In this situation, the capacitance from the 24 VAC wires to the sensor's signal wires is so low it is effectively ZERO. No AC voltage combines with your sensor's signal, but you must run two separate cables.

Either of these methods will prevent the AC noise from influencing the sensor's signal, but BAPI recommends converting the AC power to DC power because we feel it is easier and more economical to install a low cost voltage converter rather than making two cable runs.

If you need further information about this topic, request the application note Understanding Noise from AC Power from your BAPI representative or download it from our website at bapihvac.com.

100% compatible with your system, GUARANTEED.



- GUARANTEED to be 100% compatible with your HVAC/R system.
- If a BAPI product does not perform to our specs, we'll not only replace it, *but we'll pay the labor to do so!*

For more information, visit **www.bapihvac.com/guarantee**!

Building Automation Products, Inc. **(BAPI**) sells its products under the following terms and conditions. Any different or additional terms must be specifically agreed to in writing prior to any sale.

Ordering

To place an order, contact an authorized BAPI distributor or contact BAPI directly by phone, fax or email. You can also order products from our website/webstore at www.bapihvac.com. There is no minimum order amount.

Please be sure the purchase order contains the following information:

- Purchase Order number
- Bill and Ship to address
- Customer name, contact person & telephone number
- Quantity & unit price
- Part number
- Desired ship date
- Desired ship method*

*BAPI will pre-pay & add freight charges to your invoice unless a valid direct freight account number is specified on the order. Available selection of carrier is dependent on shipping location and stated preference. Any freight collect charges billed back to BAPI will be invoiced to the customer's BAPI account. All invoices include a $5.00 handling fee regardless of freight payment method.

Upon receipt of your order, BAPI will fax or email a confirmation of the order, including current pricing, estimated ship date and assigned Order Number. Please refer to this order number in further communications regarding this order. The confirmation will be faxed or emailed to the contact person noted on the order or to a predetermined contact specified when the customer account was created.

INTERNATIONAL ORDERS

International shipments may be subject to additional handling, export documentation and shipping charges, as well as any appropriate duties, taxes or fees. If you deal through a Customs Broker, please provide BAPI with the Broker's name, address, telephone number and a copy of their import documents so we may process your order as quickly as possible. Terms of payment are prepaid in US dollars by Electronic Funds Transfer to our bank or your bank check in US dollars unless an "Open Account" has been established. See Payment Terms in this section for more information.

DELIVERY

Promises of delivery from stock are subject to prior sale. Delivery dates are not guaranteed, but are estimated on the basis of BAPI's immediate receipt of all needed information supplied by the customer. We will, in good faith, attempt to meet estimated delivery dates, but BAPI does not accept responsibility for delays resulting from circumstances beyond our reasonable control.

Terms & Conditions

BACK ORDERS

BAPI ships complete orders whenever possible to keep freight charges to a minimum. In the event that an order cannot be completely filled as scheduled, BAPI will contact the customer with information regarding the delay and advise a new ship date whenever possible. At that time a customer may elect to accept a partial shipment. Back orders will be shipped as soon as possible.

FREIGHT

Customer is responsible for all shipping charges and a $5.00 handling fee on each invoice. Any discrepancies in shipments must be brought to the attention of our Sales Department **within ten (10) working days of receipt of shipment.** Deductions from remittances will not be allowed unless authorized by BAPI in writing. Please notify BAPI of Goods Damaged in Transit within 5 business days of receipt, whoever the carrier. DO NOT return the shipment to BAPI.

Payment Terms

NEW ACCOUNTS

Payment terms are C.O.D. or prepaid unless an open account is established. A credit application must be submitted for open account consideration. (Please allow up to two weeks for credit approval.)

OPEN ACCOUNTS

Terms are Net 30 days for open accounts.

- To ensure proper credit to your account, the invoice number must appear on your check stub
- Accounts with balances aging over 30 days will be subject to an additional 1.5% per month service charge
- Accounts with balances beyond 60 days from the invoice date will be subject to credit hold until the account is brought within 45 days from the invoice date.

In the event that it becomes necessary for BAPI to take legal action to enforce the provisions of this agreement or to obtain redress for the breach of any provision hereof, the buyer shall pay the costs of such action, including reasonable attorney fees. All legal proceedings that arise in any way related to this agreement shall be conducted in a court of competent jurisdiction in Crawford County, Wisconsin.

Pricing

Price of goods sold is that in effect at the time of sale. Contact BAPI Sales for current pricing and discount information. **All prices are subject to change without notice** and exclude any taxes, shipping and handling charges. BAPI will be pleased to furnish written quotations by email, fax or mail upon request. Quoted prices and conditions are valid for 30 days from the date of the written confirmation of the quote unless otherwise specified.

Returns

Only New and Unused products are considered for credit. All returns must have a BAPI Return Material Authorization (RMA) number. Debit memos will not be accepted without written authorization and an RMA number. Returns are subject to a minimum 25% restocking fee. Returns resulting from errors by BAPI will not be subject to this charge. Any items specified as

Continued on next page...

NCNR (see definition) are not returnable for credit.

NCNR: Items designated as NCNR at time of order are Non-Cancellable / Non-Returnable. Examples of NCNR items can include:

- OEM products
- Custom calibrations
- Special orders

Warranty

BAPI warrants its products to be free from defects in materials and workmanship, subject to the following terms and conditions. Without charge, BAPI will repair or replace products found to be defective in materials or workmanship within the warranty period; provided that:

a. The product has not been subjected to abuse, neglect, accident, incorrect wiring, improper installation or servicing, or used in violation of instructions furnished by BAPI;

b. The product has not been repaired or altered by anyone except BAPI or its authorized service agencies;

c. The serial number or date code has not been removed, defaced, or otherwise changed;

d. Examination discloses, in the judgment of BAPI, the defect in materials or workmanship which developed under normal installation, use and service;

e. BAPI is notified in advance and the product is returned with a valid RMA number, transportation prepaid.

Unless otherwise specified or agreed to in writing and signed by a BAPI officer, BAPI products shall be warranted for the following periods of time from the date of sale with clauses “a” through “e” above still applicable:

f. Lifetime Limited for Temperature sensor products (excluding RµP, “BAPI-Stat” & “BAPI-Stat 2”, “X-Combo” & “L-Temp” units);

g. Two Years for RµP, “BAPI-Stat”, “BAPI-Stat 2”, “BAPI-Stat 3”, “BAPI-Stat 4”, “BAPI-Com”, “X-Combo” & “L-Temp” units;

h. Three Years for all Pressure products;

i. Two Years for all Humidity products;

j. Two Years for IEQ room and duct units, one year for all other Air Quality units;

k. Two Years for all Accessory products;

l. Two Years for all Temperature Transmitters and for all Wireless Products.

m. Two Years for ETA

BAPI will pay the freight for all units being returned to the customer where a defect was found. In the case that no defect was found with the units received, or the defect was determined to be caused by customer error or abuse, the customer will be responsible for the payment of the shipping charge to return the units. The customer will need to supply a FED-EX or UPS account

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Terms & Conditions

Warranty continued...

number for shipping charges if units are to be returned. Purchase orders will not be accepted for return shipping. In cases where units are repairable but not covered under BAPI's warranty, customers may elect to have BAPI repair the unit at a rate of $60 per hour.

The foregoing warranty is in lieu of all warranties, express, implied or statutory, including but not limited to, any implied warranty of merchantability for a particular purpose. BAPI's liability for breach of warranty is limited to repair or replacement. If the goods cannot be replaced, warranty is limited to a refund of the purchase price. In no instance shall BAPI be liable for incidental or consequential damages arising from a breach of warranty or from the use or installation of its products. Under no circumstances does BAPI agree to pay for labor or other related expenses associated with the troubleshooting and/or repair of our product without prior specific written authorization.

No representative or person is authorized to give any warranty other than as set out above or to assume for BAPI any other liability in connection with the sale of its products.

This warranty is limited to the original Customer only. It cannot be transferred or assigned to third parties unless the intent to transfer to a third party is expressly indicated in a purchase order and/or warranty processing arrangements have been agreed upon in writing by BAPI.

Design and Specifications

BAPI reserves the right to make changes in the design, specifications, and/or support documentation of any product as technological advances or necessity requires without notification. Please contact BAPI for updated product information.

Information in our descriptive literature is based on product specifications that are current at the time of publication. Product specifications, designs and descriptive literature are subject to change as improvements are introduced. Although we announce changes as they occur, we cannot guarantee notification to every customer. BAPI warrants delivered product to conform to the most current specifications, designs and descriptive literature.

Custom Products

In many cases, BAPI products can be modified to meet your custom requirements. Additional charges and longer lead times may apply. Contact your salesperson for a quote on your special requirements.

Certificates of Accuracy & Calibration

BAPI offers Certificates of Accuracy & Calibration for its temperature, humidity and pressure products.

Part Number	Net Price

Cert-Hum-Ambient..... **$20.00**
Certification of Accuracy for Humidity at Ambient – Price includes one point.

Cert-Hum-Specific **$50.00**
Certification of Calibration for Humidity at Specific Points (Customer Specified) – Price includes one, two or three humidity points at one temperature.

Cert-Temp-Ambient **$20.00**
Certification of Accuracy for Temperature Sensor at Ambient – Price includes one point.

Cert-Temp-Specific..... **$50.00**
Certification of Calibration for Temperature Sensor at Specific Points (Customer Specified) – Price includes one, two or three points.

Cert-Press-SR ..... **No Additional Charge**
Certification of Accuracy for Pressure – All Standard Ranges verified at one point.

Cert-Press-Specific **$50.00**
Certification of Calibration for Pressure at Specific Points (Customer Specified) – Price includes one, two or three points.

Cal-420CO-Ambient..... **$50.00**
Calibration of BAPI's Carbon Monoxide Sensor (BA/420CO) at ambient temperature.

All prices are **NET**. Multipliers do not apply to certificate pricing. For information on special requests and pricing on Certificates with more than three points, please call your BAPI Key Account Specialist.

100% Compatibility Guarantee

Rev. 10/16/12



100% Compatibility Guarantee

Any BAPI device that has been installed in an application approved by a BAPI Key Account Specialist or BAPI Engineer is GUARANTEED to be 100% compatible with your HVAC/R system. If the BAPI device proves to be incompatible with your system, BAPI will pay the cost of any **LABOR** charges incurred to replace this device with another BAPI device only.

Unit must be installed per industry standards and must prove to be installed in the application as originally approved by the BAPI Key Account Specialist or BAPI Engineer.

To be eligible for BAPI's Compatibility Guarantee, the **Application Guarantee Number** must be requested during the engineering phase of the project. A BAPI Engineer will validate your application and issue your **Application Guarantee Number**. (AGN) The AGN will be valid for one year from date of assignment. Call BAPI for more details.