

Pressure Sensor Output Table, -.25 to .25 & -1 to 1" WC

Pressure Range: -.25 to .25" W.C.

W.C.	Pasc.	4-20mA	0-5V	0-10V
-0.250	-62.272	4.00	0.00	0.00
-0.240	-59.781	4.32	0.10	0.20
-0.230	-57.290	4.64	0.20	0.40
-0.220	-54.800	4.96	0.30	0.60
-0.210	-52.309	5.28	0.40	0.80
-0.200	-49.818	5.60	0.50	1.00
-0.190	-47.327	5.92	0.60	1.20
-0.180	-44.836	6.24	0.70	1.40
-0.170	-42.345	6.56	0.80	1.60
-0.160	-39.854	6.88	0.90	1.80
-0.150	-37.363	7.20	1.00	2.00
-0.140	-34.872	7.52	1.10	2.20
-0.130	-32.382	7.84	1.20	2.40
-0.120	-29.891	8.16	1.30	2.60
-0.110	-27.400	8.48	1.40	2.80
-0.100	-24.909	8.80	1.50	3.00
-0.090	-22.418	9.12	1.60	3.20
-0.080	-19.927	9.44	1.70	3.40
-0.070	-17.436	9.76	1.80	3.60
-0.060	-14.945	10.08	1.90	3.80
-0.050	-12.454	10.40	2.00	4.00
-0.040	-9.964	10.72	2.10	4.20
-0.030	-7.473	11.04	2.20	4.40
-0.020	-4.982	11.36	2.30	4.60
-0.010	-2.491	11.68	2.40	4.80
0.000	0.000	12.00	2.50	5.00
0.010	2.491	12.32	2.60	5.20
0.020	4.982	12.64	2.70	5.40
0.030	7.473	12.96	2.80	5.60
0.040	9.964	13.28	2.90	5.80
0.050	12.454	13.60	3.00	6.00
0.060	14.945	13.92	3.10	6.20
0.070	17.436	14.24	3.20	6.40
0.080	19.927	14.56	3.30	6.60
0.090	22.418	14.88	3.40	6.80
0.100	24.909	15.20	3.50	7.00
0.110	27.400	15.52	3.60	7.20
0.120	29.891	15.84	3.70	7.40
0.130	32.382	16.16	3.80	7.60
0.140	34.872	16.48	3.90	7.80
0.150	37.363	16.80	4.00	8.00
0.160	39.854	17.12	4.10	8.20
0.170	42.345	17.44	4.20	8.40
0.180	44.836	17.76	4.30	8.60
0.190	47.327	18.08	4.40	8.80
0.200	49.818	18.40	4.50	9.00
0.210	52.309	18.72	4.60	9.20
0.220	54.800	19.04	4.70	9.40
0.230	57.290	19.36	4.80	9.60
0.240	59.781	19.68	4.90	9.80
0.250	62.272	20.00	5.00	10.00

Pressure Range: -1 to 1" W.C.

W.C.	Pasc.	4-20mA	0-5V	0-10V
-1.000	-249.09	4.00	0.00	0.00
-0.960	-239.13	4.32	0.10	0.20
-0.920	-229.16	4.64	0.20	0.40
-0.880	-219.20	4.96	0.30	0.60
-0.840	-209.23	5.28	0.40	0.80
-0.800	-199.27	5.60	0.50	1.00
-0.760	-189.31	5.92	0.60	1.20
-0.720	-179.34	6.24	0.70	1.40
-0.680	-169.38	6.56	0.80	1.60
-0.640	-159.42	6.88	0.90	1.80
-0.600	-149.45	7.20	1.00	2.00
-0.560	-139.49	7.52	1.10	2.20
-0.520	-129.53	7.84	1.20	2.40
-0.480	-119.56	8.16	1.30	2.60
-0.440	-109.60	8.48	1.40	2.80
-0.400	-99.64	8.80	1.50	3.00
-0.360	-89.67	9.12	1.60	3.20
-0.320	-79.71	9.44	1.70	3.40
-0.280	-69.74	9.76	1.80	3.60
-0.240	-59.78	10.08	1.90	3.80
-0.200	-49.82	10.40	2.00	4.00
-0.160	-39.85	10.72	2.10	4.20
-0.120	-29.89	11.04	2.20	4.40
-0.080	-19.93	11.36	2.30	4.60
-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
0.080	19.93	12.64	2.70	5.40
0.120	29.89	12.96	2.80	5.60
0.160	39.85	13.28	2.90	5.80
0.200	49.82	13.60	3.00	6.00
0.240	59.78	13.92	3.10	6.20
0.280	69.74	14.24	3.20	6.40
0.320	79.71	14.56	3.30	6.60
0.360	89.67	14.88	3.40	6.80
0.400	99.64	15.20	3.50	7.00
0.440	109.60	15.52	3.60	7.20
0.480	119.56	15.84	3.70	7.40
0.520	129.53	16.16	3.80	7.60
0.560	139.49	16.48	3.90	7.80
0.600	149.45	16.80	4.00	8.00
0.640	159.42	17.12	4.10	8.20
0.680	169.38	17.44	4.20	8.40
0.720	179.34	17.76	4.30	8.60
0.760	189.31	18.08	4.40	8.80
0.800	199.27	18.40	4.50	9.00
0.840	209.23	18.72	4.60	9.20
0.880	219.20	19.04	4.70	9.40
0.920	229.16	19.36	4.80	9.60
0.960	239.13	19.68	4.90	9.80
1.000	249.09	20.00	5.00	10.00



Rev. 12/17/07

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, 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. To control and maintain the quality of these sensors, BAPI is involved in all phases of production from design to use.

The diaphragm at the core of BAPI's pressure sensor is made of silicon with strain gauges diffused into the substrate to form a one-piece crystalline structure. 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.

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 0.001 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

Ranges Inches W.C.

Unidirectional

0-0.1", 0-0.25", 0-1.0", 0-2.5", 0-5.0"

Bi-directional

±0.1", ±0.25", ±1.0", ±2.5", ±5.0"

Bi-directional Pressure:

Zero pressure at mid-span

Accuracy: ±1% on 0-0.1 and ±0.1 ranges
±0.5% all other ranges

Temperature Limits:

Storage: -25° to 80°C (-13° to 176°F)

Operational: -25° to 80°C (-13° to 176°F)

Compensated: 0° to 60°C (32° to 140°F)

Operating RH Range:

0 to 95% non-condensing

Media:

Non-Ionic, Non-Corrosive, Clean, Dry Gasses