



Pressure Sensor Output Table

F31
Temperature, Humidity & Pressure Sensors & Transmitters

Rev. 12/17/07

Pressure Sensor Output Table, 0 to 5 & -.1 to .1" WC

Pressure Range: 0-5" W.C.				
W.C.	Pasc.	4-20mA	0-5V	0-10V
0.000	0.0	4.00	0.00	0.00
0.100	24.9	4.32	0.10	0.20
0.200	49.8	4.64	0.20	0.40
0.300	74.7	4.96	0.30	0.60
0.400	99.6	5.28	0.40	0.80
0.500	124.5	5.60	0.50	1.00
0.600	149.5	5.92	0.60	1.20
0.700	174.4	6.24	0.70	1.40
0.800	199.3	6.56	0.80	1.60
0.900	224.2	6.88	0.90	1.80
1.000	249.1	7.20	1.00	2.00
1.100	274.0	7.52	1.10	2.20
1.200	298.9	7.84	1.20	2.40
1.300	323.8	8.16	1.30	2.60
1.400	348.7	8.48	1.40	2.80
1.500	373.6	8.80	1.50	3.00
1.600	398.5	9.12	1.60	3.20
1.700	423.5	9.44	1.70	3.40
1.800	448.4	9.76	1.80	3.60
1.900	473.3	10.08	1.90	3.80
2.000	498.2	10.40	2.00	4.00
2.100	523.1	10.72	2.10	4.20
2.200	548.0	11.04	2.20	4.40
2.300	572.9	11.36	2.30	4.60
2.400	597.8	11.68	2.40	4.80
2.500	622.7	12.00	2.50	5.00
2.600	647.6	12.32	2.60	5.20
2.700	672.5	12.64	2.70	5.40
2.800	697.4	12.96	2.80	5.60
2.900	722.4	13.28	2.90	5.80
3.000	747.3	13.60	3.00	6.00
3.100	772.2	13.92	3.10	6.20
3.200	797.1	14.24	3.20	6.40
3.300	822.0	14.56	3.30	6.60
3.400	846.9	14.88	3.40	6.80
3.500	871.8	15.20	3.50	7.00
3.600	896.7	15.52	3.60	7.20
3.700	921.6	15.84	3.70	7.40
3.800	946.5	16.16	3.80	7.60
3.900	971.4	16.48	3.90	7.80
4.000	996.4	16.80	4.00	8.00
4.100	1021.3	17.12	4.10	8.20
4.200	1046.2	17.44	4.20	8.40
4.300	1071.1	17.76	4.30	8.60
4.400	1096.0	18.08	4.40	8.80
4.500	1120.9	18.40	4.50	9.00
4.600	1145.8	18.72	4.60	9.20
4.700	1170.7	19.04	4.70	9.40
4.800	1195.6	19.36	4.80	9.60
4.900	1220.5	19.68	4.90	9.80
5.000	1245.4	20.00	5.00	10.00

Pressure Range: -.1 to .1" W.C.				
W.C.	Pasc.	4-20mA	0-5V	0-10V
-0.100	-24.909	4.00	0.00	0.00
-0.096	-23.913	4.32	0.10	0.20
-0.092	-22.916	4.64	0.20	0.40
-0.088	-21.920	4.96	0.30	0.60
-0.084	-20.923	5.28	0.40	0.80
-0.080	-19.927	5.60	0.50	1.00
-0.076	-18.931	5.92	0.60	1.20
-0.072	-17.934	6.24	0.70	1.40
-0.068	-16.938	6.56	0.80	1.60
-0.064	-15.942	6.88	0.90	1.80
-0.060	-14.945	7.20	1.00	2.00
-0.056	-13.949	7.52	1.10	2.20
-0.052	-12.953	7.84	1.20	2.40
-0.048	-11.956	8.16	1.30	2.60
-0.044	-10.960	8.48	1.40	2.80
-0.040	-9.964	8.80	1.50	3.00
-0.036	-8.967	9.12	1.60	3.20
-0.032	-7.971	9.44	1.70	3.40
-0.028	-6.974	9.76	1.80	3.60
-0.024	-5.978	10.08	1.90	3.80
-0.020	-4.982	10.40	2.00	4.00
-0.016	-3.985	10.72	2.10	4.20
-0.012	-2.989	11.04	2.20	4.40
-0.008	-1.993	11.36	2.30	4.60
-0.004	-0.996	11.68	2.40	4.80
0.000	0.000	12.00	2.50	5.00
0.004	0.996	12.32	2.60	5.20
0.008	1.993	12.64	2.70	5.40
0.012	2.989	12.96	2.80	5.60
0.016	3.985	13.28	2.90	5.80
0.020	4.982	13.60	3.00	6.00
0.024	5.978	13.92	3.10	6.20
0.028	6.974	14.24	3.20	6.40
0.032	7.971	14.56	3.30	6.60
0.036	8.967	14.88	3.40	6.80
0.040	9.964	15.20	3.50	7.00
0.044	10.960	15.52	3.60	7.20
0.048	11.956	15.84	3.70	7.40
0.052	12.953	16.16	3.80	7.60
0.056	13.949	16.48	3.90	7.80
0.060	14.945	16.80	4.00	8.00
0.064	15.942	17.12	4.10	8.20
0.068	16.938	17.44	4.20	8.40
0.072	17.934	17.76	4.30	8.60
0.076	18.931	18.08	4.40	8.80
0.080	19.927	18.40	4.50	9.00
0.084	20.923	18.72	4.60	9.20
0.088	21.920	19.04	4.70	9.40
0.092	22.916	19.36	4.80	9.60
0.096	23.913	19.68	4.90	9.80
0.100	24.909	20.00	5.00	10.00



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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