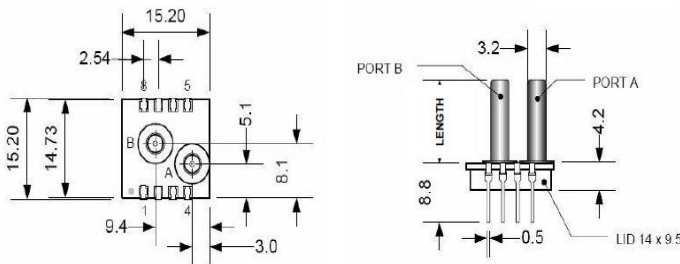
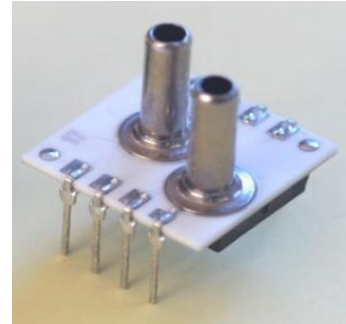


Amplified Low Pressure Sensor Module

The M-AB001 series amplified pressure sensor is a new, extremely low-pressure amplified product featuring the low pressure die. The sensor is calibrated either as a gauge device with the zero at 0.5 Volts and a full-scale span of 4.0 Volts or as a differential device with zero at 2.5 Volts and a span of +/- 2 Volts. The gauge part is the M-AB001 while the differential part is the M-AB002.

The sensor is available in one of two standard port configuration.

The sensor corrects the sensor signal with a multi-point calibration algorithm using a dedicated signal processor ASIC over temperature and pressure. It provides the calibrated and compensated analog output which enables the part to be used in stand-alone applications.



SPECIFICATIONS

Supply voltage VS 5.00 (4.50 ... 5.50)VDC

Temperature ranges

Compensated 0 ... +70 °C

Operating -20 ... +80 °C

Storage -40 ... +80 °C

| Pin | Connection |
|---------|------------|
| 1 | +Vs |
| 2 | GND |
| 3 | Vout |
| 4 | Vgate |
| 5,6,7,8 | N/C |

Note:

1. Port B -> High

2. Port A -> Low

3. Length -> 12.5 mm

4. All dimensions are mm

| Range | Full-Scale Pressure |
|-------|-------------------------------|
| 2P5 | 0 ... 2.5 mBar / 0 ... 250 Pa |
| 5 | 0 ... 5 mBar / 0 ... 500 Pa |
| 10 | 0 ... 10 mBar / 0 ... 1000 Pa |
| 20 | 0 ... 20 mBar / 0 ... 2000 Pa |
| 50 | 0 ... 50 mBar / 0 ... 5000 Pa |
| 100 | 0 ... 100 mBar / 0 ... 10 kPa |

M-AB00X-PPP

Where: X = 1 for Gauge or 2 for Differential

PPP = Pressure Range

| Specification - M-AB001 and M-AB002 | Amplified Low Pressure Sensor - 2.5 mBar | | | | Amplified Low Pressure Sensor - 5.0 mBar | | | | Amplified Low Pressure Sensor - 10 mBar | | | |
|--|---|---------|------|-------------|---|---------|------|-------------|--|---------|------|-------------|
| | Min | Nominal | Max | Unit | Min | Nominal | Max | Unit | Min | Nominal | Max | Unit |
| Electrical Drive | | | | | | | | | | | | |
| Supply Voltage | 4.5 | 5,000 | 5.5 | Volts | 4.5 | 5 | 5.5 | Volts | 4.5 | 5 | 5.5 | Volts |
| Supply Voltage Absolute Maximum | | | 6 | Volts | | | 6 | Volts | | | 6 | Volts |
| Supply Current | | 2.5 | | mA | | 2.5 | | mA | | 2.5 | | mA |
| Electrical | Min | Typical | Max | | Min | Typical | Max | | Min | Typical | Max | |
| ZERO | | | | | | | | | | | | |
| Zero at 25 C - M-AB001 | 0.4 | 0.52 | 0.6 | Volts | 0.42 | 0.51 | 0.58 | Volts | 0.42 | 0.51 | 0.58 | Volts |
| Zero at 25 C -M-AB002 | 2.45 | 2.5 | 2.55 | Volts | 2.46 | 2.51 | 2.54 | Volts | 2.46 | 2.51 | 2.54 | Volts |
| Zero Error at 25 C (% FS) | -2.5 | 0.6 | 2.5 | %FS | -2 | 0.4 | 2 | %FS | -2 | 0.18 | 2 | %FS |
| Zero Error: 0 to 50 C (% FS) | -2.5 | 0.6 | 2.5 | %FS | -2.5 | 0.4 | 2.5 | %FS | -2.5 | 0.21 | 2.5 | %FS |
| SPAN | | | | | | | | | | | | |
| Span at 25 C - M-AB001 | 3.9 | 3.98 | 4.1 | Volts | 3.9 | 3.99 | 4.1 | Volts | 3.92 | 3.99 | 4.08 | Volts |
| Span at 25 C -M-AB002 | 1.95 | 1.99 | 2.05 | Volts | 1.95 | 1.99 | 2.05 | Volts | 1.96 | 2 | 2.04 | Volts |
| Span Error at 25 C (% FS) | -2.5 | -0.5 | 2.5 | %FS | -2.5 | -0.3 | 2.5 | %FS | -2 | -0.28 | 2 | %FS |
| Span Error: 0 to 50 C (% FS) | -2.5 | 0.7 | 2.5 | %FS | -2.5 | 0.4 | 2.5 | %FS | -2 | 0.34 | 2 | %FS |
| linearity | -0.5 | 0.13 | 0.5 | %FS | -0.5 | 0.07 | 0.5 | %FS | -0.3 | 0.11 | 0.3 | %FS |
| STABILITY | | Typical | | | | Typical | | | | Typical | | |
| Warm-up (1 hour after turn-on) | | 0.5 | | %FS | | 0.375 | | %FS | | 0.25 | | %FS |
| Position Sensitivity | | 0.125 | | %FS | | 0.076 | | %FS | | 0.035 | | %FS |
| Long-Term Drift (1 year) | | 0.75 | | %FS | | 625 | | %FS | | 0.375 | | %FS |
| Mechanical Pressure | Min | Typical | Max | | Min | Typical | Max | | Min | Typical | Max | |
| Full Scale Pressure Ranges | | 2.5 | | mBar | | 5 | | mBar | | 10 | | mBar |
| Overpressure - Burst | >15X | | | FS Pressure | >15X | | | FS Pressure | >10X | | | FS Pressure |
| Overpressure - Proof | >10X | | | FS Pressure | >10X | | | FS Pressure | >5X | | | FS Pressure |

| Specification - M-AB001 and M-AB002 | Amplified Low Pressure Sensor - 20 mBar | | | | Amplified Low Pressure Sensor - 50 mBar | | | | Amplified Low Pressure Sensor - 100 mBar | | | |
|--|--|---------|------|-------|--|---------|------|-------|---|---------|------|-------|
| | Min | Nominal | Max | Unit | Min | Nominal | Max | Unit | Min | Nominal | Max | Unit |
| Electrical Drive | | | | | | | | | | | | |
| Supply Voltage | 4.5 | 5.000 | 5.5 | Volts | 4.5 | 5 | 5.5 | Volts | 4.5 | 5 | 5.5 | Volts |
| Supply Voltage Absolute Maximum | | | 6 | Volts | | | 6 | Volts | | | 6 | Volts |
| Supply Current | | 2.5 | | mA | | 2.5 | | mA | | 2.5 | | mA |
| Electrical | Min | Typical | Max | | Min | Typical | Max | | Min | Typical | Max | |
| ZERO | | | | | | | | | | | | |
| Zero at 25 C- M-AB001 | 0.42 | 0.51 | 0.58 | Volts | 0.42 | 0.5 | 0.58 | Volts | 0.42 | 0.5 | 0.58 | Volts |
| Zero at 25 C -M-AB002 | 2.46 | 2.51 | 2.54 | Volts | 2.46 | 2.5 | 2.54 | Volts | 2.46 | 2.5 | 2.54 | Volts |
| Zero Error at 25 C (% FS) | -2 | 0.34 | 2 | %FS | -2 | 0.04 | 2 | %FS | -2 | 0.06 | 2 | %FS |
| Zero Error: 0 to 50 C (% FS) | -2 | 0.22 | 2 | %FS | -2 | 0.26 | 2 | %FS | -2 | 0.26 | 2 | %FS |
| SPAN | | | | | | | | | | | | |
| Span at 25 C- M-AB001 | 3.92 | 3.99 | 4.08 | Volts | 3.92 | 3.99 | 4.08 | Volts | 3.92 | 3.99 | 4.08 | Volts |
| Span at 25 C -M-AB002 | 1.96 | 1.99 | 2.04 | Volts | 1.96 | 2 | 2.04 | Volts | 1.96 | 2 | 2.04 | Volts |
| Span Error at 25 C (% FS) | -2 | -0.27 | 2 | %FS | -2 | -0.22 | 2 | %FS | -2 | -0.17 | 2 | %FS |
| Span Error: 0 to 50 C (% FS) | -2 | 0.29 | 2 | %FS | -2 | 0.28 | 2 | %FS | -2 | 0.26 | 2 | %FS |
| linearity | -0.3 | 0.66 | 0.3 | %FS | -0.3 | 0.12 | 0.3 | %FS | -0.3 | 0.09 | 0.3 | %FS |
| STABILITY | | Typical | | | | Typical | | | | Typical | | |
| Warm-up (1 hour after turn-on) | | 0.25 | | %FS | | 0.25 | | %FS | | 0.25 | | %FS |
| Position Sensitivity | | 0.0175 | | %FS | | 0.0117 | | %FS | | 0.007 | | %FS |
| Long-Term Drift (1 year) | | 0.25 | | %FS | | 0.25 | | %FS | | 0.25 | | %FS |
| Mechanical Pressure | Min | Typical | Max | | Min | Typical | Max | | Min | Typical | Max | |
| Full Scale Pressure Ranges | | 20 | | mBar | | 50 | | mBar | | 100 | | mBar |
| Overpressure - Burst | >10X | | | FS | >10X | | | FS | >10X | | | FS |
| Overpressure - Proof | >5X | | | FS | >5X | | | FS | >5X | | | FS |

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