

Model 101B-b12.6L

Small Profile OEM Pressure Sensors



Model 101B-b12.6L small profile OEM pressure sensors are manufactured from BCM piezoresistive silicon dies. The sensors are designed with CAD, the performance is simulated and the sensor prototype is fully tested before batch production. Serious quality control and dedicated calibration processes guarantee the specifications of these OEM pressure sensors in mass production and the higher production eligible rate.

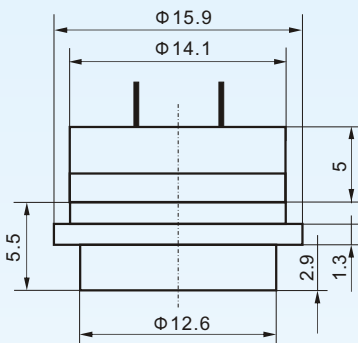
101B-b12.6L OEM pressure sensors possess a flush diaphragm facing the pressure media, able to measure pressure of viscous liquids, the diaphragm form a chamber, in which oil is filled to isolate the sensing element and transfer pressure. This isolation enables the sensor to measure the pressure of corrosive fluids as well as electro conductive liquids.

The sensor has a wide pressure range of 0~15 psi to 0~300 psi, with nice accuracy of 0.25%fso (fso = full scale output). In addition, the sensors can be powered with either current or voltage to ease applications.

101B-b12.6L features small profile with diameter of 12.6 mm for the pressure wetted part and short length in dimensions, the suffix L stands for low pressure. The sensor is already temperature compensated, although the compensation temperature range is 0~70°C, the sensor can still work in the temperature range of -40 ~ +80 °C. For the rigorous application conditions, the sensor is designed to be welded as pressure connection and sealed method.

All BCM 101B-b12.6L OEM pressure sensors are delivered with an individual certificate to aid their further applications.

Dimensions:



Features:

- Measuring ranges: 0~15 psi to 0~300 psi
- Isolated construction, suitable for various fluid medium
- Wide suitability and easy operation, solid, reliability
- Temperature compensation by laser trimming**
- Weldable pressure connection**
- Gauge, absolute, sealed gauge pressure type
- Mass production, cost-effective
- Constant current or voltage excitation

Applications:

- Process control systems
- Level systems
- Hydraulic systems and valves
- Biomedical instruments

Physical properties:

- Diaphragm: 316L
- Pressure port: 1Cr18Ni9Ti
- Lead: Gold-plated Kovar
- Fill Fluid: Silicon oil < 0.5CC
- Laser trim board: Ceramic
- Weight: 4 g

Reference specifications:

- Media Temperature: 25 ± 1 °C
- Ambient Temperature: 25 ± 1 °C
- Vibration: 0.1 g (1m/s/s) max
- Humidity: 50% ± 10%
- Ambient Pressure: 86 ~ 106 kPa
- Excitation Source: 1.5 ± 0.0015 mAdc

Environmental conditions:

- Position Effect: <0.1% of Zero shift for 90° tilt in any direction
- Vibration Effect: No change at 10gs' RMS, 20 ~ 2000Hz
- Shock: 100g, for 10 millisecond
- Life: 100 million cycles

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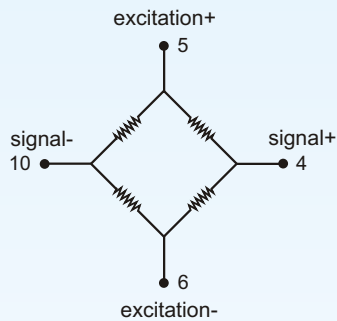
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Specifications:

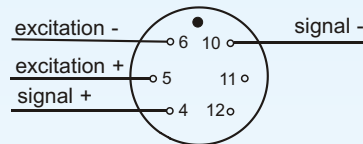
| | | |
|---------------------------------|-----------|---|
| pressure media | | viscous fluid or fluid with grains, compatible to wetted parts |
| pressure range | psi | 0~15, 0~25, 0~40, 0~60, 0~100, 0~160, 0~250, 0~300 |
| pressure type | | absolute pressure, gauge pressure, sealed gauge pressure |
| full scale output | mV | 100 ±30 |
| overload pressure | %fs | 200 |
| zero offset | mV | ±1 |
| combined error (NL+HY+RP) | %fso | ± 0.25 |
| temperature coefficient of ZERO | %fso/10°C | ± 0.1 |
| temperature coefficient of SPAN | %fso/10°C | ± 0.2 |
| compensated temperature range | °C | 0 ~ +70 |
| media temperature range | °C | -40 ~ +80 |
| storage temperature range | °C | -40 ~ +125 |
| long term stability | %fso/year | ≤0.2 |
| excitation | | 0.5 ~ 2.0 mA, or 5 ~ 10 V dc |
| input resistance | kΩ | 8 ± 30% |
| output resistance | kΩ | 4.8 ± 15% |
| insulation resistance | MΩ | 50 @ 50 Vdc |
| electrical connection | | 6P (6 gold-plated kovar pins, Φ0.45); 4R (4-wire ribbon cable, width x length = 10 x 50 mm); 4F (4 colored PVC flexible wires, 100 mm length) |

The listed specifications are subject to change without prior notice.

Wheatstone-bridge circuit:



Electrical connections:



 4-wire ribbon cable

excitation + : (red)
excitation - : (brown)
signal + : (orange)
signal - : (yellow)

6-pin or 4-wire electrical configuration

| pin | connection | color |
|-----|--------------|-----------|
| 4 | signal + | orange |
| 5 | excitation + | red |
| 6 | excitation - | brown |
| 10 | signal - | yellow |
| 11 | N.C. (*) | N.A. (**) |
| 12 | N.C. (*) | N.A. (**) |

* N.C.: not connected

** N.A.: not available

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Ordering codes system:

example: 101B-b12.6L - 7 - G - 6P - v - Cxxxx

| pressure ranges & available pressure types | |
|--|--------------------------|
| 1 = 0 ~ 15 psi G, A, S | 7 = 0 ~ 100 psi G, A, S |
| 1.6 = 0 ~ 25 psi G, A, S | 11 = 0 ~ 160 psi G, A, S |
| 2.8 = 0 ~ 40 psi G, A, S | 17 = 0 ~ 250 psi G, A, S |
| 4 = 0 ~ 60 psi G, A, S | 20 = 0 ~ 300 psi G, A, S |

| pressure types | |
|-------------------------------|--|
| G = gauge (relative) pressure | |
| A = absolute pressure | |
| S = sealed gauge pressure | |

| electrical connection | |
|--|--|
| 6P = 6 gold-plated Kovar pins of 0.45 mm in diameter | |
| 4R = 4-wire ribbon cable(width x length: 10 x 50 mm) | |
| 4F = 4 colored PVC flexible wires (length = 100 mm) | |

| excitation | |
|--------------|--------------|
| c = 0.5~2 mA | v = 5~10 Vdc |

Cxxxx: This is a customized code given by the customer who can use this code to indicate his desired/wished specifications of the sensor to be ordered on his order sheet. The code starts with a "C" and is followed by 4 digits, the customer can use the 4 digits to indicate the month and date when he requests this customized specifications. The sales team of BCM will confirm this customized specifications when sending BCM's <<Order Confirmation>>.

Note: *: TH = Ta-diaphragm and Hastelloy C housing

Ordering Code Explanations: 101B-b12.6L - 7 - G - 6P - v - C0116

Model 101B-b12.6L small profile OEM pressure sensor for gauge (relative) pressure measurement in 0~100 psi range, electrical connection of ordered sensor is 6 gold-plated kovar pins and the sensor is required to excited with constant 5V voltage. The customer has indicated on January 16th his wished specifications on his order sheet for the ordered 101B-b12.6L, and this customer-wished specifications has to be confirmed by BCM sales team on <<Order Confirmation>>.

Note: difference among BCM model 101B-b12.6L, 101B-a12.6L, 101A-b12.6L and 101A-a12.6L:

| model | temperature compensation | sealing method |
|-------------|--------------------------|----------------|
| 101B-b12.6L | compensated | weldable |
| 101B-a12.6L | compensated | O-rings |
| 101A-b12.6L | non-compensated | weldable |
| 101A-a12.6L | non-compensated | O-rings |



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