

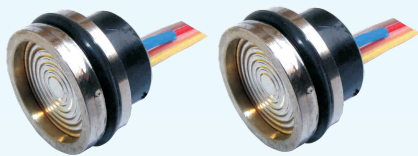
Model 101B(a19L) Short Height Pressure Sensors

Description

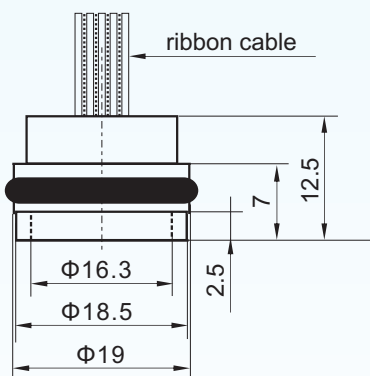
The 101B(a19L) short height pressure sensor is designed for low pressure applications involving measurements of aggressive media in hostile environments which are compatible with 316L stainless steel.

This model uses BCM's piezoresistive sensor die in an oil-isolated housing with or without temperature compensation. The pressure references of the sensor include gauge (relative) and absolute pressure.

About fitting method, both face welding and O-ring fitting can be used for the sensor. Plus a low profile, the 101B(a19L) is able to be integrated in various systems.



Dimensions



Note: All dimensions are in mm.

Features

- measuring ranges: 0.2bar, ..., 25bar
- accuracy up to 0.25%fs
- either with or without temperature compensation
- compensated temperature range: -10~+70 °C
- outstanding reliability
- excited by either current or voltage

Applications

- process control systems
- liquid level control
- pneumatic and hydraulic systems
- biomedical instruments
- heating, ventilation, and air conditioning controls
- petroleum and chemical industry
- ship and marine systems
- aviation

Environmental Conditions

- position effect: < 0.1% of zero offset shift in any direction
- vibration effect: no change at 10 g (RMS), 20~2000 Hz
- shock: 100 g, for 10 millisecond

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Technical Data

| Parameters | | Units | Specifications | Notes |
|--|-----------------------|----------|---|-------|
| pressure medium | | | compatible with pressure diaphragm | |
| pressure ranges | gauge (standard) | bar | 0~0.2, ~0.35, ~0.6, ~1, ~2.5, ~6, ~10, ~16, ~25 | 1 |
| | absolute/sealed gauge | bar | 0~0.35, ~0.6, ~1, ~2.5, ~6, ~10, ~16, ~25 | 1 |
| proof pressure | | %fs | 200 | 2 |
| burst pressure | | %fs | 300 | |
| output signal | | mV | ≥ 50, (for range of 0.2bar, ≥ 28) option: 10%~90%Vs ratiometric, I ² C, SPI | 3 & 4 |
| excitation | voltage | Vdc | 5 (max. 10) | |
| | current | mA | 1.5 (max. 2) | |
| zero offset | | mV | ≤ ±1 | 4 |
| accuracy | | %fs | ±0.25 (standard), ±0.5 | 5 |
| long-term stability | | %fs/year | ≤ ±0.1 | |
| bridge resistance | | kΩ | 5 ±1 | |
| insulation resistance | | MΩ | 50 @50Vdc | |
| compensated temperature range | | °C | -10 ~ +70 | |
| operating temperature range | | °C | -40 ~ +125 | |
| storage temperature range | | °C | -40 ~ +125 | |
| temperature coefficient of zero offset | | %fso/°C | ≤ ±0.02 | 6 |
| temperature coefficient of span | | %fso/°C | ≤ ±0.02 | 6 |
| life time | | cycles | 10 ⁸ | |
| response time | | ms | ≤ 1 | 7 |
| process sealing | | | O-ring (fluorine rubber) | |
| electrical interface | | | 4 colored flying wires, silicone rubber, 100mm (standard) | |
| | | | 4 conductor flat-cable, 100mm | |
| | | | 5 colored flying wires, silicone rubber, 100mm | |
| | | | 6 gold-plated copper pins, Φ0.45mm, 13mm | |
| pressure diaphragm | | | 316L SS | |
| wetted parts material | | | 316L SS | |
| filling oil | | | silicone oil | |
| net weight | | gram | ~16 | |

General conditions for measurements: media temp. = 25°C ±1°C, ambient temp. = 25°C ±1°C, humidity = 50%RH ±5%RH,
barometric pressure: 860~1060mbar, max. vibration = 0.1 g (i.e. 1m/s/s).

Notes: 1. For customized pressure ranges, consult BCM.

2. "fs" refers to full scale pressure.

3. Measured at fs, i.e. full scale pressure.

4. Measured at 5Vdc excitation.

5. Accuracy = sqrt (non-linearity² + hysteresis² + repeatability²).

6. Calculated as a rate of output change between -10°C and +70°C, and normalized by the output at 25°C, for the sensor which is temperature compensated.

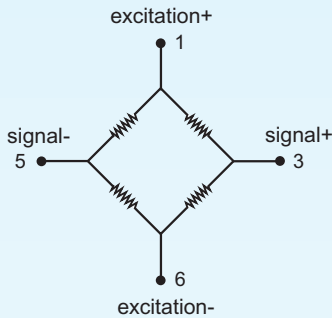
7. Response time for a 0 bar to fs step change, 10% to 90% rise time.

The listed specifications and dimensions are subject to change without prior notice.

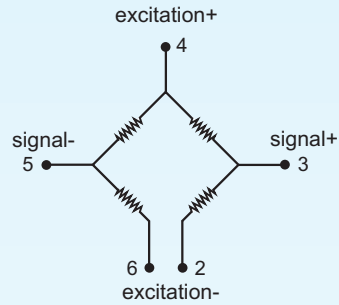
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Circuit Diagram



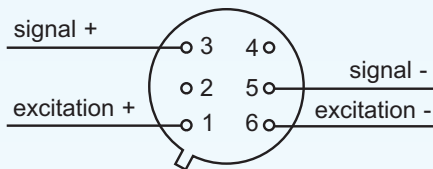
closed-bridge circuit diagram
for compensated sensors with 4 wires or 6 pins
(standard)



open-bridge circuit diagram
for uncompensated sensors with 5 wires

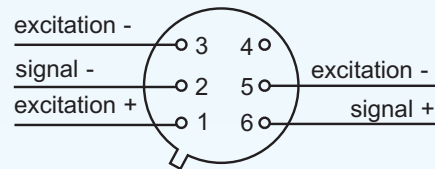
Electronic Interface

4 colored flying wires or 6 copper pins



| pin | connection | wire color |
|-----|--------------|------------|
| 1 | excitation + | red |
| 2 | no function | no wire |
| 3 | signal + | orange |
| 4 | no function | no wire |
| 5 | signal - | yellow |
| 6 | excitation - | brown |

5 wires or 6 gold-plated copper pins



| pin | connection | wire color |
|-----|--------------|------------|
| 1 | excitation + | red |
| 2 | signal - | yellow |
| 3 | signal + | orange |
| 4 | no function | no wire |
| 5 | excitation - | black |
| 6 | excitation - | brown |

Notes: In case of alterations, refer to the label on the package.

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Short Height Pressure Sensors



Ordering Information

| | | | | | | | | | |
|--|--------|-----------|--------|------------------|--------|--------|--------|----------------------|---------|
| position (pos.) 1: model | | | | | | | | | |
| 101B(a19L) | | | | | | | | | |
| pos. 2: pressure ranges and references | | | | | | | | | |
| 0.2bar | | G | | 6bar | | G, A | | G: gauge pressure | |
| 0.35bar | | G, A | | 10bar | | G, A | | A: absolute pressure | |
| 0.6bar | | G, A | | 16bar | | G, A | | | |
| 1bar | | G, A | | 25bar | | G, A | | | |
| 2.5bar | | G, A | | | | | | | |
| pos. 3: output signal | | | | | | | | | |
| 50mV (standard) | | 10%/90%Vs | | I ² C | | SPI | | | |
| pos. 4: accuracy | | | | | | | | | |
| 0.25%fs (standard) | | 0.5%fs | | | | | | | |
| pos. 5: compensation | | | | | | | | | |
| T1 = -10 ~ +70 °C (standard) | | | | | | | | | |
| NT = no temperature compensation | | | | | | | | | |
| pos. 6: pressure diaphragm | | | | | | | | | |
| 316LSS = 316L stainless steel | | | | | | | | | |
| pos. 7: wetted parts | | | | | | | | | |
| 316L = 316L stainless steel | | | | | | | | | |
| pos. 8: electrical interface | | | | | | | | | |
| 4F = 4 colored flying wires, PVC, 100mm (standard) | | | | | | | | | |
| 4C = 4 conductor flat-cable, 100mm | | | | | | | | | |
| 5F = 5 colored flying wires, PVC, 100mm | | | | | | | | | |
| 6P = 6 gold-plated copper pins, Φ0.45mm, 13mm | | | | | | | | | |
| If the other output signal is required, the electrical interface will be adjusted as the way confirmed on request. | | | | | | | | | |
| pos. 9: excitation | | | | | | | | | |
| v = 5Vdc (standard) | | c = 1.5mA | | | | | | | |
| pos. 10: customized specifications | | | | | | | | | |
| “(*)” is necessary only if any customized parameter is required, otherwise it is neglectable. | | | | | | | | | |
| pos.1 | pos. 2 | pos. 3 | pos. 4 | pos. 5 | pos. 6 | pos. 7 | pos. 8 | pos. 9 | pos. 10 |

Examples of Ordering Code

- standard sensor:

101B(a19L)-6barG-50mV-0.25%fs-T1-316L-316L-4F-v

- customized sensor:

101B(a19L)-10barA-10%/90%Vs-0.25%fs-T1-316L-316L-3F-v-(*)

(*) : - Customized output signal = 10%~90%Vs ratiometric

- Electrical interface = 3 colored flying wire.

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