

Model 101B(a12.6L) Low-Profile Pressure Sensors

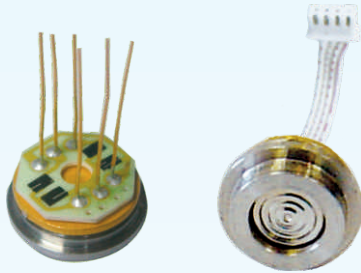


Description

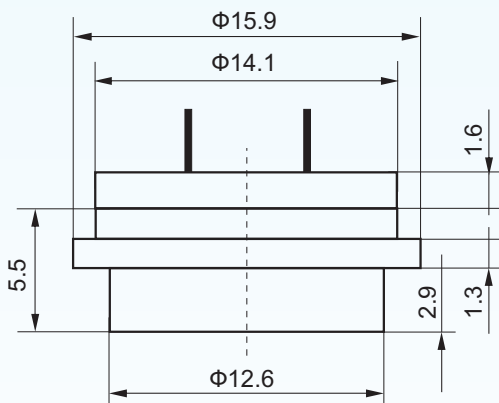
The 101B(a12.6L) is a low-profile weldable pressure sensor for medium pressure applications. Its pressure reference is selectable, including gauge (relative), absolute, and sealed gauge pressure.

The 101B(a12.6L) is designed for pressure measurements involving hostile media compatible with 316 stainless steel. One of BCM's piezoresistive sensor dies is housed in a stainless steel body where oil is filled. A stainless steel diaphragm isolates the filling oil from measured media.

The method by which the 101B(a12.6L) can be fixed and sealed is either face welding or O-ring fitting. Depending on O-ring fitting, the sensor is convenient to be assembled into a system or to be disassembled from a system.



Dimensions



Note: All dimensions are in mm.

Features

- measuring ranges: 60psi, ..., 500psi
- pressure references (types):
gauge, absolute, and sealed gauge
- accuracy up to 0.25%fs
- either with or without temperature compensation
- compensated temperature range: 0~70 °C
- outstanding sensitivity and reliability
- excited by either current or voltage
- cost-effective

Applications

- process control systems
- pneumatic and hydraulic systems
- biomedical instruments
- heating, ventilation, and air conditioning controls
- appliances and consumer electronics
- ship and marine systems
- aircraft and avionic systems

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

BCM SENSOR TECHNOLOGIES BVBA

Model 101B(a12.6L)

Low-Profile Pressure Sensors



Technical Data

Parameter		Units	Specifications	Notes
pressure medium			compatible with pressure diaphragm	
measuring ranges		psi	~60, ~100, ~160, ~250, ~400, ~500	1
pressure types			gauge (standard), absolute, sealed gauge	
proof pressure		%fs	200	2
burst pressure		%fs	300	
full scale output (fso)		mV	50±2, option: 0.5~4.5 Vdc ratiometric, I ² C	3, 4, 5
excitation	voltage	Vdc	5 (max. 10)	
	current	mA	1 (max. 1.5)	
zero offset		mV	0±2	4
accuracy		%fs	≤ ±0.25, ≤ ±0.5 (standard)	6
non-linearity		%fs	≤ ±0.3	
hysteresis		%fs	≤ ±0.05	
repeatability		%fs	≤ ±0.05	
long-term stability		%fs/year	≤ ±0.2	
input resistance		kΩ	6~20 (for voltage excitation), 3~6 (for current excitation)	7
output resistance		kΩ	2.5~6	
insulation resistance		MΩ	50 @50Vdc	
operating temperature range		°C	-40 ~ +80	
storage temperature range		°C	-40 ~ +80	
compensated temperature range		°C	0~70 (available only for ranges ≥ 60psi)	
temperature coefficient of zero offset		%fso/70°C	≤ ±2	8, 9
temperature coefficient of span		%fso/70°C	≤ ±2	8, 10
life time		cycles	10 ⁸	
response time		ms	≤ 1 (10%~90% of leading edge)	11
process sealing			O-ring (fluorine rubber)	
electrical interface			6 gold-plated copper pins, Φ0.45mm (standard)	
			6 colored PVC flexible wires, 100mm	
			4 colored PVC flexible wires, 100mm	
			4 conductor flat-cable, 100mm	
pressure diaphragm			316L	
wetted parts material			316L	
net weight		gram	~10	

General conditions for measurements: media temp. = 25°C ±1°C, ambient temp. = 25°C ±1°C, humidity = 50%RH ±10%RH,
barometric pressure: 86~106 kPa, vibration = 0.1 g (1m/s/s) max.

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

2. "fs" refers to full scale pressure or rated pressure.

3. Measured at full scale pressure.

4. Measured at 5Vdc excitation.

5. If the excitation is 1mA, the fso = 65±20mV.

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

7. If the sensor is not temperature compensated, the input resistance is 3~6kΩ.

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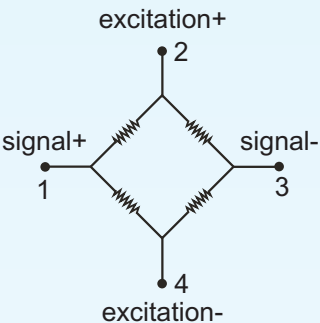
Low-Profile Pressure Sensors



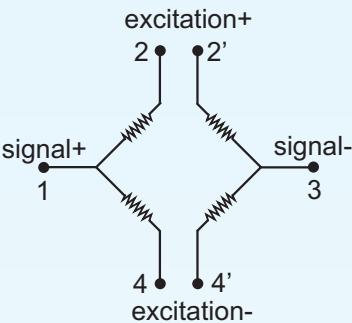
- 8. Calculated as a rate of output change between 25°C and 70°C, and normalized by the output at 25°C, when the sensor is not temperature compensated. Only for the sensors with temperature compensation. If the sensors are not temperature compensated, their temperature coefficient of zero offset or span will be 0.1%fs/°C.
- 9. Temperature coefficient of zero offset $\leq \pm 10\%fs/100^{\circ}C$ for sensors with no compensation.
- 10. Temperature coefficient of span $\leq -10\%fs/100^{\circ}C$ for sensors with no compensation.
- 11. 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.

Circuit Diagram



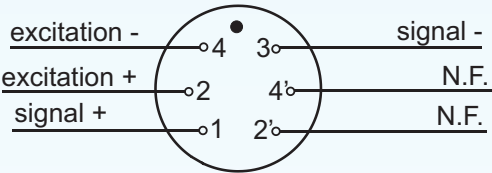
bridge circuit diagram
for compensated sensors
(standard)



bridge circuit diagram
for uncompensated sensors

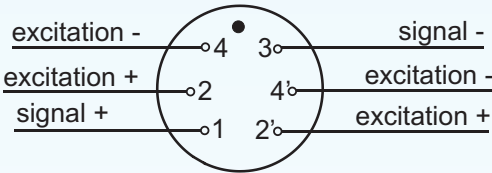
Electrical Interface

compensated sensors with 6 pins or 4 wires



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

uncompensated sensors with 6 pins or 6 wires



pin	connection	wire color
1	signal +	orange
2	excitation +	red
3	signal -	yellow
4	excitation -	brown
2'	excitation +	blue
4'	excitation -	black

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

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Ordering Information

ordering code: 101B(a12.6L)-28-G-II-T1-6P-v-(*)

pressure ranges	
4 = 0~60 psi	28 = 0~400 psi
7 = 0~100 psi	34 = 0~500 psi
11 = 0~160 psi	customized range available as an option
17 = 0~250 psi	
20 = 0~300 psi	

pressure references
G = gauge pressure (standard)
A = absolute pressure
S = sealed gauge pressure

accuracy
II = 0.25%fs
III = 0.5%fs (standard)

compensation
T1 = with temperature compensation (standard)
NT = without temperature compensation

electrical interface
6P = 6 gold-plated copper pins, $\Phi 0.45\text{mm}$ (standard)
6F = 6 colored PVC flexible wires, 100mm
4F = 4 colored PVC flexible wires, 100mm
4C = 4 conductor flat-cable, 100mm

excitation
v = 5Vdc (standard)
c = 1mA

customized parameter
“(*)” is necessary only if any customized parameter is required, otherwise it is neglectable.

Examples of Ordering Code

- standard sensor:

model-pressure range-pressure reference-accuracy-compensation-electrical interface-excitation

101B(a12.6L)-7-A-II-NT-6P-v

- customized sensor:

model-pressure range-pressure reference-accuracy-compensation-electrical interface-excitation-customized parameter

101B(a12.6L)-9-S-II-T1-4F-v-(*)

(*): - Customized pressure range = 0~130 psi.

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