

Model 101A-b12.6L Weldable Pressure Sensors



Model 101A-b12.6L weldable sealed 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 pressure sensors in mass production and the higher production eligible rate.

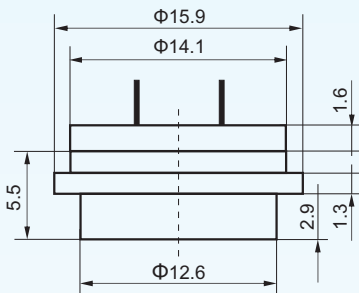
101A-b12.6L pressure sensors possess a flush diaphragm which allows these sensors to be able to measure pressure of viscous liquids. The chamber between the diaphragm and the sensing element is filled with oil, which isolates the sensing element and transfers pressure. This isolation enables the sensor to measure the pressure of corrosive fluids as well as electroconductive liquids.

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

101A-b12.6L features low 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 temperature non-compensated. Because silicon resistors are very temperature dependent, the maximum value of temperature coefficient of SPAN is as high as to 0.27 %fso/°C. It's very important to understand it with various specifications and their effects to accuracy. For the easy installation, the sensor is designed with weldable process connection as sealing method.

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

Dimensions:



Physical properties:

Diaphragm:	316L
Pressure port:	1Cr18Ni9Ti
Lead:	Gold-plated Kovar
Fill Fluid:	Silicon oil < 0.5 CC
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

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 non-compensated**
- 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

Environmental conditions:

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

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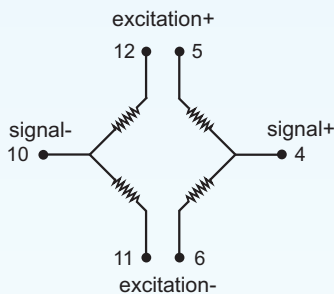
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Specifications:

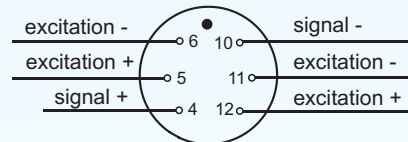
parameters	units	specifications
pressure medium		viscous fluid or fluid with grains, compatible to wetted parts
measuring ranges	psi	0~15, 0~25, 0~40, 0~60, 0~100, 0~250, 0~300
pressure type		absolute (A), gauge(G), sealed gauged pressure (SG)
overload pressure	%FS	200
full scale output	mVdc	50~100
zero offset	mVdc	± 1
combined error	%FSO	± 0.25 (standard), 0.5
long-term stability	%FSO/year	0.2 (standard), 0.3
excitation	mA or Vdc	0.5, ..., 2.0 mA or 5, ..., 10 Vdc
input resistance	KΩ	8 ± 30%
output resistance	KΩ	4.8 ± 15%
insulation resistance	MΩ	50 @ 50 V dc
storage temperature range	°C	-40 ~ +80
operating temperature range	°C	-40 ~ +80
temperature coefficient of ZERO	%FSO/°C	± 0.07
temperature coefficient of SPAN	%FSO/°C	± 0.27
life time	cycles	10 ⁸
response time	ms	≤ 1 (10% ~ 90% of leading edge)
pressure interface		weldable pressure connection
electrical interface		6P (6 gold-plated kovar pins, Ø0.45); 6F (6 colored PVC flexible wires, 100 mm)
diaphragm material		316L
pressure port material		1Cr18Ni9Ti
net weight	gram	4

The listed specifications are subject to change without prior notice.

Wheatstone bridge circuit:



Electrical connections:



6-pin or 6-wire electrical configuration

pin	connection	color
4	signal +	orange
5	excitation +	red
6	excitation -	brown
10	signal -	yellow
11	excitation -	black
12	excitation +	blue

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Ordering codes system:

example: 101A-b12.6L - 7 - G - I - 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

accuracy
I = 0.25 %fso
II = 0.5 %fso

electrical connection
6P = 6 gold-plated Kovar pins of 0.45 mm in diameter
6F = 6 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>>.

Ordering code explanations: 101A-b12.6L - 7 - G - I - 6P - v - C0116

Model 101A-b12.6L weldable pressure sensor for gauge (relative) pressure measurement in 0 ~100 psi range, the accuracy of this sensor is 0.25%fso, the electrical connection is 6 gold-plated kovar pins and the sensor is to be excited with constant 5V voltage. The customer has indicated on January 16th his wished specifications on his order sheet for the ordered 101A-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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