

Model 101A-a19H

Non-Compensated High Pressure OEM Sensors



101A-a19H non-compensated high pressure OEM 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.

101A-a19H OEM sensors possess a flush diaphragm facing the pressure media, able to measure pressures 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 pressures of corrosive fluids as well as electro conductive liquids.

The sensors feature a wide measuring range for high pressure of 0~40 bar to 0~600 bar, with high accuracy up to 0.1%fso (fso = full scale output). In addition, the sensors can be powered with either current or voltage to ease the application.

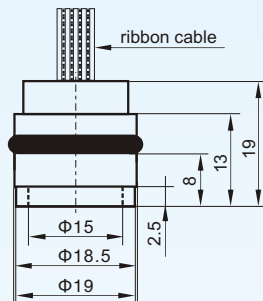
The sensor is temperature non-compensated, because of silicon resistors are very temperature dependent, so the maximum value of temperature coefficient of SPAN is high to 2.7%fso/10°C, It's very important to understand it with various specifications and their effects to accuracy.

Model 101A-a19H OEM sensors are designed for easy installation with O-rings as sealing method, the sensor has a diameter of 19 mm, the suffix H stands for high pressure, if add the suffix (TH) at the model name, the model name will change to 101A-a19H (TH), means the sensor will be produced with Tantalum diaphragm and Hastelloy-C pressure port for corrosive media pressure application.

All OEM pressure sensors are delivered with an individual certificate to aid their further application.



Dimensions:



Features:

- Measuring ranges: 0~40 bar to 0~600 bar
- Isolated construction, suitable for various fluid medium
- Wide suitability and easy operation, solid, reliability
- Temperature non-compensated
- Optional accuracy
- Mass production, cost-effective
- Gauge, absolute pressure type
- Constant current or voltage excitation

Applications:

- Process control systems
- Level systems
- Hydraulic systems and valves
- Biomedical instruments
- Aviation and spaceflight, petroleum and chemical

Physical properties:

- Diaphragm: 316L ; Tantalum (option)
- Pressure port: 1Cr18Ni9Ti; Hastelloy-C (option)
- O-rings: Viton
- Lead: Gold-plated Kovar
- Fill Fluid: Silicon oil < 0.5CC
- Weight: 24 g

Reference specifications:

- Media Temperature: 25 ± 1 °C
- Ambient Temperature: 25 ± 1 °C
- Vibration: 0.1 g (1m/s/s) max
- Humidity: $50\% \pm 10\%$
- Ambient Pressure: 86 ~ 106 kPa
- Excitation Source: 1.0 ± 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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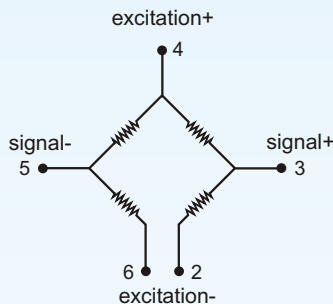


Specifications:

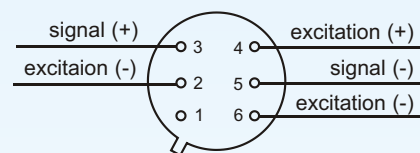
pressure media		viscous fluid or fluid with grains, compatible to wetted parts
pressure range	bar	0~40, 0~60, 0~100, 0~250, 0~400, 0~600
pressure type		absolute pressure, gauge pressure
full scale output	mV	≥ 50 mV
overload pressure	%fs	150
zero offset voltage	mV	±1
combined error	%fso	±0.1, ±0.25 (standard), ±0.5
temperature effect on ZERO	%fso/10°C	±0.7
temperature effect on SPAN	%fso/10°C	±2.7
compensation temperature range	°C	0 ~ 70
media temperature range	°C	-30 ~ +100
storage temperature range	°C	-30 ~ +100
long term stability	%fso/year	≤ 0.2 / year
excitation power supply		1 ± 50% mA or 5 ± 10% Vdc
bridge resistance	kΩ	5 ± 20%
insulation resistance	MΩ	100 @ 100 V dc
response time	ms	≤1 (10% ~ 90% of leading edge)
dynamic response time	ms	2
heat hysteresis	%fso	0.1 @ 25°C
electrical connection		6P (6 gold-plated kovar pins, Φ0.45); 5F (4 colored PVC flexible wires, 100 mm length)

The listed specifications are subject to change without prior notice.

Wheatstone-bridge circuit:



Electronic connections:



6-pin or 5-wire electrical configuration

pin	connection	color
1	N.C. (*)	N.A. (**)
2	excitation -	black
3	signal +	orange
4	excitation +	red
5	signal -	yellow
6	excitation -	brown

* N.C.: not connected

** N.A.: not available

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Ordering codes system:

example: 101A-a19H - 400 - G - II - 6P - v - Cxxxx

model number	
101A-a19H	
101A-a19H(TH)*	
pressure ranges & available pressure types	
40 = 0 ~ 40 bar G, A	250 = 0 ~ 250 bar G, A
60 = 0 ~ 60 bar G, A	400 = 0 ~ 400 bar G, A
100 = 0 ~ 100 bar G, A	600 = 0 ~ 600 bar G, A
100 = 0 ~ 160 bar G, A	
pressure types	
G = gauge (relative) pressure	
A = absolute pressure	
combined accuracy (L+H+R)	
I = 0.1 %fso	II = 0.25 %fso
III = 0.5 %fso	
electrical connection	
6P = 6 gold-plated Kovar pins of 0.45 mm in diameter	
5F = 4 colored PVC flexible wires (length = 100 mm)	
excitation power supply	
c = 1 ± 50% mA	v = 5 ± 10% Vdc
<p>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>>.</p>	

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

Ordering Code Explanations: 101A-a19H - 400 - G - II - 6P - v - C0116

Model 101A-a19H non-compensated high pressure OEM sensor for gauge (relative) pressure measurement in 0~400 bar range, the typical accuracy of pressure sensor is 0.25%fso, electrical connection is 6 gold-platted kovar pins and the sensor is required to power supply with constant 5V voltage. The customer has indicated on January 16th his wished specifications on his order sheet for the ordered 101A-a19H, and this customer-wished specifications has to be confirmed by BCM sales team on <<Order Confirmation>>.



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