Model 101B-a19H
Compensated High Pressure OEM Sensors

101B-a19H 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.

101B-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.

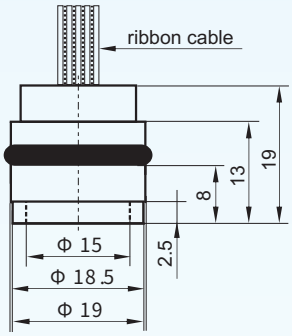
The sensors feature a wide measuring range for high pressure of 0~40 bar to 0~600 bar, with high accuracy up to 0.1%fso (fso = full scale output). In addition, the sensors can be powered with either current or voltage to ease the application.

The sensors are compensated with stick resisters compensation circuit, although the compensated temperature range is 0~70°C, the sensor can be used in the temperature range of -30 to 100°C.

Model 101B-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 101B-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 compensated from 0~70°C**
- **O-ring sealing method**
- Specification auto-tested by a computer
- Optional accuracy
- Mass production, cost-effective
- Gauge, absolute and sealed gauge 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% ± 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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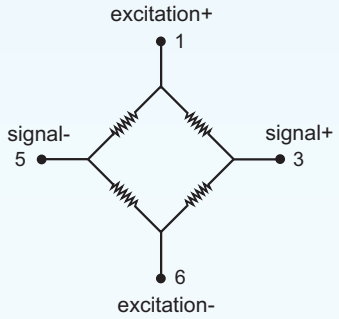
Specifications:

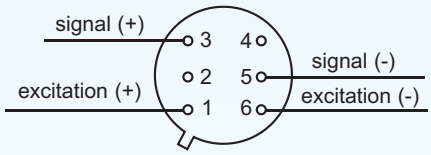
parameters	units	specifications
pressure medium		viscous fluid or fluid with grains, compatible to wetted parts
measuring ranges	bar	0~40, 0~60, 0~100, 0~160, 0~250, 0~400, 0~600
pressure type		absolute (A)
overload pressure	%FSO	150
full scale output	mVdc	≥ 50
zero offset	mVdc	± 1
combined error	%FSO	± 0.1, ± 0.25 (standard), 0.5
long-term stability	%FSO/year	0.2 (standard), 0.3
life time	cycles	10^8
response time	ms	≤1 (10% ~ 90% of leading edge)
bridge resistance	KΩ	5 ± 20%
insulation resistance	MO	100 @ 100 V dc
excitation power supply		1 ± 50%mA or 5 ± 10%Vdc
compensated temperature range	°C	0 ~ 70
operating temperature range	°C	-30 ~ +100
storage temperature range	°C	-30 ~ +100
temperature coefficient of ZERO	%FSO/10°C	± 0.15
temperature coefficient of SPAN	%FSO/10°C	± 0.15
pressure interface		O-ring
electrical interface		6P (6 gold-plated kovar pins, F 0.45); 4R (4-wire ribbon cable, width x length = 10 x 50 mm); 4F (4 colored PVC flexible wires, 100 mm length)
diaphragm material		316L, Tantalum (optinal)
pressure port material		1Cr18Ni9Ti; Hastelloy C (optional)
net weight	gram	24

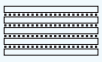
The listed specifications and dimensions are subject to change without prior notice.
Reference of test conditions: excitation = 1.5 mA, T = 25 °C, humidity = 60 %RH.

Wheatstone-bridge circuit:



Electronic connections:





4-wire ribbon cable

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

6-pin or 4-wire electrical configuration

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

* N.C.: not connected
** N.A.: not available

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Ordering codes system:

example: 101B-a19H - 400 - II - 6P - v - Cxxxx

model number
101B-a19H
101B-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

combined error (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
4F = 4 colored PVC flexible wires (length = 100 mm)

excitation	
c = 1 ± 50% 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-a19H - 100 - G - II - 6P - v - C0116

Model 101B-a19H compensated high pressure OEM sensor 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 101B-a19H, and this customer-wished specifications has to be confirmed by BCM sales team on <<Order Confirmation>>.

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