

Model 101B(a13H) Compact Pressure Sensors

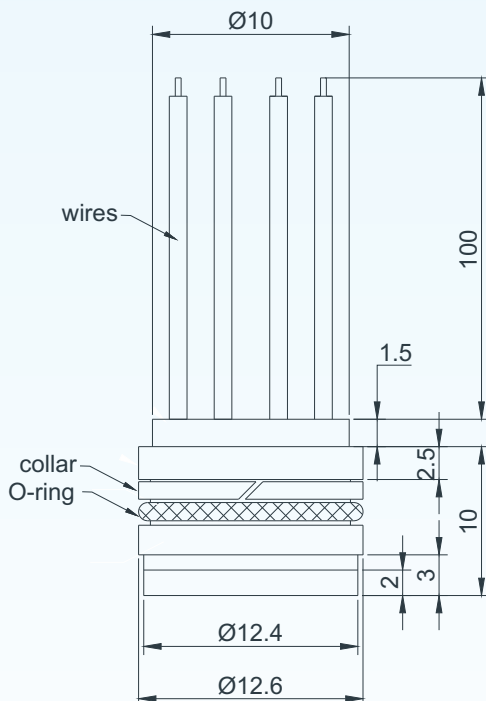
Description

The 101B(a13H) is a compact pressure sensor for general purpose. The 101B(a13H) is designed for pressure measurements involving hostile media compatible with 316L stainless steel or Hastelloy C. The sensor is based on BCM's piezoresistive sensor die housed in a stainless steel body where oil is filled. The filling oil is isolated from measured media by a stainless steel diaphragm.

Compared with the 101B(a19G), the 101B(a13H) has not only smaller dimensions but higher rated pressure up to 1000bar. Its pressure reference has two selections, sealed gauge and absolute pressure.

The method by which the 101B(a13H) can be fixed and sealed is either face welding or O-ring fitting.

Dimensions



Notes:

1. All dimensions are in mm.
2. The sensor will be equipped with the collar if the range ≥ 400 bar.

Features

- measuring ranges: 10bar, ..., 600bar
- pressure references:
gauge, absolute, and sealed gauge pressure
- accuracy up to 0.25%fs
- either with or without temperature compensation
- compensated temperature range: $-10 \sim +70$ °C
- outstanding reliability
- excited by either current or voltage

Applications

- process control systems
- industrial controls
- hydraulic controls
- liquid level control
- pressure transducers and transmitters
- pressure calibrators

Environmental Specifications

- 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(a13H) Compact Pressure Sensors



Technical Data

Parameters		Units	Specifications		Notes
pressure medium			compatible with wetted parts material		
pressure references & ranges	gauge	bar	0~10, ~25, ~40		1
	absolute	bar	0~10, ~25, ~40		
	sealed gauge	bar	0~40, ~60, ~100, ~250,	~400, ~600, ~1000	
proof pressure		%fs	200	150	2
burst pressure		%fs	500	200	
full scale output (fso)		mV	≥ 60		3 & 4
excitation	voltage	Vdc	5 (max. 10)		
	current	mA	1 (max. 2)		
zero offset		mV	≤ ±2		4
accuracy		%fs	±0.25 (standard), ±0.5		5
long-term stability		%fs/year	≤ ±0.2		
input resistance		kΩ	5 ±3		
output resistance		kΩ	4.5 ±1.5		
insulation resistance		MΩ	100 @250Vdc		
compensated temperature range		°C	-10 ~ +70		6
operating temperature range		°C	-40 ~ +125		
storage temperature range		°C	-40 ~ +125		
temperature coefficient of zero offset		%fso/°C	≤ ±0.02		7
temperature coefficient of span		%fso/°C	≤ ±0.03, in case of voltage excitation: -0.23 ~ -0.18		7
life time		cycles	10 ⁸		
response time		ms	≤ 10		8
process sealing			O-ring (fluorine rubber)		
electrical interface			4 colored flying wires, silicone rubber, 100mm (standard)		
			5 gold-plated copper pins, Φ0.45mm, 13mm		
pressure diaphragm			316L SS (standard)		
wetted parts material			316L SS (standard)		
filling oil			silicone oil		
net weight		gram	~12		

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. 0.98m/s/s).

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

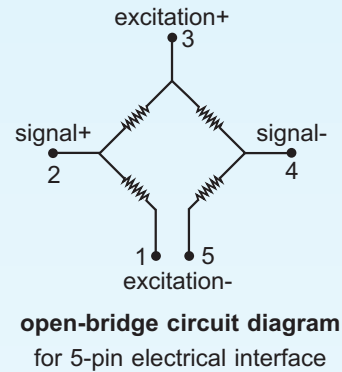
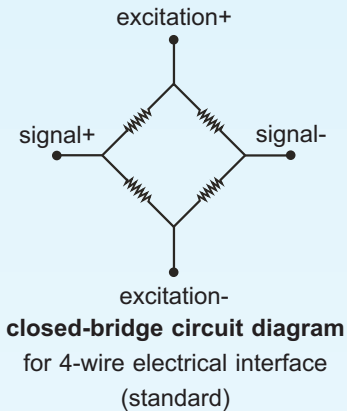
2. "fs" refers to full scale pressure.
3. Measured at fs, i.e. full scale pressure.
4. Measured at 5Vdc excitation.
5. Accuracy = $\sqrt{(\text{non-linearity}^2 + \text{hysteresis}^2 + \text{repeatability}^2)}$.
6. The temperature compensation of the sensor with a voltage excitation covers only compensation on zero offset.
7. 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.
8. 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.

BCM SENSOR TECHNOLOGIES BVBA

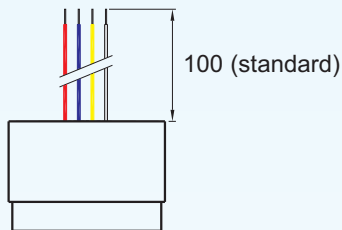
Model 101B(a13H) Compact Pressure Sensors

Circuit Diagram



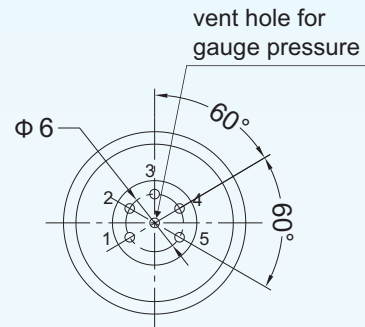
Electronic Interface

4 colored flying wires



wire color	connection
red	excitation +
black	excitation -
yellow	signal +
blue	signal -

5 gold-plated copper pins



pin	connection
1	signal -
2	excitation -
3	excitation -
4	signal +
5	excitation +

Notes:

1. All dimensions are in mm.
2. In case of alterations, refer to the label on the package.

BCM SENSOR TECHNOLOGIES BVBA

Model 101B(a13H) Compact Pressure Sensors



Ordering Information

position (pos.) 1: model							
101B(a13H)							
pos. 2: pressure ranges and references							
10bar	G, A	250bar	S	G: gauge pressure			
25bar	G, A	400bar	S	A: absolute pressure			
40bar	G, A, S	600bar	S	S: sealed gauge			
60bar	S	1000bar	S				
100bar	S						
pos. 3: output signal							
60mV							
pos. 4: accuracy							
0.25%fs (standard)				0.5%fs			
pos. 5: compensation							
NT = no temperature compensation (standard)							
T1 = -10 ~ +70 °C							
pos. 6: electrical interface							
4F = 4 colored flying silicone rubber wires, 100mm (standard)							
5P = 5 gold-plated copper pins, Φ 0.45mm, 13mm							
If the required output signal is not mV, the electrical interface will be adjusted as the way confirmed on request.							
pos. 7: excitation							
v = 5Vdc (standard)				c = 1mA			
pos. 8: 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

Examples of Ordering Code

- standard sensor:

101B(a13H)-25barG-60mV-0.25%fs-NT-5P-v

- customized sensor:

101B(a13H)-100barS-60mV-0.25%fs-NT-5F(100mm)-c-(*)

(*): Customized electrical interface = 5 flying wires, 100mm.

BCM SENSOR TECHNOLOGIES BVBA

