

Model 330B Mono-Block Stainless Steel Pressure Sensors



Description

The 330B mono-block pressure sensors are made from 304 stainless steel via BCM thick-film technology. Thanks to the mono-block structure, there is no O-ring needed as seal inside the sensor body and no leakage can happen at the back of the sensor.

By means of thick film technology, the resistor network including the Wheatstone bridge circuit and the compensation circuit is directly printed at the back of the 304 stainless steel pressure diaphragm. The other side of the diaphragm is exposed to measured media without any additional protection.

For specific request, the sensor can be equipped with signal conditioning circuit to have amplified output signal.

Features

- rugged mono-block structure
- pressure ranges: 200bar, ..., 300bar
- excellent resistance to shock and vibration
- easy mounting

Applications

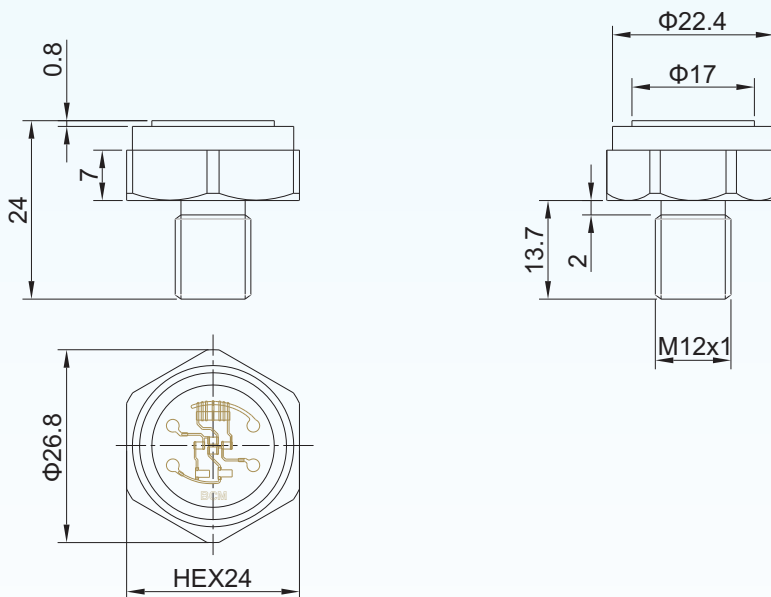
- automotive industry
- HVAC industry
- air compressors
- hydraulic controls

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



Dimensions



Note: All dimensions are in mm.

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Technical Data

Parameters	Units	Specifications	Notes
pressure medium		gases or dilute fluids	1
measuring ranges	bar	0~200, ~250, ~300	2
pressure reference		gauge	
proof pressure	%fs	300, 250 for range of 300bar	
burst pressure	%fs	500, 400 for range of 300bar	3
output sensitivity	mV/V	≥ 2.5 , ≥ 2 for range of 200bar	4
excitation	Vdc	5, ..., 25	
zero offset	mV	$\leq \pm 1$	
accuracy	%fs	± 0.5 (standard), ± 1	5
long-term stability	%fs/year	$\leq \pm 0.2$	
bridge resistance	k Ω	11	
insulation resistance	M Ω	500 @100Vdc	
compensated temperature range	$^{\circ}\text{C}$	0~70	
operating temperature range	$^{\circ}\text{C}$	-40 ~ +135	
storage temperature range	$^{\circ}\text{C}$	-40 ~ +135	
temperature coefficient of zero offset	%fso/ $^{\circ}\text{C}$	$\leq \pm 0.02$	6
temperature coefficient of span	%fso/ $^{\circ}\text{C}$	$\leq \pm 0.03$	6
life time	cycles	10^8	
response time	ms	≤ 1	7
process sealing		O-ring (fluorine rubber)	
mechanical interface		M12x1 male, G1/4 male	
electrical interface		solder pads (standard for mV output)	
		4 colored PVC flexible wires, 100mm	
pressure diaphragm		304	
wetted parts material		304	
net weight	gram	~40	

General conditions for measurements: media temp. = $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, ambient temp. = $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, humidity = 50%RH $\pm 10\%$ RH, barometric pressure: 86~106 kPa, vibration = 0.1 g (1m/s/s) max.

- Notes:
1. The pressure medium should be compatible with wetted parts material and pressure diaphragm.
 2. For customized pressure ranges, consult BCM.
 3. "fs" refers to full scale pressure or rated pressure.
 4. Options for the output signal: 10%~90%Vs ratiometric (e.g., 0.5~4.5V at Vs = 5Vdc), 0~5V, 4~20mA, I²C, SPI, CAN open.
 5. Accuracy = $\sqrt{(\text{non-linearity}^2 + \text{hysteresis}^2 + \text{repeatability}^2)}$.
 6. 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.
 7. 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.

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Ordering Information

position (pos.) 1: model						
330B						
pos. 2: pressure ranges and references						
200bar G G: gauge pressure						
250bar G						
300bar G						
pos. 3: output signal						
2mV/V (standard for range of 200bar)						
2.5mV/V (standard for ranges of 250bar and 300bar)						
10%/90%Vs = 10%~90%Vs ratiometric (e.g., 0.5~4.5V at Vs = 5Vdc)						
0/5V = 0~5V						
4/20mA = 4~20mA						
I ² C						
SPI						
CAN open						
pos. 4: accuracy						
0.5%fs (standard) 1%fs						
pos. 5: temperature compensation						
T1 = 0~70 °C						
pos. 6: mechanical interface						
M12x1(male) (standard) G1/4(male)						
pos. 7: electrical interface						
SP: solder pads (standard for mV output)						
FW: flying wires, PVC, 100mm (standard for 10%/90%Vs, 4/20mA, I ² C, SPI, and CAN open output options)						
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

Examples of Ordering Code

- standard sensor:

330B-250barG-2.5mV/V-0.5%fs-T1-M12x1(male)-SP

- customized sensor:

330B-0/220barG-4/20mA-0.5%fs-T1-M12x1(male)-FW-(*)

(*): - Customized range = 0~220barG

- Customized output = 4~20mA

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