Flash Diaphragm Ceramic Pressure Sensor YH18P, YH14P Series

Description

YH18P and YH14P series flush diaphragm piezoresistive ceramic pressure sensors feature a 96% Al_2O_3 material base and diaphragm. These sensors feature wide temperature compensation, high operating temperature range, and a robust structure for safety under extreme pressure, thus they can directly handle various acids and alkaline media without additional protection. As a result, they are ideal for industries with high safety requirements and can be easily integrated into standard transmission output modules.

Features

- Small size and easy packaging
- Affordable price & economical solutions
- Effective temperature compensation

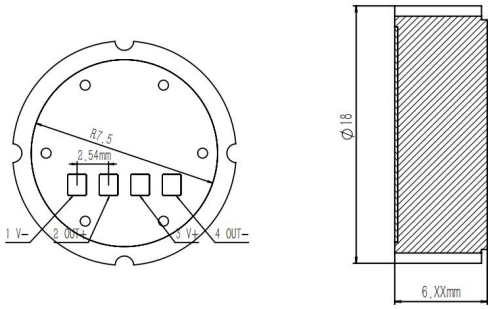
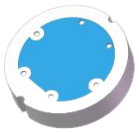
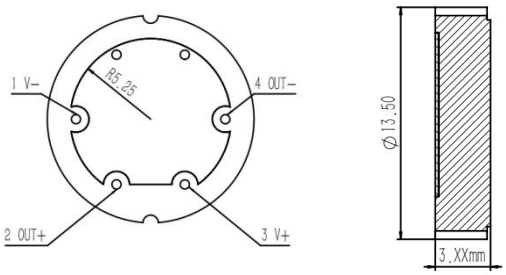
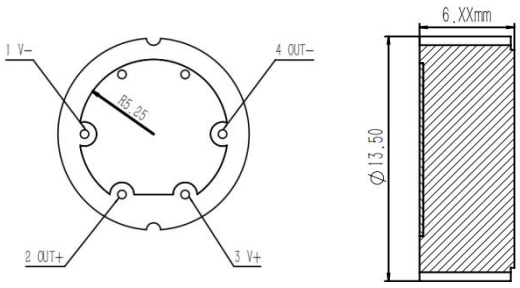
Typical applications

- Automatic, water pump, diesel, engine, compressor, refrigerating machine, Jet Coder, air-condition, water heater eurostar
- Valve, transmit, chemicals, petrochemical engineering, clinical gauge and many other field.

Parameters

Pressure range	0~500 bar (optional)	Dimension	Φ(18/13.5)×H mm
Product model	YH18P, YH14P0	Supply voltage	0-30 VDC (max)
Bridge road impedance	10 KQ±30%	Full range output	≥2 mV/V
Operating temperature	-40~+135℃	Storage temperature	-50~+150℃
Overall accuracy (linear + hysteresis)	≤±0.3% FS	Temperature drift (zero & sensitivity)	≤±0.03% FS/℃
Long-term stability	≤±0.2% FS/year	Repeatability	≤±0.2% FS
Zero offset	≤±0.2 mV/V	Insulation resistance	≥2 KV
Zero-point long-term stability @20°C	±0.25% FS	Relative humidity	0~99%
Direct contact with liquid materials	96% Al_2O_3	Net weight	≤7g(standard)

Dimensions(mm) & electrical connection

Model	3D photo	Dimensions	Pressure range
XDB101-1			0-0.6bar, 0-2bar, 0-10bar, 0-20bar, 0-40bar, 0-100bar, 0-250bar
XDB101-2			0-15bar, 0-30bar, 0-50bar
XDB101-3			0-3bar, 0-15bar, 0-30bar, 0-50bar, 0-100bar, 0-150bar, 0-300bar, 0-400bar, 0-500bar

Destruction pressure comparison table

Pressure range(Bar)	Burst pressure(Bar)
0-0.6	1.2
0-2	4
0-3	6
0-10	20
0-15	30
0-20	40
0-30	60
0-40	80
0-50	100
0-100	200

0-150	300
0-250	375
0-300	450
0-400	550
0-500	700

How to order

E.g. **XDB101-YH 18P- 6 - 10B - W - L**

Notes

1. When installing the ceramic sensor core, it is important to focus on suspension installation. The structure should include a fixed pressure ring to limit the position of the sensor core and ensure even stress distribution. This helps to avoid variations in mounting stress that can result from different workers.

2. Prior to welding, perform a visual inspection of the sensor pad. If oxidation is present on the pad's surface (turning it dark), clean the pad with an eraser before welding. Failure to do so may result in poor signal output.

3. When welding the lead wires, use a heating table with temperature control set at 140-150 degrees. The soldering iron should be controlled at approximately 400 degrees. Water-based, rinse-free flux can be used for the welding needle, while clean flux paste is recommended for the welding wire. The solder joints should be smooth and free of burrs. Minimize the contact time between the soldering iron and the pad, and avoid leaving the soldering iron on the sensor pad for more than 30 seconds.

4. After welding, if necessary, clean the residual flux between the welding points using a small brush with a mixture of 0.3 parts absolute ethanol and 0.7 parts circuit board cleaner. This step helps to prevent residual flux from generating parasitic capacitance due to moisture, which could affect the accuracy of the output signal.

5. Conduct output signal detection on the welded sensor, ensuring a stable output signal. If data jumping occurs, the sensor must be re-welded and reassembled after passing the detection.

6. Before calibrating the sensor post-assembly, it is important to subject the assembled components to stress in order to balance the assembly stress prior to signal calibration.
Typically, high and low temperature cycling can be employed to expedite the equilibrium of component stress after the expansion and contraction process. This can be achieved by subjecting the components to a temperature range of -20℃ to 80-100℃ or room temperature to 80-100℃. The insulation time at the high and low temperature points should be a minimum of 4 hours to ensure optimal results. If the insulation time is too short, the effectiveness of the process will be compromised. The specific process temperature and insulation time can be determined through experimentation.

7. Avoid scratching the diaphragm to prevent potential damage to the internal circuit of the ceramic sensor core, which could result in unstable performance.

8. Exercise caution during the mounting to prevent any mechanical impacts that could potentially cause malfunctioning of the sensing core.
Please note that the above suggestions for ceramic sensor assembly are specific to our company's processes and may not necessarily serve as standards for customer production processes.

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