

DFP2800 Pressure Sensor

Overview



The DFP2800 pressure sensor encapsulates a diffused silicon pressure sensitive chip into a 316L stainless steel shell. The external pressure is transmitted to the sensitive chip through a stainless steel diaphragm and internally sealed silicone oil. The sensitive chip does not directly contact the measured medium, forming an all-solid structure for pressure measurement. The general appearance, assembly dimensions and sealing methods are consistent with similar foreign mainstream products, and have good interchangeability. The production process of each product adopts strict aging, screening and testing procedures to ensure the excellent quality and high reliability of each product. This product's small range (10, 20, 35kPa) special high-stability chip is selected. It has a large full-scale output value and good nonlinearity, and is more suitable for precision measurement of smaller pressures. This series of negative pressure products are produced using special processes, and their negative pressure stability performance is even more advantageous. This product can be reliably used in hydraulic systems, industrial process control and other applications.

Features

- Measurement Range:-100...0kPa ~ 10kPa...70MPa
- Gauge pressure/sealed gauge pressure/absolute pressure/negative pressure
- Isolated structure, suitable for a variety of fluid media
- $\varnothing 19\text{mm}$ standard pressure sensor
- All stainless steel 316L material
- Wide temperature compensation range: $-10 \sim 80^{\circ}\text{C}$

Product use

- Industrial process control
- Liquid level measurement
- Gas and liquid pressure measurement
- Pressure detection instruments, pressure calibration instruments
- Hydraulic system and switch
- Refrigeration equipment and air conditioning systems
- Aviation and navigation inspection

Structural properties

- Pressure tube material: stainless steel 304
- Diaphragm material: stainless steel 316L
- Shell material: stainless steel 316L
- Pin leads: gold-plated Kovar or silicone rubber soft wires
- Sealing ring: nitrile rubber, fluorine rubber, EPDM
- Net weight: about 25g

Electrical properties

- Constant current power supply: $\leq 2.0\text{mA DC}$
- Constant voltage power supply: $\leq 10\text{V DC}$
- Electrical connection: Kovar pins or soft silicone wire (can be customized)
- Common mode voltage output: 50% of input (typical value)
- Input impedance: $2\text{k}\Omega \sim 5\text{k}\Omega$
- Output impedance: $3\text{k}\Omega \sim 6\text{k}\Omega$
- Response time (10%~90%): $< 1\text{ms}$

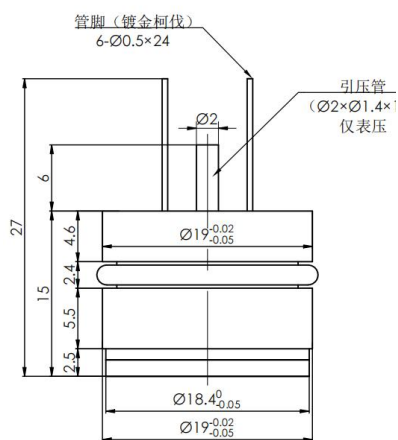
environmental conditions

- Vibration: No change under the conditions of 10gRMS, 20Hz~2000Hz
- Impact: 100g, 11ms
- Media Compatibility: Liquid or gas compatible with stainless steel 316L and sealing ring materials

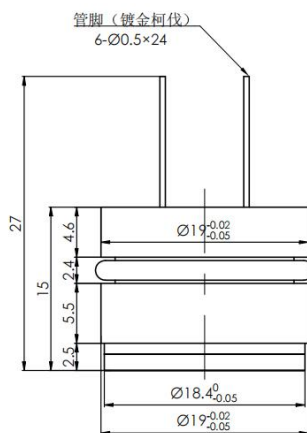
Technical Parameters

Benchmark Condition				
Medium temperature	Operating temperature	VIBRATION	Relative humidity	environmental pressure
(35±1)°C	(35±1)°C	0.1g(1m/s ²)Max	(50±10)%	(86~106)kPa
Power Supply				
(1.5±0.0015)mADC				
Basic Parameters				
Item	Min.	Typ.	Max.	Unit
Nonlinear system		±0.10	±0.25	%FS,BFSL
Repeatability	±0.01	±0.05	±0.075	%FS
Slow	±0.01	±0.05	±0.075	%FS
Zero Output	-2.0	0	2.0	mVDC
Full Scale Output	50	100	200	mVDC
Zero point temperature error		0.75	±1.0	%FS, @35°C (≤20kPa)
		0.50	0.7	%FS, @35°C (≥35kPa)
Full temperature error		±0.15	±0.3	%FS, @35°C
Compensation Temperature Range	0-50°C (customizable)			@25°C (≤250kPa A, ≤100kPa G)
	-10 ~ 80 °C (customizable)			@35°C (>250kPa A, >100kPa G)
Long term stability error		±0.2		% FS/year
Operating temperature range	-40~125°C			°C
Storage Temperature Range	-40~125°C			°C
Insulation Resistance	500M Ω @100VDC			
Overload	2x full scale pressure or 110MPa (minimum)			

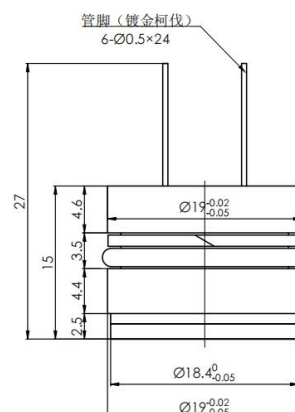
Form Factor



Range ≤ 4MPa (gauge)

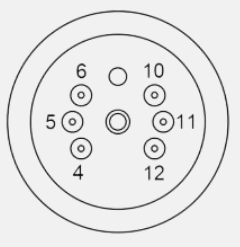


Range ≤ 4MPa (absolute)



Range ≥ 7MPa (absolute/sealed gauge)

Electrical connection

Diagram		PIN No.	Electrical Definition	Wire Color	Electrical Definition
		4	+IN	Black	+IN
		5	-OUT	Blue lights	-OUT
		6	/	/	-IN
		10	/	/	-IN
		11	+OUT	Merah	+OUT
		12	-IN	Kuning	NC
Compensated	No Compensation		Compensated		No Compensation

Selection Guide

DFP2800		Type Pressure Sensor					
		Measurement Range	Pressure Type	Measurement Range	Pressure Type	Measurement Range	Pressure Type
		0~10kPa	G	0~600kPa	G/A	0~10MPa	S/A
		0~20kPa	G	0~1MPa	G/A	0~20MPa	S/A
		0~35kPa	G	0~1.6MPa	G/A	0~40MPa	S/A
		0~100kPa	G/A	0~2.5MPa	G/A	0~60MPa	S/A
		0~250kPa	G/A	0~4MPa	G/A	0~100MPa	S/A
			code	Pressure Type			
			G	Gauge pressure			
			A	Absolute pressure			
			S	Sealing gauge pressure			
				code	Temperature compensation method		
				0	No Compensation		
				1	External resistance compensation		
				2	Thick film compensation plate		
					code	Electrical connection	
					0	Gold-plated Corvallis pins	
					1	100mm silicone rubber leads (customizable)	
						code	Special Measurements
						bbPress Default	Negative pressure measurement not required
						Y	Zero point output at atmospheric pressure is 0
						Y (x-x)	Zero point migration required
DFP2800 0-100k G 2 0 Full Specification Model							

Selection tips

The assembly method of the pressure sensor is recommended to use a "floating" structure to avoid pressing the seal on its end surface and prevent affecting the stability of the sensor.

Pay attention to protect the isolation diaphragm at the front end of the pressure sensor and the ceramic thick film compensation circuit board at the back end, so as not to affect the performance of the sensor or cause damage to the sensor.

The temperature resistance range of the standard O-type fluorine rubber sealing ring of the sensor is -20 °C ~ 250 °C. When the operating temperature range of the sensor is lower than -20 °C or the sensor is applied under harsh media, please contact the company.