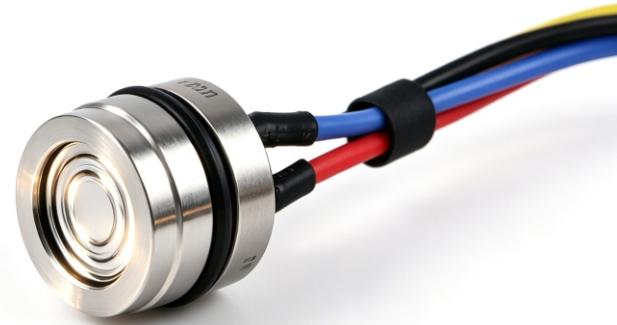


Oil-Filled Pressure Sensor

GS12

PRODUCT OVERVIEW

The GS12 Series oil-filled pressure sensor utilizes internationally advanced high-stability, high-accuracy silicon pressure chips. It employs a stress-optimized sintering base and is manufactured through die bonding, gold wire bonding, diaphragm welding, high-vacuum oil filling, pressure cycling stress relief, high-temperature aging, and temperature compensation. The product offers excellent stability and superior performance. The $\Phi 12.6\text{mm}$ miniaturized form factor is designed to meet compact equipment requirements, suitable for pressure measurement in media compatible with 316L stainless steel and NBR or FKM.



MAIN FEATURES

- Measuring range: $-100\text{kPa} \sim 0\text{kPa} \sim 200\text{kPa} \dots 100\text{MPa}$
- Pressure types: gauge (G), absolute (A), and sealed gauge (S)
- Constant current excitation
- Isolated structure, suitable for various fluid media
- $\Phi 12.6\text{mm}$ miniaturized oil-filled pressure core
- All 316L stainless steel construction
- Tantalum diaphragm available on request

APPLICATIONS

- Industrial process control
- Oil well monitoring
- Gas and liquid pressure measurement
- Pressure calibration instruments
- Pressure switches and hydraulic systems
- Fire protection IoT

TECHNICAL SPECIFICATIONS

Electrical Performance

Power supply: $\leq 3.0\text{mA DC}$

Electrical connection: 0.2mm^2 4-color 100mm silicone rubber flexible wire

Common-mode voltage output: 50% of current input (typical)

Input impedance: $2.7\text{k}\Omega \sim 5\text{k}\Omega$

Output impedance: $3.0\text{k}\Omega \sim 6\text{k}\Omega$

Response time (10%~90%): $< 1\text{ms}$

Insulation resistance: $500\text{M}\Omega/100\text{V DC}$

Allowable overpressure: $1.5 \times$ full scale

Structural Performance

Diaphragm material: 316L stainless steel

Housing material: 316L stainless steel

Pin leads: gold-plated Kovar

Sealing ring: NBR, FKM (optional)

Net weight: approx. 10g

Reference Conditions

Media temperature: $(25 \pm 3)^\circ\text{C}$

Ambient temperature: $(25 \pm 3)^\circ\text{C}$

Humidity: $(50\% \pm 10\%) \text{ RH}$

Ambient pressure: $(86 \sim 106) \text{ kPa}$

Power supply: $(1.5 \pm 0.0015) \text{ mA DC}$

Environmental Conditions

Vibration: no change under 10g RMS, $(20 \sim 2000) \text{ Hz}$

Constant acceleration: 100g, 11ms

Media compatibility: liquids or gases compatible with 316L and NBR (FKM optional)

Standard Range Sensitivity Output & Optional Pressure Types

Range	Full-Scale Output (mV)	Typical	Pressure Type	Range	Full-Scale Output (mV)	Typical	Pressure Type
0~200kPa	60~90	70	G/A	0~7.0MPa	120~150	135	S/A
	90~120	100	G/A	0~10MPa	80~100	90	S/A
0~600kPa	90~135	110	G/A		180~230	200	S/A
	90~120	100	G/A	0~25MPa	140~170	150	S/A
0~1.0MPa	80~120	100	G/A	0~40MPa	75~100	80	S/A
0~1.6MPa	80~110	150	S		230~280	250	S/A
	125~185	150	G/A	0~60MPa	95~160	130	S/A
0~2.0MPa	100~125	110	G/A	0~100MPa	80~100	90	S/A
0~3.5MPa	100~120	110	G/S/A		100~150	120	S/A

Basic Parameter

Parameter	Typical	Maximum	Unit
Full-scale output	100	250	mV
Zero offset	±1	±2	mV
Non-linearity	0.2	0.5	%FS
Hysteresis	0.05	0.08	%FS
Repeatability	0.05	0.08	%FS
Input/Output impedance	2.6	5.0	kΩ
Zero-point thermal drift	±0.4	±1.2	%FS,@25℃
Sensitivity thermal drift	±0.4	±1.2	%FS,@25℃
Long-term stability	0.2	0.3	%FS/Yr
Excitation current	1.5 (Maximum input voltage: 10V DC)		mA
Insulation resistance	500 (100VDC)		MΩ
Compensation temperature	-10℃~70℃; 0~50℃ (Note 1)		℃
Operating temperature	-40~+125		℃
Storage temperature	-40~+125		℃
Response time	≤1		ms
Housing & diaphragm material	316L stainless steel		
O-ring	FKM, NBR, VMQ		
Measuring media	Fluids compatible with 316L stainless steel, FKM, NBR and VMQ		
Service life (25℃)	>1×10 ⁸ pressure cycles (80%FS)		cycles
Filled fluids	Silicon oil		
Sealing ring	Φ10×1.3mm (NBR or (Note 2)		

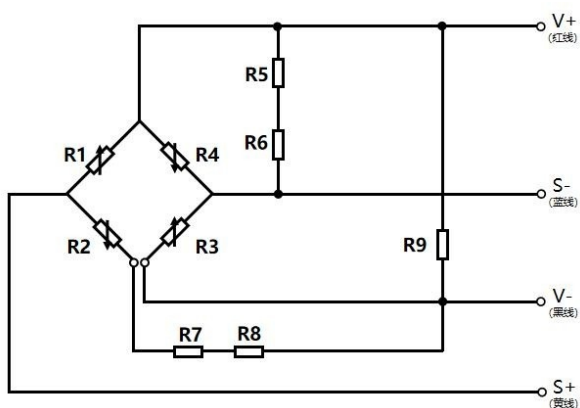
Note 1: For ranges -100~0~200kPa, compensated temperature is 0~50℃; for ranges above 200kPa, compensated temperature is -10℃~70℃.

Note 2: FKM O-ring temperature range is -20℃~200℃; low-temperature performance is poor. Exercise caution when operating below -20℃.

DIMENSIONS

Series	Range	Model	Outline Drawing
GS12	-100kPa 0kPa 10MPa	GS1201	
	25MPa 100MPa	GS1202	
	-100kPa~20MPa (Improved)	GS1203	

ELECTRICAL CONNECTION



Wiring: V+ (Red) – Excitation +
V- (Black) – Excitation –
S+ (Yellow) – Output +
S- (Blue) – Output –

ORDERING GUIDE

GS12	Pressure Sensor							
	Code	Range Scope						
	01	-100kPa~0kPa~10MPa						
	02	25MPa~100MPa						
	03	-100kPa~20MPa						
		Code	Power supply					
		M	1.5mA constant current					
			Code	Pressure Type				
			G	Gauge				
			S	Sealed gauge				
			A	Absolute				
				Code	Range			
				01	0-200kpa			
				02	0-600kpa			
				03	0-1.0Mpa			
				04	0-1.6Mpa			
				05	0-2.0Mpa			
				06	0-3.5Mpa			
				07	0-7.0Mpa			
				08	0-10Mpa			
				09	0-25Mpa			
				10	0-40Mpa			
				11	0-60Mpa			
				12	0-100Mpa			
						Code	Lead Wire	
	A1					4-color silicone wire		
	A2					Gold-plated pins		
	A3	Custom						
GS12	01	M	G	03	A1	Complete Model Specification		

Notes

- 1.This product is an electrostatic-sensitive device. Please take ESD precautions.
- 2.The measured medium must be compatible with the sensor materials.
- 3.Assemble this product in a floating structure according to the recommended dimensions.
- 4.Protect the sensor diaphragm and compensation circuit board; avoid dropping or impact that may affect product stability.
- 5.Keep the vent tube of gauge-type sensors open to atmosphere; do not allow water, moisture, or corrosive media to enter the vent tube.
- 6.If pin definitions change, refer to the label attached to the product.