

Oil-Filled Pressure Sensor

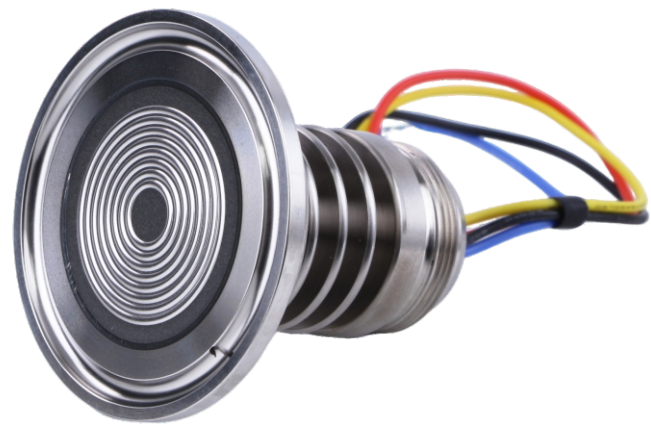
GaMicos

GS50

PRODUCT OVERVIEW

The GS50 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, pure flat diaphragm welding, high-vacuum oil filling, pressure cycling stress relief, high-temperature aging, and temperature compensation.

The GS50 Series conforms to the international 50 tri-clamp interface standard for assembly dimensions and sealing, ensuring excellent interchangeability. Primarily used for pressure measurement in pharmaceutical, food, and other industries with high cleanliness requirements.



MAIN FEATURES

- Measuring range: -100kPa~0kPa~10kPa...7MPa
- Pressure type: gauge (G), absolute (A), and sealed gauge (S)
- Constant current/constant voltage excitation, isolated structure
- $\Phi 50.5$ mm standard oil-filled pressure core, fully 316L stainless steel construction
- Compliant with international 50 tri-clamp standard, G-1/2 sanitary connection

APPLICATIONS

- Pharmaceutical and Food
- Industrial process control
- Gas and liquid pressure measurement

TECHNICAL SPECIFICATIONS

Electrical Performance

Excitation: $\leq 3.0\text{mA DC}$; $\leq 10\text{V DC}$

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

Common-mode voltage output: 50% of current input (typical), 40% of voltage 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

Pressure port material: 316L stainless steel

Pin leads: gold-plated Kovar

Sealing ring: Silicone rubber

Net weight: approx. 160g

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 silicone rubber

Standard Range Sensitivity Output & Optional Pressure Types

Range	Full-Scale Output (mV)	Typical	Pressure Type	Range	Full-Scale Output (mV)	Typical	Pressure Type
0~10kPa	35~60	45	G	0~600kPa	90~120	100	G/A
0~20kPa	70~110	90	G	0~1.0MPa	80~120	100	G/A
0~35kPa	55~80	70	G/A	0~1.6MPa	125~185	150	G/A
0~70kPa	55~80	60	G/A	0~2.0MPa	50~70	60	G/A
0~100kPa	60~85	75	G/A	0~3.5MPa	100~120	110	G/S/A
0~200kPa	65~85	75	G/A	0~7.0MPa	120~150	135	S/A
0~400kPa	60~80	70	G/A				

Basic Parameter

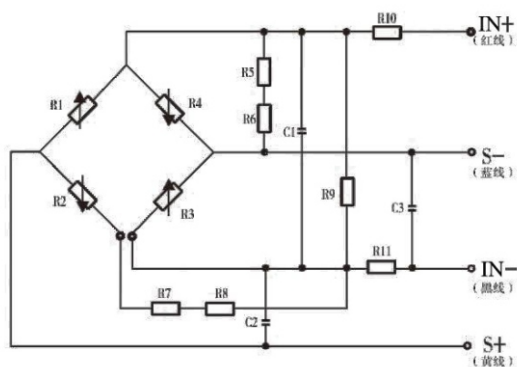
Parameter	Typical	Maximum	Unit
Full-scale output	100	250	mV
Zero offset	±1	±2	mV
Non-linearity	0.2	0.5	%FS
Hysteresis	0.05	0.08	%FS
Repeatability	0.05	0.08	%FS
Input/Output impedance	2.6	5.0	kΩ
Zero-point thermal drift	±0.4	±1.0	%FS,@25℃
Sensitivity thermal drift	±0.4	±1.0	%FS,@25℃
Long-term stability	0.2	0.3	%FS/Yr
Excitation current	1.5 (Maximum input voltage: 10V)		mA
Insulation resistance	500 (100VDC)		MΩ
compensated temperature	0~50; -10~70 (Note)		℃
Operating temperature	-40~+125/150		℃
Storage temperature	-40~+125		℃
Response time	≤1		ms
Housing & diaphragm material	316L stainless steel		
O-ring	Silicon rubber		
Measuring media	Fluids compatible with 316L and silicon rubber		
Service life (25℃)	> 1×10 ⁸ pressure cycles (80%FS)		cycles
Fill fluid	Silicon oil		
Sealing ring	Various specifications, OEM		

Note: 0~10kPa, Zero-point thermal drift, and sensitivity thermal drift, typical 0.5%FS@25℃. Maximum, 1.2%FS@25℃.
200kPa and below, compensated temperature 0~50℃; above 200kPa, compensated temperature -10℃~70℃.

DIMENSIONS

Series	Range	Operating temperature	Outline Drawing
GS5001	-100kPa~7MPa	-40°C~125°C	
GS5002		-40°C~150°C	

ELECTRICAL CONNECTION



Wiring: IN+ (Red) – Excitation +

IN- (Black) – Excitation –

S+ (Yellow) – Output +

S- (Blue) – Output –

ORDERING GUIDE

GS50	Pressure Sensor				
	Code	Model			
	01	GS5001 (−40°C~125°C)			
	02	GS5002 (−40°C~150°C)			
		Code	Power supply		
		C	1.5mA constant current		
		V	≤10V constant voltage		
			Code	Pressure Type	
			G	Gauge	
			S	Sealed gauge	
			A	Absolute	
				Code	Range
				01	0–10kPa
				02	0–20kPa
				03	0–35kPa
				04	0–70kPa
				05	0–100kPa
				06	0–200kPa
				07	0–400kPa
				08	0–600kPa
				09	0–1.0MPa
				10	0–1.6MPa
				11	0–2.0MPa
				12	0–3.5MPa
				13	0–7.0MPa
					Code Lead Wire Type
					A1 4–color silicone wire
					A2 Gold–plated pins
					A3 Custom
GS50	01	C	S	05	A2

Notes

- Protect the front diaphragm and rear compensation circuit board from damage. Do not press the metal diaphragm with hands or hard objects to prevent chip deformation or perforation causing core damage.
- Keep the vent tube at the rear of G–type cores open to atmosphere; do not allow water, moisture, or corrosive media to enter the rear reference cavity. Avoid dropping or impact as this may affect product stability.
- If pin connections change, refer to the label attached to the actual core.