

Oil-Filled Pressure Sensor

GaMicos

GS23

PRODUCT OVERVIEW

The GS23 series is a threaded-connection, flush-diaphragm pressure sensor. It incorporates advanced, high-stability, high-accuracy silicon pressure chips, mounted on a sintered base optimized through stress-reduction design. The manufacturing process includes die attachment, gold wire bonding, diaphragm welding, high-vacuum oil filling, pressure cycling for stress relief, high-temperature aging, and temperature compensation. The recommended standard threaded connections are M20×1.5 and G1/2. The product is suitable for pressure measurement in media compatible with 316L stainless steel and nitrile rubber (NBR) or fluoroelastomer (FKM). A pure flush-diaphragm (P-type) version is available as an option.



MAIN FEATURES

- Measuring range 0kPa~10kPa...40MPa
- Pressure type: gauge (G), absolute (A), and sealed gauge (S)
- Constant current/constant voltage excitation, isolated structure
- M20×1.5, G1/2 threads available, fully 316L stainless steel construction
- Pure flat membrane P type optional, suitable for various fluid media

APPLICATIONS

- Industrial process control
- Level measurement
- Gas and liquid pressure measurement
- Pressure switches and hydraulic systems
- Pharmaceutical and food equipment

TECHNICAL SPECIFICATIONS

Electrical Performance

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

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: NBR, FKM (optional)

Net weight: approx. 50g (Gs23), 70g (Gs25)

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

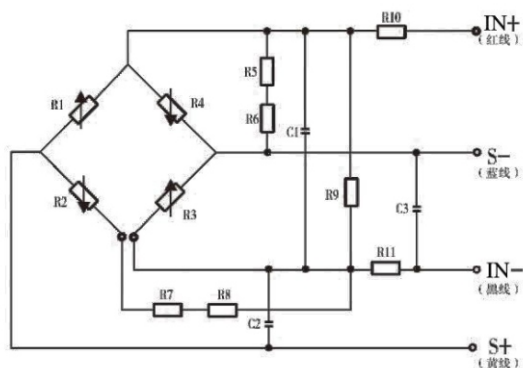
Range	Full-Scale Output (mV)	Typical	Pressure Type	Range	Full-Scale Output (mV)	Typical	Pressure Type
0~10kPa	35~60	45	G	0~1.0MPa	80~120	100	G/A
0~2.0MPa	50~70	60	G/A	0~35kPa	55~80	70	G/A
0~3.5MPa	100~120	110	G/S/A	0~70kPa	55~80	60	G/A
0~7.0MPa	120~150	135	S/A	0~100kPa	60~85	75	G/A
0~10MPa	100~180	150	S/A	0~200kPa	65~85	75	G/A
0~25MPa	80~150	130	S/A	0~400kPa	60~80	70	G/A
0~40MPa	180~230	200	S/A				

Basic Parameter

Parameter	Typical	Maximum	Unit
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
Compensation temperature	0~50; -10~70 (Note)		℃
Operating temperature	-40~+125		℃
Storage temperature	-40~+125		℃
Response time	≤1		ms
Housing & diaphragm material	316L stainless steel		
ED sealing ring	NBR, FKM		
Measuring media	Fluids compatible with 316L, NBR or FKM		
Service life (25℃)	> 1×10 ⁸ pressure cycles (80%FS)		cycles
Filled fluid	Silicon oil		
ED sealing ring	18.5×23.9×1.5mm (NBR or FKM)		

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

The temperature range of FKM sealing ring is -20℃~200℃, and poor low-temperature performance, when temperature is below -20℃, please exercise caution.



S- (Blue) – Output –

GS23	Pressure Sensor						
	Code	Series Model					
	01	M20×1.5 Standard thread type (–100kPa~40MPa)					
	01P	Flush diaphragm type (–100kPa~10MPa)					
	02	G1/2 Standard thread type (–100kPa~40MPa)					
	02P	Flush diaphragm type (–100kPa~10MPa)					
		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	0–35kPa		
				03	0–70kPa		
				04	0–100kPa		
				05	0–200kPa		
				06	0–400kPa		
				07	0–1.0MPa		
				08	0–2.0MPa		
				09	0–3.5MPa		
				10	0–7.0MPa		
				11	0–10MPa		
				12	0–25MPa		
	13		0–40MPa				
			Code	Lead Wire Type			
A1		4–color silicone wire					
A2		Gold–plated pins					
A3		Custom					
GS23	01	C	G	02	A2		

Notes

- The recommended sealing method for the pressure core is a hex ED ring structure. When installing with threads, avoid excessive torque that may affect pressure core stability. Recommended torque by pressure range: 0~500kPa: 0.9Nm; 500kPa~2MPa: 1.1Nm; 2MPa~10MPa: 1.6Nm.
- Protect the front diaphragm and rear compensation circuit board from damage. Do not press the metal diaphragm with hands or hard objects.
- 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.