

SensorsX SX-PMAAB Series

Silicon Core Pressure Sensor Module

Industrial OEM Pressure Sensing Element | Gauge & Absolute Pressure | 0 – 40 MPa (0 – 5,800 psi)



±0.075 % FS Accuracy	0 – 40 MPa (0 – 5,800 psi) Pressure Range	4–20 mA / I²C / RS-485 Output Signal
–40 to +85 °C (–40 to +185 °F) Operating Temperature	Ø 18.8 / Ø 19 mm (0.74 / 0.75 in) Package Diameter	12 – 36 V DC Power Supply

Industrial Process Measurement | Pressure | OEM Sensing Element | Gauge & Absolute

■ PRODUCT OVERVIEW

The SX-PMAAB series silicon core pressure sensor module is designed for high-stability OEM pressure measurement applications. Built on an ultra-stable silicon piezoresistive chip, it is packaged in a full 316L stainless steel structure with an outer diameter of Ø 19 mm (0.75 in).

The measured pressure is transmitted through the isolation diaphragm and internal medium to the pressure sensing die, enabling precise conversion of pressure to a digital signal. The sensing element supports silicone oil or fluorine oil fill options, making it particularly suitable for pressure measurement of media in oxygen-enriched environments.

Typical Measurements

- Gauge and absolute pressure measurement
- OEM transmitter pressure sensing element
- Hydraulic and pneumatic system monitoring
- Oxygen-enriched media pressure measurement



■ KEY FEATURES

◆ **Wide Measuring Range** 0 – 40 MPa (5,800 psi) gauge; 0 – 3 MPa (435 psi) absolute

◆ **Gauge & Absolute Pressure** Suitable for both gauge and absolute pressure measurement

◆ Silicone or Fluorine Oil Fill Multiple fill fluid options for various media including oxygen-enriched environments	◆ Standard OEM Package Ø 19 mm (0.75 in) standard sensing element
◆ 316L Stainless Steel Diaphragm, housing, and all wetted parts in 316L Stainless Steel	◆ Excellent Long-Term Stability ± 0.1 %FS / year
◆ High Accuracy ± 0.075 %FS standard; ± 0.10 %FS and ± 0.25 %FS options available	◆ Multiple Output Options 4–20 mA, 0–10 V DC, I ² C, UART, RS-485 Modbus (select on order)

■ TYPICAL APPLICATIONS

Industries Served

- OEM Pressure Transmitters
- Chemical & Petrochemical
- Food & Beverage Processing
- Industrial Process Monitoring
- Oxygen-Enriched Environments
- HVAC Systems
- Hydraulic Systems
- Water & Wastewater
- Medical & Laboratory Equipment

■ PERFORMANCE SPECIFICATIONS

Measurement	
Pressure Type	Gauge (Rel.) / Absolute
Measuring Range	Gauge (Rel.): 0 – 250 kPa to 0 – 40 MPa (0 – 36.3 psi to 0 – 5,800 psi) Absolute (Abs.): 0 – 250 kPa to 0 – 3 MPa (0 – 36.3 psi to 0 – 435 psi)
Accuracy	
Non-Linearity	Typical ± 0.05 %FS; Max $+0.10$ %FS (at 20 °C / 68 °F)
Thermal Hysteresis	Min -0.50 %FS; Typical ± 0.02 %FS; Max $+0.50$ %FS (at 20 °C / 68 °F)
Pressure Hysteresis	Min -0.02 %FS; Typical ± 0.01 %FS; Max $+0.02$ %FS (at 20 °C / 68 °F)
Stability	
Long-Term Stability	± 0.10 %FS / year

■ ELECTRICAL SPECIFICATIONS

Power	
Supply Voltage	12 – 36 V DC
Input Impedance	2 k Ω – 8 k Ω (constant current) / 4 k Ω – 25 k Ω (constant voltage)
Overload Capacity	2 – 70 $\times$ full-scale pressure
Insulation Resistance	100 M Ω @ 100 V DC
Output Signal	
Analog Output	4 – 20 mA / 0 – 10 V DC / Ratiometric (select on order)
Digital Communication	I ² C (IIC) / UART / RS-485 Modbus (select on order)
Response Time (10 % – 90 %)	< 0.5 ms
Electrical Connection	
Lead Type	Ø 0.5 mm gold-plated Kovar pins OR 100 mm (3.94 in) silicone rubber flexible leads

■ ENVIRONMENTAL SPECIFICATIONS

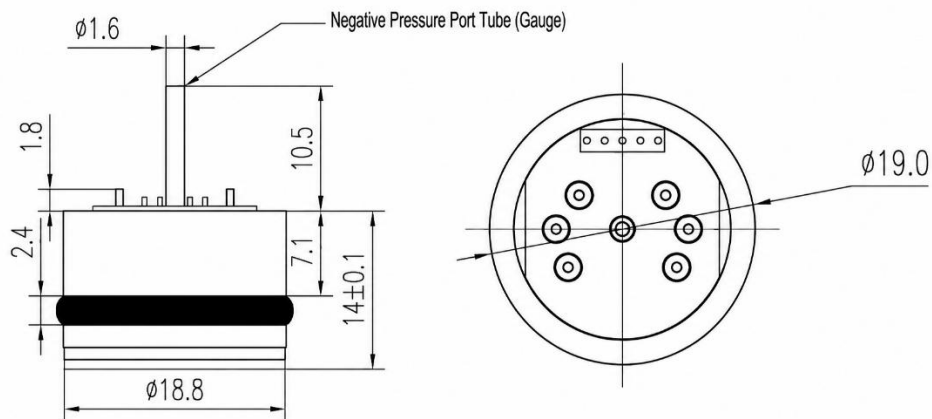
Temperature

Operating Temperature	-40 to +85 °C (-40 to +185 °F)
Storage Temperature	-50 to +85 °C (-58 to +185 °F)
Reference Conditions	Medium temperature: (25 ± 1) °C (77 ± 2 °F) Ambient temperature: (25 ± 1) °C (77 ± 2 °F) Humidity: (50 ± 10) %RH

■ PROCESS CONNECTIONS & WETTED MATERIALS

Mechanical Package	
Outer Diameter (Body)	Ø 18.8 mm (0.74 in) — see dimensional drawing
Pressure Sensitive Element Diameter	Ø 19.0 mm (0.75 in)
Total Height	14 ± 0.1 mm (0.551 ± 0.004 in)
Negative Pressure Port Tube	Ø 1.6 mm (0.063 in) diameter × 10.5 mm (0.413 in) height
Materials in Contact with Medium	
Diaphragm Material	316L Stainless Steel
Housing / Body	316L Stainless Steel
Lead Pins	Gold-plated Kovar
Fill Fluid	
Silicone Oil	Standard option — suitable for most process media
Fluorine Oil	Optional — recommended for oxygen-enriched media environments
Without Fill	Unfilled / dry option available (select on order)
Sealing / O-Ring	
Sealing Material	Without / PTFE (Teflon) / FKM (Fluoroelastomer) / NBR (Nitrile rubber) (select on order)

■ MECHANICAL DIMENSIONS



Dimension	mm	inch	Notes
Overall Body Diameter	Ø 18.8	Ø 0.74	
Pressure Sensitive Element Diameter	Ø 19.0	Ø 0.75	Pin array reference circle
Total Height	14 ± 0.1	0.551 ± 0.004	

Negative Pressure Port Tube Height	10.5	0.413	Above body top surface
Negative Pressure Port Tube Diameter	Ø 1.6	Ø 0.063	Neg. pressure port (gauge type)
Pin Lead Height	1.8	0.071	

※ All dimensions in mm. Inch equivalents are approximate.

■ ORDERING INFORMATION — SX-PMAAB SERIES

Complete model number example: **SX-PMAAB-BDSS0N0**

Accuracy	
B	±0.075 %FS
C	±0.10 %FS
D	±0.25 %FS
Pressure Range	
D	0 – 250 kPa (Gauge / Rel. only)
E	0 – 1 MPa (Gauge / Rel. only)
F	0 – 4 MPa (Gauge / Rel. only)
G	0 – 10 MPa (Gauge / Rel. only)
I	0 – 40 MPa (Gauge / Rel. only)
M	0 – 250 kPa (Absolute only)
N	0 – 1 MPa (Absolute only)
O	0 – 3 MPa (Absolute only)
Diaphragm Material (Materials in Contact with Medium)	
N	Without diaphragm isolation
S	316L Stainless Steel
H	Hastelloy C-276 (Hc276)
Fill Fluid (Liquid Fill Type)	
N	Without fill (dry / unfilled)
S	Silicone oil
H	Fluorine oil
Output	
0	4 – 20 mA
1	0 – 10 V DC
2	I ² C (IIC)
3	UART
4	RS-485 / Modbus
5	Ratiometric output
Sealing Material (O-Ring)	
N	Without seal
T	PTFE (Teflon)
F	FKM (Fluoroelastomer)
D	NBR (Nitrile rubber)
Negative Pressure Measurement	

0	Without (standard)
1	With negative pressure measurement
Optional / Customized	
D	Customized — specify requirements in order remarks

Ordering Example: SX-PMAAB-BDSS0N0 = SX-PMAAB series, ± 0.075 %FS accuracy, 0–250 kPa gauge, 316L Stainless Steel diaphragm, silicone oil fill, 4–20 mA output, no seal, no negative pressure.