

PSM-2 Series

Sanitary Pressure Measurement

1 to 35 bar / 5 to 500 psi
Absolute and gauge pressure



Advantages

- All welded stainless-steel flush diaphragm
- FDA-approved filling fluid
- High accuracy 0.1% of span (BFSL)
- User configurable with USB programmer
- 4-20 mA programmable current output
- 0-10 VDC programmable voltage output
- Integrated sensor heat sink
- Temperature drift compensated
- IP67 enclosure for harsh environments



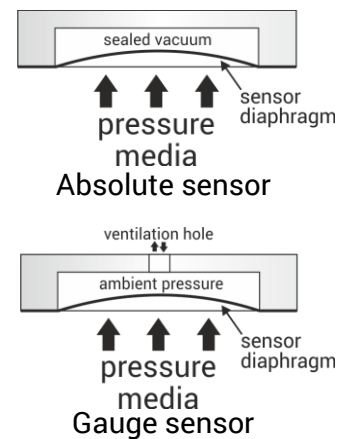
The PSM-2 series programmable pressure transmitter is designed for gas, vapor and liquid measurement in pharmaceutical, food, beverage, and biotechnology applications. The transmitter is compatible with the temperature and chemical exposure used in industrial standard CIP (Clean-in-place) and SIP (Steam-in-place) cleaning processes.

Sensor technology

The PSM-2 is based on a stainless steel 316L diaphragm that converts the applied pressure to an electric signal. The sensor diaphragm is flush with the flange and has a surface roughness RA value of less than 0.38um.

The sensor element uses an internal FDA conform filling fluid to transfer the pressure from the sensor diaphragm to the piezo sensor element.

It is available as either an absolute sensor that measures relative to an integrated sealed reference vacuum or as a gauge sensor that measures relative to the ambient pressure.



Measurement performance

Each transmitter is individually tested, precision calibrated and compensated for drift related to temperature changes. Calibration data is stored in the internal non-volatile memory. The transmitter is delivered with traceable calibration certificate.

Applications

- Food and beverage processing
- Sterilization process SIP and CIP
- Water treatment and supply
- Chemical processing
- Biotechnology
- Hydrostatic level measurement

Advanced enclosure design

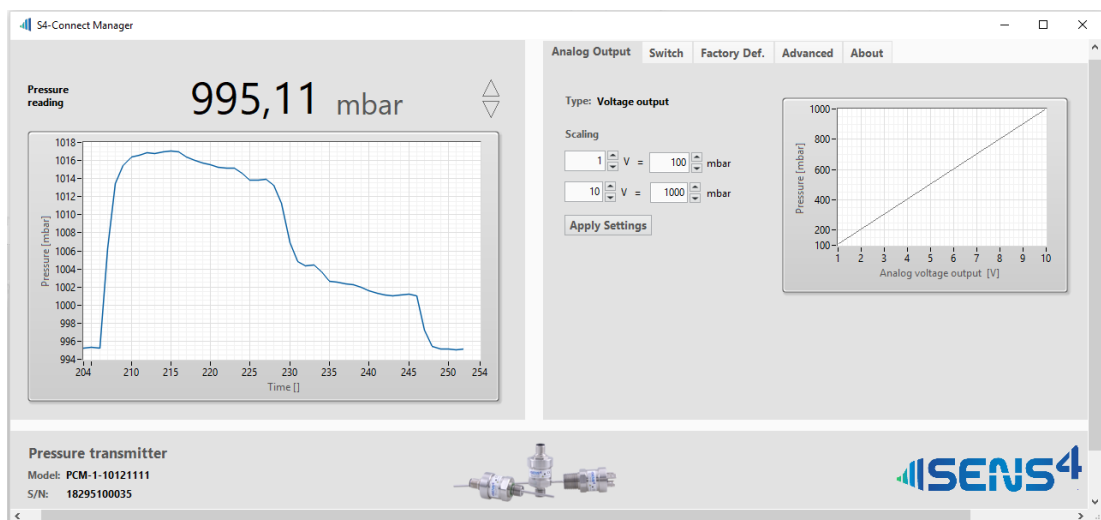
The integrated sensor heatsink limits the heat transfer from the process media to the sensor electronics and allows process media temperatures up to 150 °C.

The IP67 sealed 316 stainless steel enclosure with integrated hydrophobic membrane is designed for extreme environments. The innovative moisture control barrier prevents internal moisture accumulation and water condensation when changes in ambient pressure, temperature and humidity occur. Gauge pressure sensors measures relative to ambient pressure and the hydrophobic membrane provides pressure equalization when the ambient pressure changes, e.g. due to changes in the weather or altitude.



Programmable parameters with S4-Connect™

The innovative S4-Connect USB digital communication interface provides access to the powerful digital core. It enables digital communication over the power supply line, thus eliminating the need for additional connector pins.



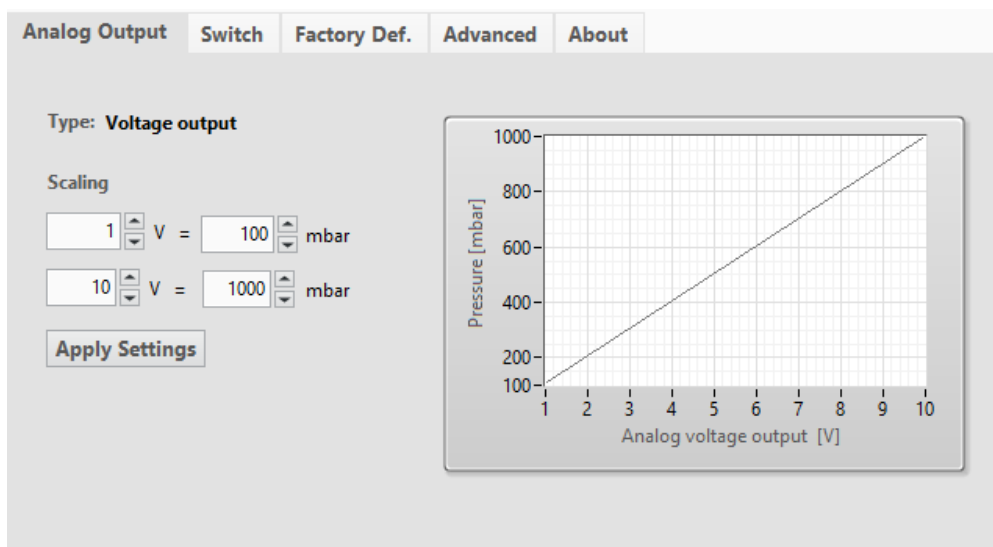
The interface can be used for diagnostics, predictive maintenance, service, calibration, setpoint configuration and setting of other customized parameters. Furthermore, the products offer pin compatibility with industry standard pin-outs for analog transducers.

Customized settings

The transmitter can be delivered with a custom configuration to match specific application requirements. Examples of pre-configured options include measurement range, pressure unit, setpoint configuration and output signal scaling. Customized products will be assigned a unique part number for easy and simple future reordering.

Process control

The optional setpoint can be either used for controlling or surveillance of the measured pressure via a solid-state relay. The basic control uses on/off regulation with a programmable setpoint and hysteresis value. The setpoint relay can also be assigned to the internal temperature sensor to provide a warning if the transmitter electronics heated.



Programmable analog output

The PSM-2 is available with traditional analog output 4-20 mA and 0-10 VDC analog. The output can be user programmed and scaled to customer requirements with the S4-Connect USB adapter and S4-Connect software.

Technical data

Specifications	
Measuring range (0 bar to full-scale)	1, 1.6, 2, 2.5, 4, 5, 6, 10, 16, 20, 25 or 35 bar
Measuring range (0 psi to full-scale)	15, 20, 30, 50, 100, 200, 250 or 500 psi
Measuring principle	Piezo with stainless steel membrane
Accuracy, IEC 61298-2	+/- 0.1 % BFSL
Thermal drift (offset, base:22 °C)	+/- 0.01%/°C of full-scale (from 10 to 50°C)
Output signal (Voltage version)	0-10 VDC (Programmable scaling)
Output resolution (Voltage version)	16 bit / 150 µV
Output signal (Current version)	4-20 mA ⁽¹⁾ (Programmable scaling)
Output resolution (Current version)	16 bit / 244 nA
Solid state relay contact rating (optional)	250 mA, 50 VDC / VAC peak
Environment conditions	
Operating ambient temperature	-40 to +100 °C
Media temperature	-40 to +150 °C
Storage ambient temperature	-40 to +125 °C
Maximum media pressure	See pressure limits table
Burst media pressure	See pressure limits table
Mounting position	Any
Protection rating, EN 60529/A2:2013	IP67 ⁽²⁾ , IP65 ⁽³⁾
Humidity, IEC 68-2-38	98%, non-condensing
Power supply	
Supply voltage	12-30 VDC
Power consumption (voltage version)	240 mW (max)
Power consumption (current version)	600 mW (max)
Reverse polarity protection	Yes
Overvoltage protection	Yes
Internal fuse	100 mA (thermal recoverable)
Materials	
Enclosure	SS 1.4404 / AISI 316L
Electrical connector DIN 175301-803A	PA Nylon
Electrical connector M12 IEC 61076-2-101	PA Nylon, Nickel plated Zinc alloy
Process connection (media wetted)	SS 1.4404 / AISI 316L
Sensor diaphragm (media wetted)	SS 1.4404 / AISI 316L
Sensor internal transmission fluid	Neobee® M-20 (FDA conform)
Process leak tightness (ISO 27895:2009)	<1·10 ⁻⁹ mbar·l/sec.
Approvals	
CE	EMC directive 2014/30/EU
RoHS compliance	Directive EU 2015/863

Contact sales@sens4.com for other approvals and certifications.

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- (1) 4-20 mA NAMUR NE43 compliant signal.
- (2) IP67 for product versions with IEC 61076-2-101 M12 connector
- (3) IP65 for product versions with DIN EN 175301-803 A connector

Pressure limits table

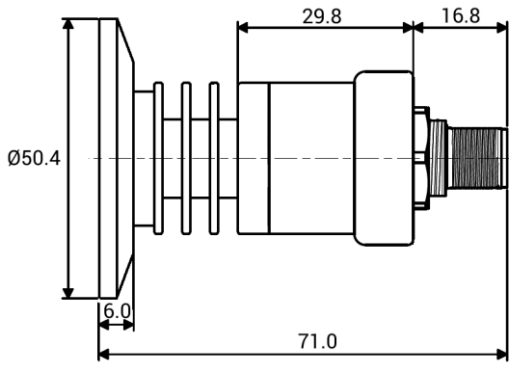
Full scale pressure	Maximum pressure ⁽⁴⁾	Burst pressure ⁽⁵⁾
1 bar	3 bar	6 bar
1.6 bar	3 bar	6 bar
2 bar	3 bar	6 bar
2.5 bar	5.25 bar	10.5 bar
4 bar	10.5 bar	20 bar
6 bar	10.5 bar	20 bar
10 bar	15 bar	30 bar
16 bar	30 bar	50 bar
20 bar	30 bar	50 bar
25 bar	50 bar	100 bar
35 bar	50 bar	100 bar
15 psi	40 psi	85 psi
20 psi	40 psi	85 psi
30 psi	40 psi	85 psi
50 psi	75 psi	150 psi
100 psi	150 psi	300 psi
200 psi	430 psi	725 psi
250 psi	430 psi	725 psi
500 psi	725 psi	1450 psi

(4) The maximum pressure limit defines the upper limit of the pressure range that the pressure sensor is designed to operate within. Exceeding this limit may permanently damage the sensor element and cause an irrecoverable shift of repeatability, linearity and full-scale adjustment.

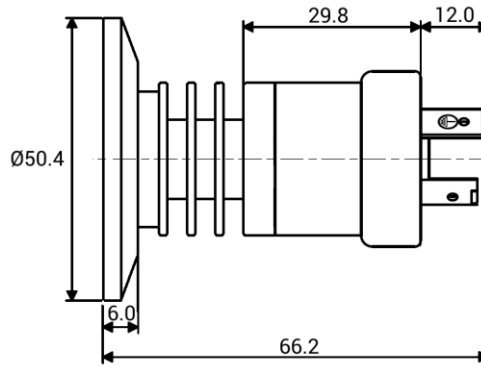
(5) The burst pressure is the maximum allowed pressure that can be exposed to the pressure port without rupture of the sensor diaphragm or transmitter structure. Ensure that the pressure media never exceeds the burst pressure.

Dimensions

All dimensions in mm.



4 pin M12 connector IEC 61076-2-101



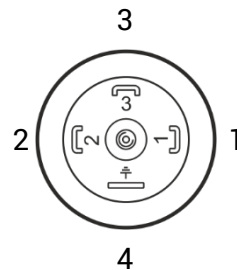
3 pin + PE DIN EN 175301-803 A

All dimensions are in mm unless otherwise stated – General tolerance ISO 2768-1 M

4 pin DIN EN 175301-803 A, angular connector

1	Positive supply voltage (V+)
2	Supply voltage return (GND)
3	Signal output (S+) or not connected ⁽¹⁾
4	Shield
Chassis	Shield

(1) 3 wire version voltage output / 2 wire version not connected

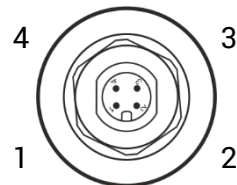


4 pin M12, IEC 61076-2-101

1	Positive supply voltage (V+)
2	Solid state relay out or not connected ⁽²⁾
3	Supply voltage return (GND)
4	Signal output (S+) or not connected ⁽¹⁾
Chassis	Shield

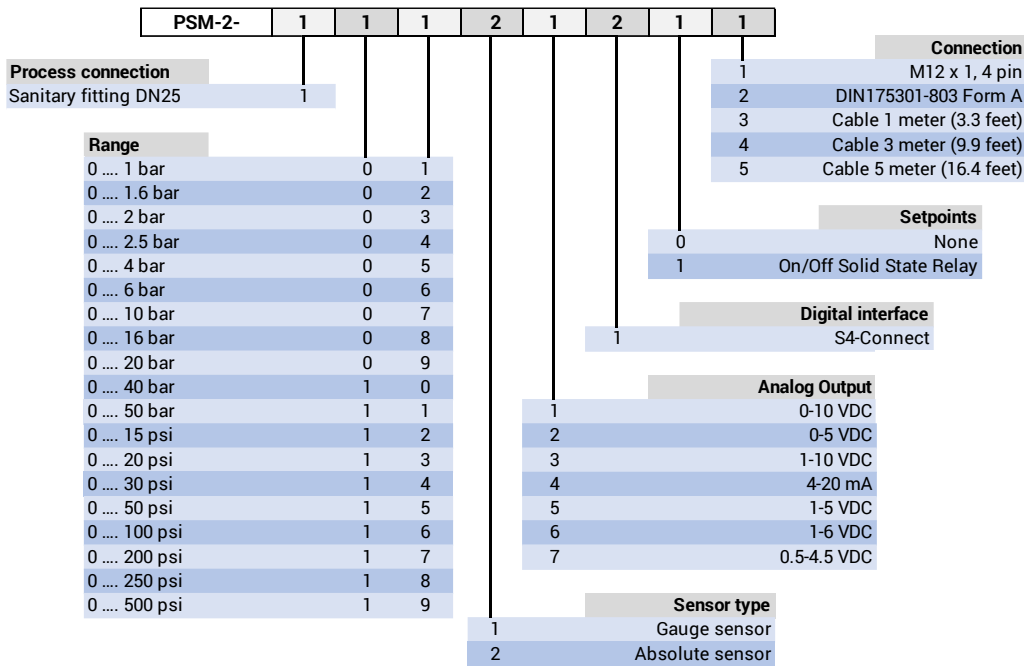
(1) 3 wire version voltage output / 2 wire version not connected

(2) Optional setpoint output



Specifications are subject to change without further notice

Order guide



Accessories

Connectors	Part number
M12 x 1, 4 pin female metal connector	CON-FM12-001
3 + PE DIN EN 175301-803 A female	CON-FDN8-001
Cables	Part number
M12 x 1, 4 pin Connector with 3 m cable	CAB-M12-003
M12 x 1, 4 pin Connector with 5 m cable	CAB-M12-005
M12 x 1, 4 pin Connector with 10 m cable	CAB-M12-010
DIN Connector with 3 m cable	CAB-DIN1-003
DIN Connector with 5 m cable	CAB-DIN1-005
DIN Connector with 10 m cable	CAB-DIN1-010
Programming device	
S4-Connect programmer USB, M12 connector	PRG-S4-M12
S4-Connect programmer USB, DIN connector	PRG-S4-DIN

About

Sens4 develops, manufactures, markets and distributes vacuum, pressure and temperature measuring equipment for industrial applications worldwide. Our products are designed, engineered and manufactured in Denmark to the highest quality standards.

Our mission is to continuously endeavor to provide customer centric state of the art measurement solutions.

Our passion | Your value™

