

PCM-1 Series

Pressure measurement

0 to 50 bar / 0 to 500 psi

Absolute and gauge pressure



Advantages

- Chemical resistant ceramic diaphragm
- High accuracy 0.1% of span (BFSL)
- 4-20 mA programmable current output
- 0-10 VDC programmable voltage output
- Temperature drift compensated
- Robust 316 stainless steel design
- IP67 enclosure for harsh environments
- Optional solid state setpoint relay for process control

Applications

- Food and beverage processing
- Water treatment and supply
- Oil and gas
- Wind turbines
- HVAC installations
- Chemical processing
- Semiconductor processing



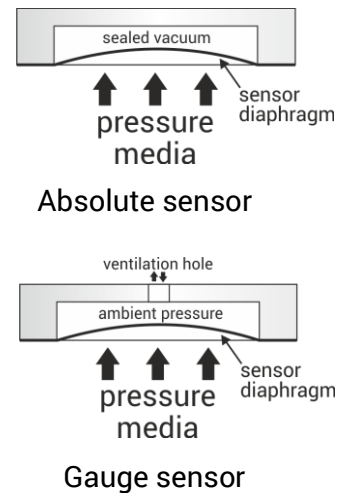
The PCM-1 series pressure transmitter is designed for gas, vapor and liquid measurement in a variety of industrial applications. Its modular compact design offers a unique combination of high measurement performance, flexible configuration and a robust stainless-steel design.

Sensor technology

The PCM-1 is based on a ceramic aluminum oxide sensor diaphragm that converts the applied pressure to an electric signal. The sensor element is a dry cell diaphragm design without filling oil contained.

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.

The ceramic sensor surface in combination with the 316 stainless-steel flange offers excellent chemical resistance and compatibility with a wide range of aggressive gases, solvents and acids.



Measurement performance

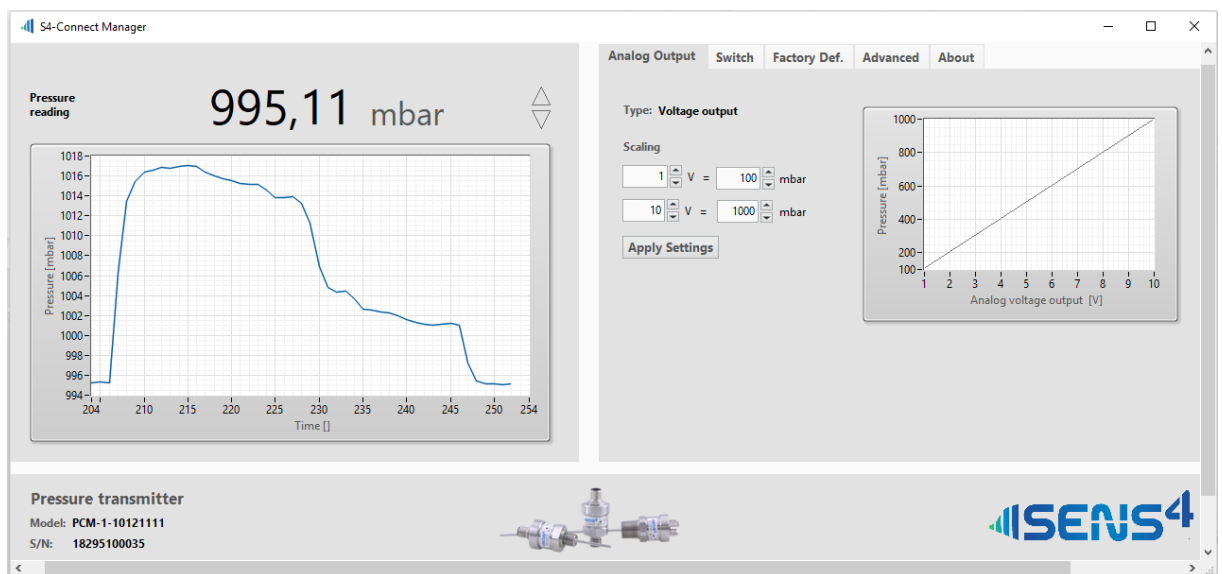
The PCM-1 is the choice for demanding applications where accuracy and reliability matters. The transmitters are individually calibrated and actively compensated for drift due to changes in ambient temperature. The multi-point calibration provides high basic accuracy throughout the measurement range.

Advanced enclosure design

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 and offers pin compatibility with industry standards.



The interface can be used for diagnostics, maintenance, service, calibration, setpoint configuration and setting of other customized parameters.

The S4-Connect™ interface can also be used for display of real time pressure measurements with a read-out resolution of up to 1/100,000 of the full-scale pressure.

The graphical user interface and real time readout can be a useful tool to qualify process pressure profiles and levels prior to installation.

Customized settings

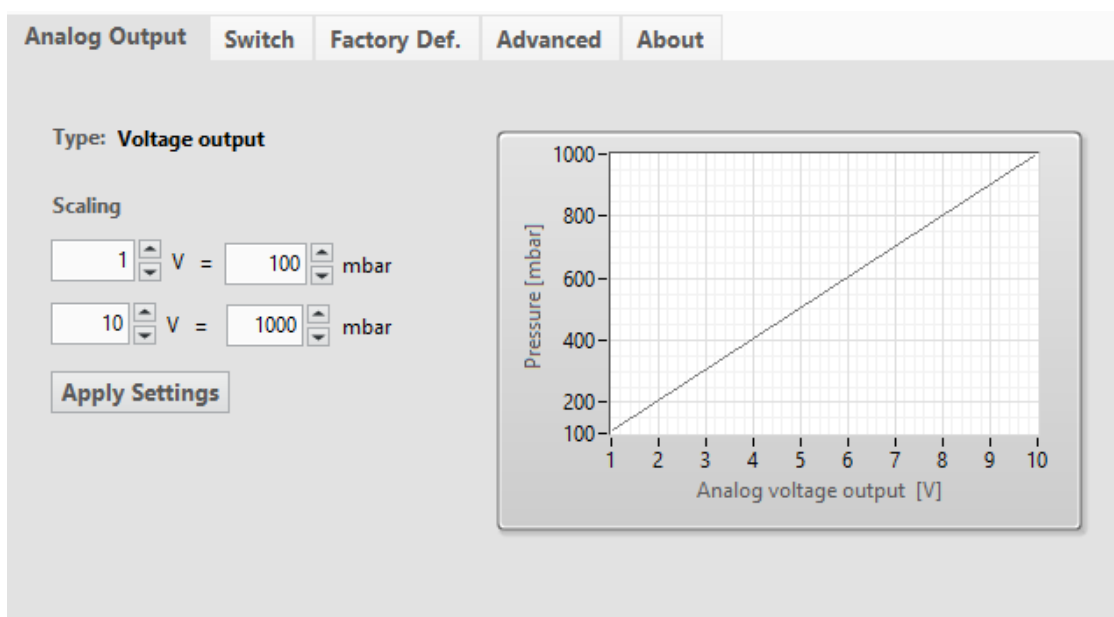
The transmitter can be delivered with a custom configuration to match specific application requirements. Examples of pre-configured options include measurement range, pressure unit, setpoint configuration and output signal scaling. Customized products will be assigned a unique part number for easy and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

Process control

The optional setpoint can be either used for control 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.

Analog and digital options

The PCM-1 is available with analog 4-20 mA current output and 0-10 VDC voltage output. The analog output can be user scaled and configured using the S4-Connect™ interface.



Multivariable transmitter

The PCM-1 has a precision temperature sensor build-in that can be monitored using the S4-Connect™ interface and software. The temperature sensor can also be used to control the solid-state relay when the transmitter temperature exceeds a user programmed setpoint temperature value.

Technical data

Specifications

Measuring range (0 bar to full-scale)	1, 1.6, 2, 2.5, 4, 5, 6, 10, 20 or 50 bar
Measuring range (0 psi to full-scale)	15, 20, 30, 50, 100, 200, 250 or 500 psi
Measuring principle	Ceramic membrane absolute or gauge
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 nV
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 +125 °C
Storage ambient temperature	-40 to +125 °C
Maximum media pressure	Refer to pressure limit table
Burst media pressure	Refer to pressure limit 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)	Ceramic Al ₂ O ₃ 96%
Sealing (media wetted)	FKM (Viton®)
Process leak tightness (ISO 27895:2009)	<1·10 ⁻⁹ mbar·l/sec.

Approvals

CE	EN61000-6-2, EN 61000-6-3 Pressure directive 97/23/CE
RoHS compliance	Directive EU 2015/863

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

- (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

Specifications are subject to change without further notice

Pressure limits table

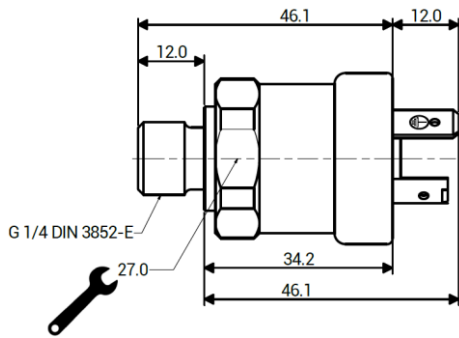
Full-scale	Sensor Type	Minimum Pressure	Maximum Pressure ⁽⁴⁾	Burst Pressure ⁽⁵⁾
1 bar	Absolute	N/A	2 bar absolute	3 bar absolute
1.6 bar	Absolute	N/A	4 bar absolute	6 bar absolute
2 bar	Absolute	N/A	4 bar absolute	6 bar absolute
2.5 bar	Absolute	N/A	4 bar absolute	6 bar absolute
4 bar	Absolute	N/A	10 bar absolute	12 bar absolute
5 bar	Absolute	N/A	10 bar absolute	12 bar absolute
6 bar	Absolute	N/A	10 bar absolute	12 bar absolute
10 bar	Absolute	N/A	15 bar absolute	20 bar absolute
16 bar	Absolute	N/A	35 bar absolute	50 bar absolute
20 bar	Absolute	N/A	35 bar absolute	50 bar absolute
40 bar	Absolute	N/A	100 bar absolute	120 bar absolute
50 bar	Absolute	N/A	100 bar absolute	120 bar absolute
15 psi	Absolute	N/A	29 psi absolute	43 psi absolute
20 psi	Absolute	N/A	58 psi absolute	87 psi absolute
30 psi	Absolute	N/A	58 psi absolute	87 psi absolute
50 psi	Absolute	N/A	145 psi absolute	174 psi absolute
100 psi	Absolute	N/A	217 psi absolute	290 psi absolute
200 psi	Absolute	N/A	500 psi absolute	725 psi absolute
250 psi	Absolute	N/A	500 psi absolute	725 psi absolute
500 psi	Absolute	N/A	1,400 psi absolute	1,700 psi absolute
1 bar	Gauge	- 0.5 bar gauge	2 bar gauge	3 bar gauge
1.6 bar	Gauge	- 0.5 bar gauge	4 bar gauge	6 bar gauge
2 bar	Gauge	- 0.5 bar gauge	4 bar gauge	6 bar gauge
2.5 bar	Gauge	- 0.5 bar gauge	4 bar gauge	6 bar gauge
4 bar	Gauge	- 1 bar gauge	10 bar gauge	12 bar gauge
5 bar	Gauge	- 1 bar gauge	10 bar gauge	12 bar gauge
6 bar	Gauge	- 1 bar gauge	10 bar gauge	12 bar gauge
10 bar	Gauge	- 1 bar gauge	15 bar gauge	20 bar gauge
16 bar	Gauge	- 1 bar gauge	35 bar gauge	50 bar gauge
20 bar	Gauge	- 1 bar gauge	35 bar gauge	50 bar gauge
40 bar	Gauge	- 1 bar gauge	100 bar gauge	120 bar gauge
50 bar	Gauge	- 1 bar gauge	100 bar gauge	120 bar gauge
15 psi	Gauge	- 7.25 psi gauge	29 psi gauge	43 psi gauge
20 psi	Gauge	- 7.25 psi gauge	58 psi gauge	87 psi gauge
30 psi	Gauge	- 7.25 psi gauge	58 psi gauge	87 psi gauge
50 psi	Gauge	- 15 psi gauge	145 psi gauge	174 psi gauge
100 psi	Gauge	- 15 psi gauge	217 psi gauge	290 psi gauge
200 psi	Gauge	- 15 psi gauge	500 psi gauge	725 psi gauge
250 psi	Gauge	- 15 psi gauge	500 psi gauge	725 psi gauge
500 psi	Gauge	- 15 psi gauge	1,400 psi gauge	1,700 psi gauge

(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.

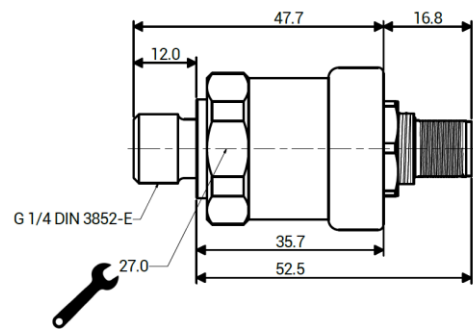
(5) The burst pressure is the maximum allowed pressure that can be exposed to the pressure port without rupture of the sensor diaphragm or transmitter structure. Ensure that the pressure media never exceeds the burst pressure.

Dimensions

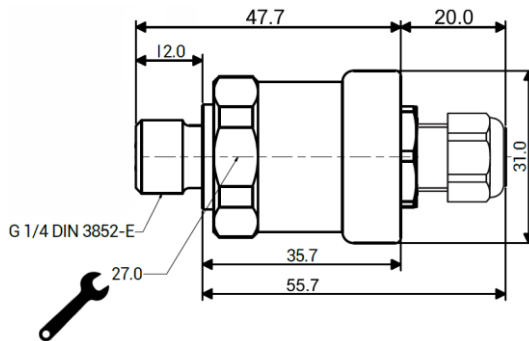
All dimensions in mm.



3 pin + PE DIN EN 175301-803 A



4 pin M12 connector IEC 61076-2-101



With fixed cable and flying leads

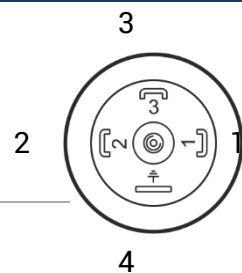
All dimensions are in mm unless otherwise stated – General tolerance ISO 2768-1 M

Connector pinout

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 ⁽⁶⁾
4	Shield
Chassis	Shield

(6) 3 wire version voltage output / 2 wire version not connected

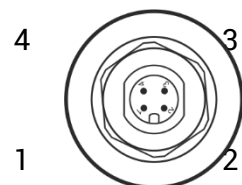


4 pin M12, IEC 61076-2-101

1	Positive supply voltage (V+)
2	Solid state relay out or not connected ⁽⁷⁾
3	Supply voltage return (GND)
4	Signal output (S+) or not connected ⁽⁸⁾
Chassis	Shield

(7) Optional solid-state relay

(8) 3 wire version voltage output / 2 wire version not connected



Order guide:

PCM-1-		1	0	7	2	1	2	1	1
Process connection									
DIN 3852-E, G $\frac{1}{4}$ " A		1							
DIN 3852-E, G $\frac{1}{2}$ " A		2							
ANSI B1.20.1, $\frac{1}{4}$ " NPT		3							
ANSI B1.20.1, $\frac{1}{2}$ " NPT		4							
EN 837, G $\frac{1}{4}$ " B		5							
EN 837, G $\frac{1}{2}$ " B		6							
SAE J514E, 7/16"-20 UNF BOSS		7							
Range									
0 ... 1 bar		0	1						
0 ... 1.6 bar		0	2						
0 ... 2 bar		0	3						
0 ... 2.5 bar		0	4						
0 ... 4 bar		0	5						
0 ... 6 bar		0	6						
0 ... 10 bar		0	7						
0 ... 16 bar		0	8						
0 ... 20 bar		0	9						
0 ... 40 bar		1	0						
0 ... 50 bar		1	1						
0 ... 15 psi		1	2						
0 ... 20 psi		1	3						
0 ... 30 psi		1	4						
0 ... 50 psi		1	5						
0 ... 100 psi		1	6						
0 ... 200 psi		1	7						
0 ... 250 psi		1	8						
0 ... 500 psi		1	9						
0 ... 250 psi		1	8						
Connection									
1									M12 x 1, 4 pin
2									DIN175301-803 Form A
3									Cable 1 meter (3.3 feet)
4									Cable 3 meter (9.9 feet)
5									Cable 5 meter (16.4 feet)
Setpoints									
0									None
1									On/Off Solid State Relay
Digital interface									
1									S4-Connect
Analog Output									
1									0-10 VDC
2									0-5 VDC
3									1-10 VDC
4									4-20 mA
5									1-5 VDC
6									1-6 VDC
7									0.5-4.5 VDC
Sensor type									
1									Gauge sensor
2									Absolute sensor

Other configurations

Please contact Sens4 for inquiries on configurations not listed above:

Email: sales@sens4.com or phone: +45 88447044

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 with M12 connector	PRG-S4-M12-01
S4-Connect programmer USB with DIN connector	PRG-S4-DIN-01



We offer more than standard products

Sens4 offers customization of measurement products and solutions. We have invented a modular product concept that enables us to customize the product functions, features and appearance.

Through our private branding program, we also offer supply of transmitters with logo and product name according to customer specifications.

Contact the Sens4 team to inquire on customized pressure, vacuum and temperature measurement solutions: Email: sales@sens4.com or phone: +45 88447044

About Sens4

Sens4 develops, manufactures, markets and distributes temperature, vacuum and pressure measuring equipment for industrial and scientific 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™

