

Pressure sensor with ceramic and metal sensors

# Cerabar PMC11 / PMP11



- High reproducibility and long-term stability
- Customized measuring ranges
- Flush-mounted process connection as option

**i Specs at a glance:**

- **Media:**  
Gases, vapors, liquids and dust
- **Output:**  
4 to 20 mA, 0 to 10 V
- **Process temperature:**  
-25 to +85 °C (-13 to +185 °F)
- **Measuring ranges:**  
From -400 to +400 mbar (-6 to +6 psi) to -1 to +40 bar (-15 to +600 psi)
- **Reference accuracy:**  
±0.5 %

**Application** The Cerabar is a pressure sensor for the measurement of gauge pressure in gases, vapors, liquids and dust. The Cerabar can be used in versatile applications thanks to a wide range of process connections.

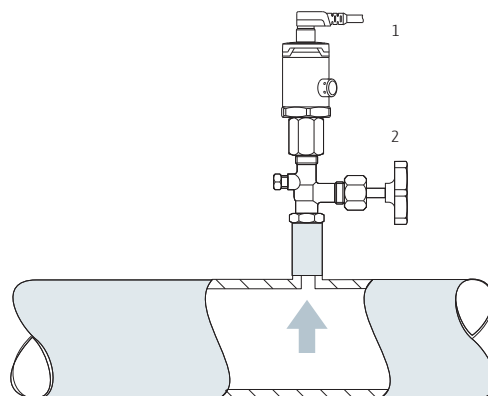
**Function**

**Ceramic process isolating diaphragm:** The ceramic sensor is an oil-free sensor, i.e. the process pressure acts directly on the robust ceramic process isolating diaphragm and causes it to deflect. A pressure-dependent change in capacitance is measured at the electrodes of the ceramic substrate and the process isolating diaphragm.

**Metallic process isolating diaphragm:** The process pressure deflects the metal process isolating diaphragm of the sensor and a fill fluid transfers the pressure to a Wheatstone bridge (semiconductor technology). The pressure-dependent change in the bridge output voltage is measured and evaluated.

Complete product information: [www.e-direct.endress.com/pm11](http://www.e-direct.endress.com/pm11)

**Application example**



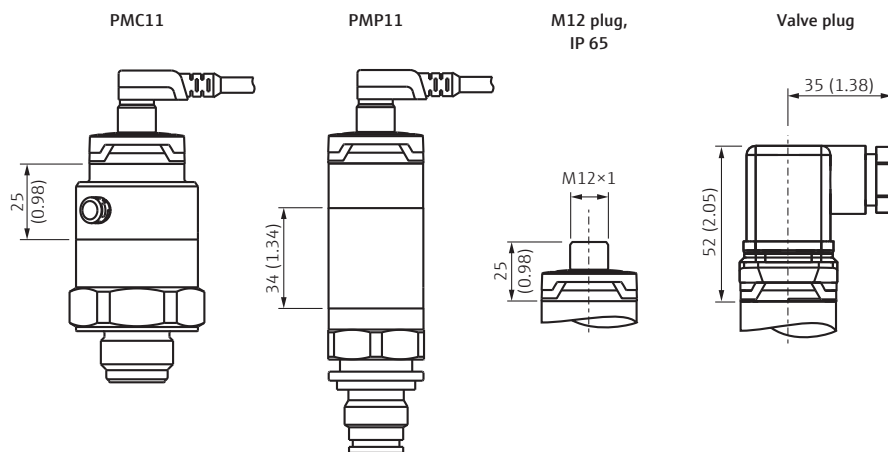
Pressure sensor Cerabar (1) with the shutoff device (2) in pipelines

**Technical data**

Output		Environment	
Output signal	4 to 20 mA (two-wire); 0 to 10 V (three-wire)	Ambient temperature range	-40 to +70 °C (-40 to +158 °F)
Signal range 4 to 20 mA	3.8 to 20.5 mA	Storage temperature range	-40 to +85 °C (-40 to +185 °F)
Load 4 to 20 mA	$R_{Lmax} \leq (U_B - 6.5 V) / 22 mA^{1)}$	Climate class	Class 3K5
Load resistance (for 0 to 10 V devices)	The load resistance must be $\geq 5 [k\Omega]$	Electromagnetic compatibility	- Interference emission as per EN 61326 equipment B - Interference immunity as per EN 61326 appendix A (industrial sector) - NAMUR recommendation EMC (NE21)
Signal on alarm 4 to 20 mA	max. alarm $>21 mA$	Process	
Dynamic behavior	Time constant ( $T_{90}$ ) 15 ms	Process temperature range	-25 to +85 °C (-13 to +185 °F)
<sup>1)</sup> $R_{Lmax}$ : maximum load resistance; $U_B$ : supply voltage		Materials PMC11	
Power supply		Materials not in contact with process	Housing: Stainless steel 316L (1.4404)
Supply voltage	4 to 20 mA output: 10 to 30 V DC; 0 to 10 V output: 12 to 30 V DC	Materials in contact with process	Process connections: 316L (1.4435); Ceramic process isolating diaphragm: $Al_2O_3$ in accordance with FDA; TSE Certificate of Suitability for all device components in contact with the process; Seal: Viton FKM or EPDM
Current consumption	two-wire: $\leq 26 mA$ ; three-wire: $<12 mA$	Materials PMP11	
Degree of protection	IP65 NEMA Type 4X enclosure	Materials not in contact with process	Housing: Stainless steel 316L (1.4404); Filling oil: NSF-H1 synthetic oil in accordance with FDA 21 CFR 178.3570
Influence of power supply	$\leq 0.005 \%$ for URL/1 V	Materials in contact with process	Process connections: 316L; Metallic process isolating diaphragm: AISI 316L (1.4435); TSE Certificate of Suitability for all device components in contact with the process; With flush-mounted process isolating diaphragm: Seal: Viton FKM
Residual ripple	$\pm 5 \%$	Approvals	
Performance characteristics		Pressure Equipment Directive	
Reference accuracy	$\pm 0.5 \%$		
Thermal change of the zerooutput and the output span	$<1 bar (15 psi): <1 \%$ ; $\geq 1 bar (15 psi): <0.8 \%$		
Long-term stability	1 year: $\pm 0.2 \%$ ; 5 years: $\pm 0.4 \%$ ; 8 years: $\pm 0.45 \%$		
Switch-on time	$\leq 2 s$		

**Dimensions in mm (inches)**

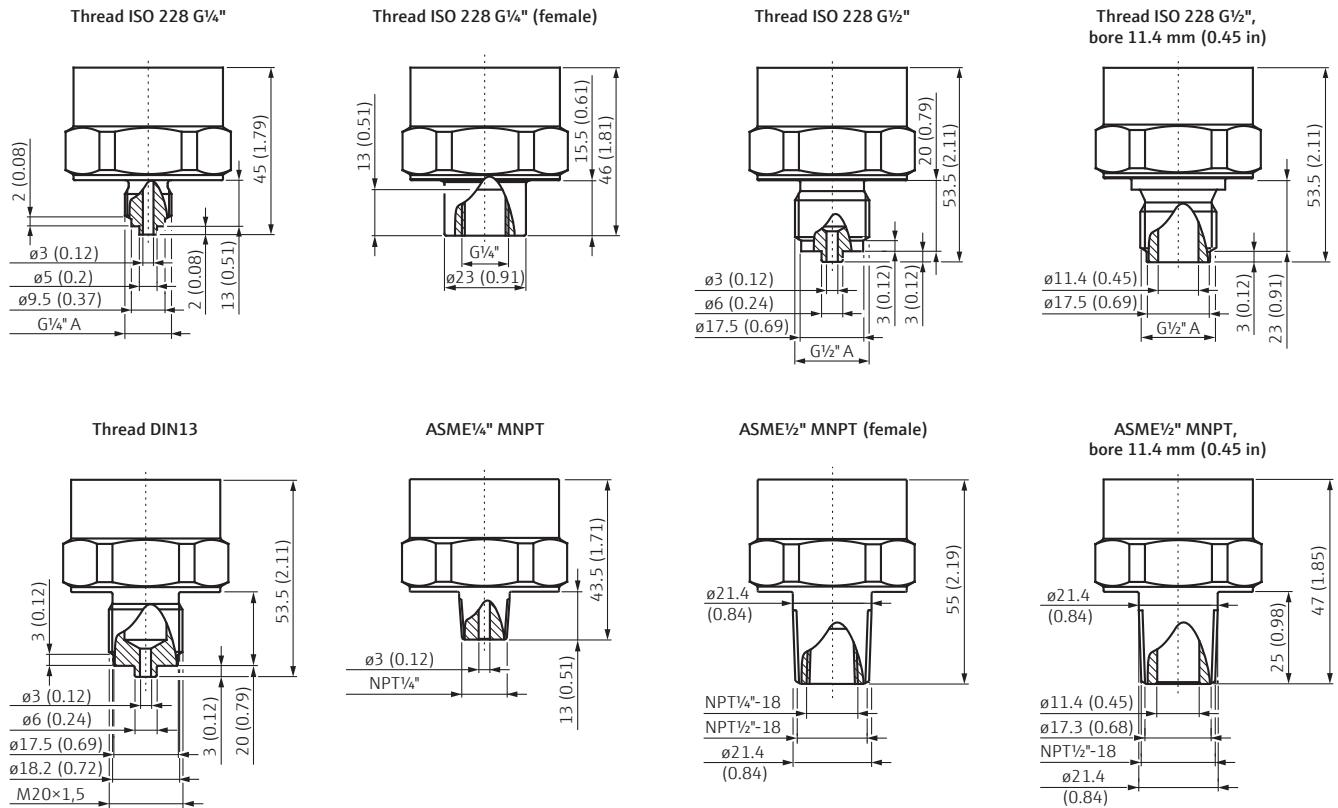
**Housing**



Installation according to instruction manual.

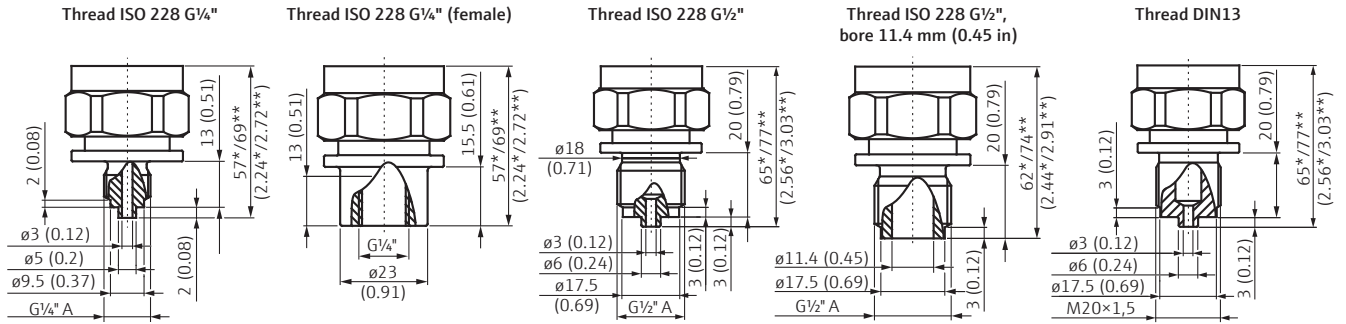
Dimensions process connections PMC11 in mm (inches)

Process connections with internal, ceramic process isolating diaphragm

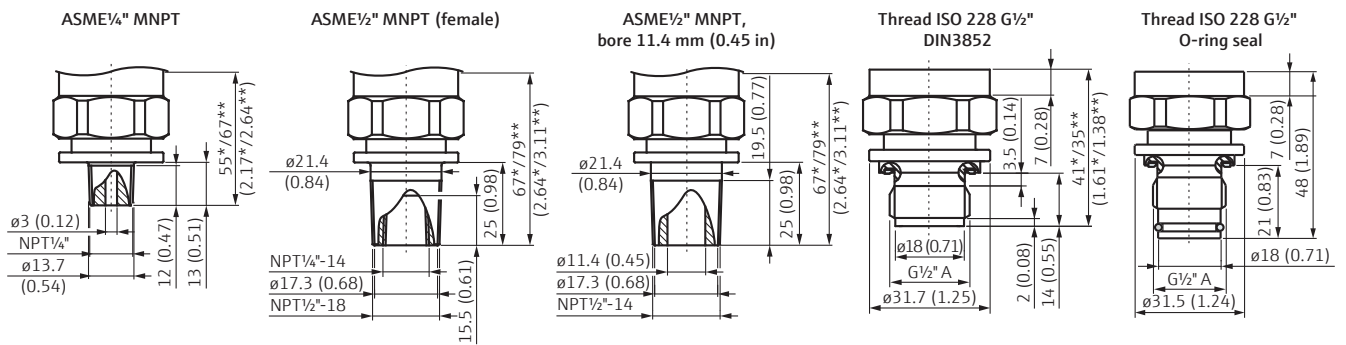


**Dimensions process connections PMP11 in mm (inches)**

**Process connections with internal, metallic process isolating diaphragm**



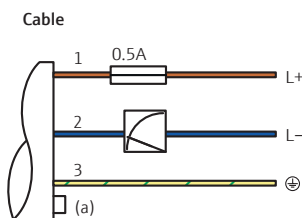
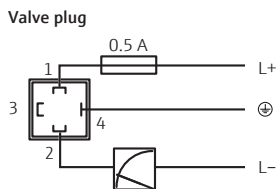
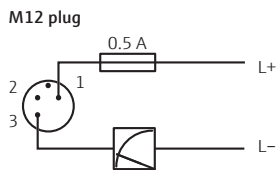
**Process connections with flush-mounted, metallic process isolating diaphragm**



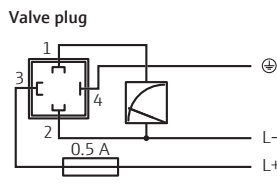
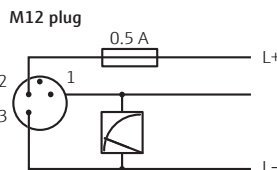
\* to 100 bar (1500 psi) / \*\* 400 bar (6000 psi)

**Electrical connection**

**4 to 20 mA output**



**0 to 10 V output**



Cable:  
 1: brown = L+  
 2: blue = L-  
 3: green/yellow = ground connection  
 (a): reference air hose

Price table

Electrical connection

Code	Plug
L	Plug M12
U	Valve plug M16
V	Valve plug NPT½"

Sensor range

Code	Range (relative)
1F	400 mbar/40 kPa/6 psi, overload: 1.6 bar/160 kPa/24 psi
1H	1 bar/100 kPa/15 psi, overload: 4 bar/400 kPa/60 psi
1K	2 bar/200 kPa/30 psi, overload: 10 bar/1 MPa/150 psi
1M	4 bar/400 kPa/60 psi, overload: 16 bar/1.6 MPa/240 psi
1N	6 bar/600 kPa/90 psi, overload: 24 bar/2.4 MPa/360 psi
1P	10 bar/1 MPa/150 psi, overload: 40 bar/4 MPa/600 psi
1Q	16 bar/1.6 MPa/240 psi, overload: 64 bar/6.4 MPa/960 psi
1R	25 bar/2.5 MPa/375 psi, overload: 100 bar/10 MPa/1500 psi
1S	40 bar/4 MPa/600 psi, overload: 160 bar/16 MPa/2400 psi

Calibration, unit

Code	Version
B	Sensor range; mbar/bar/psi
J	Customized; please specify measuring range in your order

Seal

Code	Version
A	FKM
J	EPDM

Cerabar PMC11

Output	Process connection	Order no.	Price/pcs. in €		
			1 to 3	4 to 10	11 to 35
4 to 20 mA	Thread ISO228 G½" (internal)	PMC11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WAJ <input type="checkbox"/>	176.-	158.-	144.-
	Thread ISO228 G½" EN837	PMC11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WBJ <input type="checkbox"/>	176.-	158.-	144.-
	Thread ISO228 G½" EN837	PMC11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WTJ <input type="checkbox"/>	176.-	158.-	144.-
	Thread ISO228 G½", bore 11.4 mm (0.45 in)	PMC11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WWJ <input type="checkbox"/>	176.-	158.-	144.-
0 to 10 V	Thread ISO228 G½" (internal)	PMC11-AA2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WAJ <input type="checkbox"/>	176.-	158.-	144.-
	Thread ISO228 G½" EN837	PMC11-AA2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WBJ <input type="checkbox"/>	176.-	158.-	144.-
	Thread ISO228 G½" EN837	PMC11-AA2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WTJ <input type="checkbox"/>	176.-	158.-	144.-
	Thread ISO228 G½", bore 11.4 mm (0.45 in)	PMC11-AA2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WWJ <input type="checkbox"/>	176.-	158.-	144.-

\* Please add code for electrical connection, sensor range, calibration and seal.

Accessories

	Order no.	Price/pcs. in €		
Weld-in adapter G½, 316L	52002643		53.02	
Weld-in adapter G1, 316L	52010171		125.30	
Straight plug, without cable (self wired)	52006263		15.55	
5 m cable with M12×1 plug	52010285		7.25	
M12×1 plug angled	71114212		25.41	
Display PHX20 for Cerabar with analog output	52022914	144.-	134.-	127.-

### Electrical connection

Code	Plug
L	Plug M12
U	Valve plug M16
V	Valve plug NPT½"

### Sensor range

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1F	400 mbar/40 kPa/6 psi, overload: 1.6 bar/160 kPa/24 psi
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### Calibration, unit

Code	Version
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### Cerabar PMP11

Output	Process connection	Order no.	Price/pcs. in €		
			1 to 3	4 to 10	11 to 35
4 to 20 mA	Thread ISO228 G¼" (internal)	PMP11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WAJ	173.-	155.-	142.-
	Thread ISO228 G½" EN837	PMP11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WBJ	173.-	155.-	142.-
	Thread ISO228 G½", flush-mounted	PMP11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WJJ	173.-	155.-	142.-
	Thread ISO228 G¼" EN837	PMP11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WTJ	173.-	155.-	142.-
	Thread ISO228 G½", bore 11.4 mm (0.45 in)	PMP11-AA1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WWJ	173.-	155.-	142.-
0 to 10 V	Thread ISO228 G¼" (internal)	PMP11-AA2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WAJ	173.-	155.-	142.-
	Thread ISO228 G½" EN837	PMP11-AA2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WBJ	173.-	155.-	142.-
	Thread ISO228 G½", flush-mounted	PMP11-AA2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WJJ	173.-	155.-	142.-
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Display PHX20 for Cerabar with analog output	52022914	144.-	134.-	127.-

Prices are applicable for Estonia until 30/06/2020, in euro per unit, net excluding value added tax (VAT), cost of packing and dispatch. Endress+Hauser retains the right to change or modify pricing at any time. The terms of sales and delivery of Endress+Hauser are applicable. Current prices and delivery times can be verified prior to ordering on [www.e-direct.endress.com](http://www.e-direct.endress.com).



Complete product information:  
[www.e-direct.endress.com/pmx11](http://www.e-direct.endress.com/pmx11)

More products to complete your measuring point ...



Capacitive probe  
Liquicap T FMI21



Temperature sensor  
iTHERM ModuLine TM101



Process transmitter  
RMA42