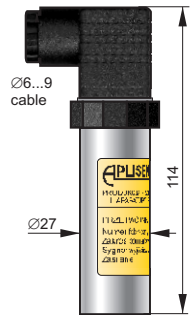
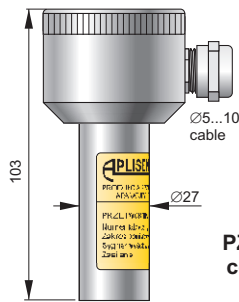


# PRESSURE TRANSMITTER PCE-28

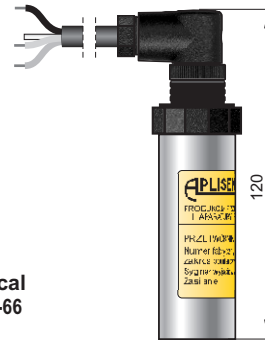
- ✓ Any range from 0...10 mbar up to 0...1000 bar
- ✓ 4 ÷ 20 mA two-wire or 0 ÷ 10 V output
- ✓ ATEX Intrinsic safety ( Gas, Dust) and IECEx certificate
- ✓ Low-voltage version with ATEX certificate (model PC-29A, PC-29B)
- ✓ Marine certificate DNV
- ✓ Communication protocol Modbus RTU
- ✓ Gold plated diaphragm
- ✓ SIL 1 – version available from second half of the year **NEW**



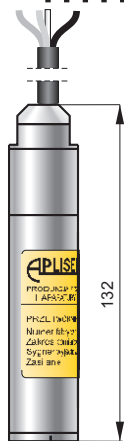
**PD type electrical connection, IP-65**  
Connector DIN 43650



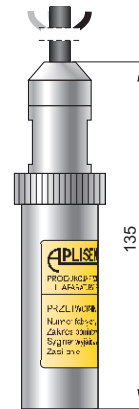
**PZ type electrical connection, IP-66**



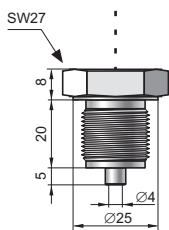
**PM12 type electrical connection, IP-67**



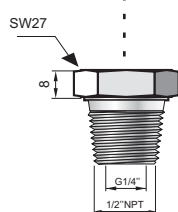
**SG type electrical connection, IP-68**  
Length of cable: according client' specification.



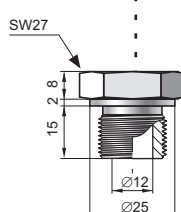
**PCE-28 transmitter with PK type electrical connection**  
Degree of protection IP-67



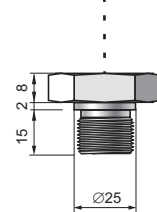
**G1/2 type M type**  
G1/2", Ø4 hole  
M20×1.5, Ø4 hole



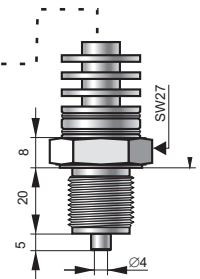
**1/2"NPT type**  
1/2"NPT male + internal thread G1/4"



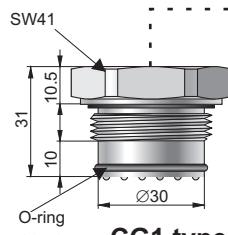
**G1/2 type P type**  
G1/2", Ø12 hole  
M20×1.5, Ø12 hole



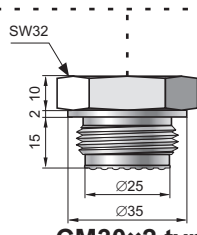
**G1/4"**  
Wetted parts materials:  
**316Lss**  
Min range: 10mbar  
Max range: 350bar



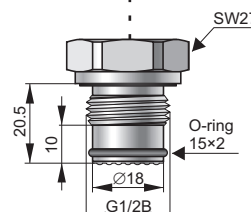
**RG type G1/2" with radiator**  
**RM type M20×1.5 with radiator**  
Wetted parts materials: **316Lss**  
max. temperature up to 170°C,  
Min. range 160 mbar  
Max. range 40 bar



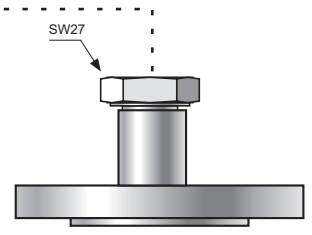
**CG1 type**  
G1" with flush diaphragm



**CM30×2 type**  
M30×2 with flush diaphragm



**CG1/2 type**  
G1/2" with flush diaphragm  
Wetted parts materials: **316Lss**



**Version with direct or remount mount diaphragm seal.**  
Diaphragm seal data -see chapter III

## Application and construction

The PCE-28 pressure transmitter is applicable to the measurement of the pressure, underpressure and absolute pressure of gases, vapours and liquids. The active sensing element is a piezoresistant silicon sensor separated from the medium by a diaphragm and by specially selected type of manometric liquid. The electronics is placed in a casing with a degree of protection IP 65 or IP 68, depending on the type of electrical connection applied.

## Calibration

Potentiometers can be used to shift the zero position and the range by up to ±10%, without altering the settings.

## Installation

The transmitter is not heavy, so it can be installed directly on the installation. When the pressure of steam or other hot media is measured, a siphon or impulse line should be used. The needle valve placed upstream the transmitter simplifies installation process and enables the zero point adjustment or the transmitter replacement.

When the special process connections are required for the measurement of levels and pressures (e.g. at food and chemical industries), the transmitter is provided with an Aplisens diaphragm seal. Installing accessories and a full scope of diaphragm seals are described in detail in the further part of the catalogue.

## Measurements under explosion hazard

ATEX Intrinsic safety version is available for taking measurements in zones under explosion hazard.

The installation of the transmitter in a zone under explosion hazard requires the use of a EEx power supply.

We recommend the use of the Aplisens ZS-30EEx1, ZS-31EEx1 power supply and separator.

II 1/2G Ga/Gb Ex ia IIC T4/T5/T6  
I M1 Ex ia I  
II 1DEX ia D20 T105C  
**IECEX** Ex ia IIC T4...T6, Ga/Gb  
Ex ia Ima

## Technical data

### Any measuring range

0... 10 mbar ÷ 0...1000 bar (over pressure, under pressure); 400 mbar ÷ 80 bar (absolute pressure)

	Measuring Range		
	100 mbar	400 mbar	0...1 bar ÷ 1000 bar
Overpressure Limit (repeated, without hysteresis)	1 bar	2.5 bar	4 x range max 1200 bar
Damaging Overpressure	2 bar	5 bar	8 x range, max 2000 bar
Accuracy	0.3%	0.2% (0,16% – special version)	
Long term stability	0.2% / year	0.1% / year	
Thermal error	Typically 0.3% / 10°C max 0.4% / 10°C		Typically 0.2% / 10°C max 0.3% / 10°C

### Hysteresis, repeatability

0.05%

### Thermal compensation range

-10 + 80°C

### Operating temperature range (ambient temp.)

-40 + 80°C

### Medium temperature range

-40 + 120°C - direct measurement

over 120°C - measurement with the use of impulse line, radiator or diaphragm seal.

CAUTION: the medium must not be allowed to freeze in the impulse line or close to the pipe stub of the transmitter.

### Output signal

4 + 20 mA, two wire transmission  
0+10V

**Power supply** 10.5 + 36VDC (EEx 12...28V)  
15...30VDC (output 0...10V)

### Material of the wetted parts

(316Lss), Hastelloy C276, Au

**Error due to supply voltage changes** 0.005%/ V

### Material of the casing

0H18N9 (304ss)

**Load resistance R [Ω] ≤**  $\frac{U_{sup} [V] - 10.5V}{0.02A}$

## Pressure transmitter PCE-28/Modbus

### Communication

Pressure transmitter with communication protocol Modbus RTU. The communication standard for data interchange with the transmitter is the Modbus RTU. Communication with the transmitter is carried out with PC using RS converter and Aplisens software.

### Technical data\*

#### Metrological parameters

**Accuracy** ≤ ±0,1%  
**Long-term stability** ≤ accuracy for 3 years (for nominal range)  
**Thermal error** < ±0,1% (FSO) / 10°C  
max ±0,4% (FSO) in the whole compensation range  
**Thermal compensation range.** -25...80°C  
**Additional electronic damping** 0...30 s

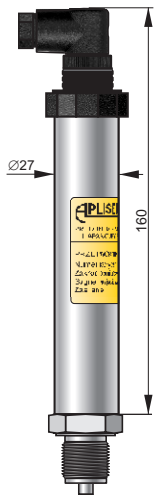
#### Please note:

- Version PCE-28/Modbus is not available with ATEX certificate.

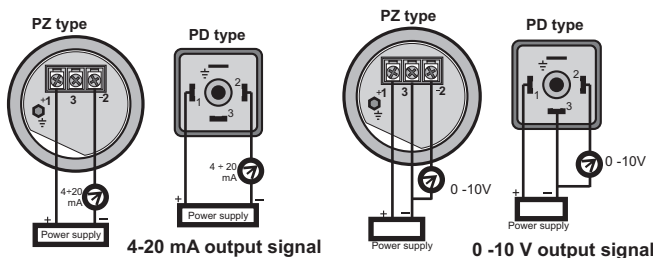
#### Electrical parameters

**Power supply** 6...28 V DC  
**Transmission range** 1200 m  
**Transmission protocol** MODBUS RTU  
**Address space** 1...247 devices address  
**Transmission speed** 600...115200 bps  
**Parity transmission** no parity, odd, even  
**frame transmission** 10...11 bitów (1, 2 bit-stop)

\* more information about electrical parameters available in user's manual.



### Electrical diagrams



	Function	PM12 connector
Power	GND	3
	+Vcc	4
Digital	RS-485A	2
	RS-485B	1

## Ordering Procedure

Model	Code	Description
<b>PCE-28</b>		Pressure transmitter.
Versions, certificates*  *) more than one option is available	/Exia.....	Ex II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb, I M1 Ex ia I Ma, II 1D Ex ia IIIC T105C (only for transmitters with 4..20mA out). Transmitter with output signal (0...2,5V /0...3,3V) and ATEX certificate is supplied as a model: <b>PC-29A/Exia :</b> II 1/2G Ex ia IIB T5 I M1 Ex ia I
	/MR.....	Marine certificate - DNV
	/Tlen.....	for oxygen service(sensor filled with Fluorolube fluid, only M,G1/2 pr. conn.)
	/H.....	version with high overload capacity and integrated circuit offering excess voltage protection
	/D.....	version with hydraulic gland for high-pressure hydraulic systems
	/PED.....	European Pressure Equipment Directive N° 97/23/EC, category IV (device is supplied as a PC-28)
	/0,16%.....	accuracy <0,16% (available for ranges ≥400mbar)
	/Modbus.....	Modbus communication protocol (version with ATEX not available)
	/SIL 1.....	SIL 1 certificate - available from second half of 2012
Measuring range	/.....÷..... [required units]	Measuring range in relation to 4mA and 20mA (or 0 and 10V) output. Units: bar, MPa, kPa, etc.
Analog output signal	⇒ (without marking)..... /0...10V..... /0-2,5V..... /0-3,3V..... /0-5V..... /0,5-4,5V.....	4...20mA (power supply 10,5÷36VDC) 0...10V DC (power supply 15÷36VDC) 0...2,5V DC (power supply: 3,3VDC) 0...3,3V DC (power supply: 4,5 VDC) 0...5V DC (power supply: 8-14,1VDC) 0,5...4,5V (power supply: 8-14,1VDC)
Casing, Electrical connection,	⇒ /PD..... /PZ..... /PZ/316..... /Pm12..... /PK..... (if other length of cable is required, please specify it /K=...[m]) /SG/K=__[m].....	Housing Ip65 with DIN43650 connector. 304SS housing, IP66, packing gland M20x1,5. 316SS housing, IP66, packing gland M20x1,5. Housing IP67 with thread M12x1 and connector 304SS housing, IP67, cable electrical connection, 3m of cable  Housing IP68, length of cable acc. Specification
Process connections	⇒ /M..... /M.(Au)..... /G1/2"..... /G1/2"(Au)..... /G1/4"..... /P..... /P (Hastelloy)..... /GP..... /GP (Hastelloy)..... /Cm30x2..... /CM30x2 (Hastelloy)..... /Cg1"..... /CG1/2"..... /1/2"NPT M..... /1/2"NPT F..... /code of diaphragm seal.....	Thread M20x1,5 (male) with Ø4hole, wetted parts SS316L Thread M20x1,5 (male) with Ø4hole, gold plated diaphragm [range>70bar] Thread G1/2" (male) with Ø4hole, wetted parts SS316L Thread G1/2" (male) with Ø4hole, gold plated diaphragm [range>70bar] Thread G1/4" (male), wetted parts SS316L Thread M20x1,5 (male) with Ø12hole, wetted parts SS316L Thread M20x1,5 (male) with Ø12hole, wetted parts Hastelloy C 276 Thread G1/2" (male) with Ø12hole, wetted parts SS316L Thread G1/2" (male) with Ø12hole, wetted parts Hastelloy C 276 Thread M30x2 with flush diaphragm, wetted parts SS316L (Pressure limits: min. 0,1bar / max. 70bar) Thread M30x2 with flush diaphragm, wetted parts Hastelloy C 276 (Pressure limits: min. 0,1bar / max. 70bar) Thread G1" with flush diaphragm, wetted parts SS316L (Pressure limits: min. 0,1bar / max. 70bar) Thread G1/2" with flush diaphragm, wetted parts SS316L (Pressure limits: min. 2,5bar / max. 600bar) Thread 1/2"NPT Male, wetted parts SS316L Thread M20x1,5 with adapter to 1/2"NPT Female, wetted parts SS316L  Diaphragm seal (see chapter of diaphragm seals)
Other specification	/.....	Description of required parameters (e.g. non-standard process connection G3/4" or M22x1.5)
The most typical specification is marked by "⇒" mark.		

**Example1:** Pressure transmitter, range 0 ÷ 1 bar absolute pressure, inverted output (20.4mA), housing PK with cable L=10m, process connection G 1/2"

**PCE-28/1 ÷ 0 bar ABS/PK/K=10m/G1/2**

**Example2:** Pressure transmitter PCE-28, range -1 ÷ 5 bar, communication protocol Modbus, housing PK with cable L=10m, process connection G1/2"

**PCE-28/Modbus/-1 ÷ 5bar/PK/K=10m/G1/2"**