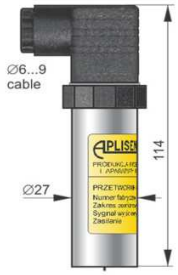
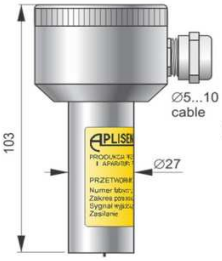
PANAM
Complete Solution for Instrumentation Piping System

PRESSURE TRANSMITTER PCE-28

- ✓ Any range from 0...25 mbar up to 0...1000 bar
- ✓ 4 ÷ 20 mA two-wire or 0 ÷ 10 V output
- ✓ Intrinsic safety certificate (ATEX, IECEx)
- ✓ Low-voltage version with ATEX and IECEc certificate (model PC-29A, PC-29B)
- ✓ Marine certificate – DNV, BV
- ✓ Communication protocol Modbus RTU
- ✓ Gold plated diaphragm
- ✓ SIL 1 certificate
- ✓ Version with local display NEW



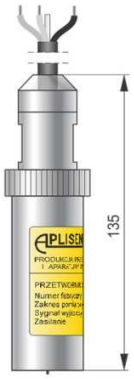
PD type
PD316 type
IP65



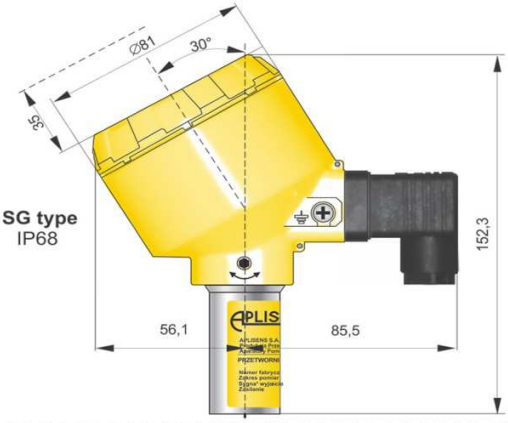
PZ type
PZ316 type
IP66

PM12 type
IP67

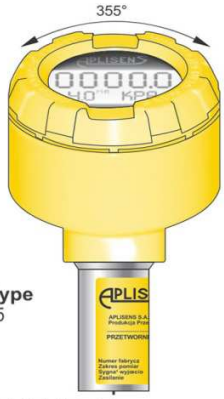
PKD type
IP67



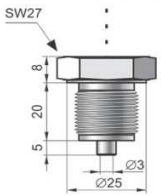
PK type
IP66/67



SG type
IP68

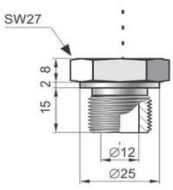


ALW type
IP65

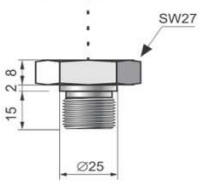


G1/2 type
G1/2″, ∅3 hole
M type
M20×1.5, ∅3 hole

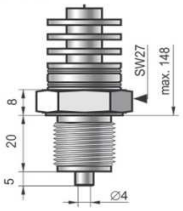
1/2"NPT type
1/2"NPT male +
internal thread G1/4"



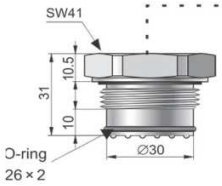
GP type
G1/2″, ∅12 hole
P type
M20×1.5, ∅12 hole



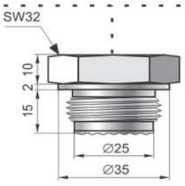
G1/4" type



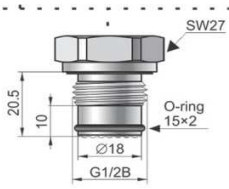
RG type
G1/2″ with radiator
RM type
M20×1.5 with radiator



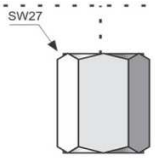
CG1 type
G1″ with flush
Diaphragm



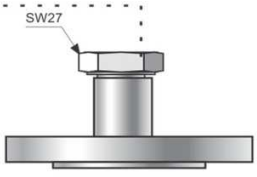
CM30×2 type
M30×2 with flush
Diaphragm



CG1/2 type
G1/2″ with
flush diaphragm



1/2"NPT F type
internal thread 1/2-14NPT



Version with direct or remote diaphragm seal.
Diaphragm seal data -
see chapter III

APLISENS

ALW type

Aluminum casing with programable local display. The design of the casing enables the use of a local display, rotation of the display, rotation of the casing by 0–345° relative to the sensor. Electrical connection DIN43650, IP65 (special verison with cable electrical connection and IP67).

Display with backlight allows to read:
- measured pressure in user units or % of measuring range
- current in output loop in mA

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 from IP 65 to 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 Ex power supply.
We recommend the use of the Aplisens ZS-30Ex1, ZS-31Ex1 power supply and separator.

I M1 Ex ia I Ma
II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb
II 1D Ex ia IIIC T110°C Da

IECEx Ex ia I Ma
Ex ia IIC T4/T5/T6 Ga/Gb
Ex ia IIIC T110°C Da

Technical data

Any measuring range 0...25 mbar ÷ 0...1000 bar (over pressure, under pressure); 400 mbar ÷ 80 bar (absolute pressure)
Measurement of lower pressure ranges, possible using transmitter PRE-50G with GP process connection.

	Measuring range		
	100 mbar	400 mbar	0…1 bar ÷ 1000bar
Overpressure Limit (repeated, without hysteresis)	1 bar	2,5 bar	4 x range; max. 1200 bar
Damaging Overpressure	2 bar	2,5 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%
Response time < 120 ms
version TR: < 30 ms
Thermal compensation range -10...80°C
Operating temperature range (ambient temp.) -40...80°C
Medium temperature range -40...130°C

over 130°C – measurement with use an impulse line or diaphragm seals

CAUTION: the medium must not be allowed to freeze in the impulse line or close to the process connection of the transmitter

Output signal 4...20 mA, two wire transmission
0..10V
Material of wetted parts 316Lss, Hastelloy C 276, Au
Material of casing 304ss, 316Lss
Power supply
output 4..20mA
8…36 V DC (Ex 9...28 V DC)
version **TR,** version Safety: 10,5…36 V DC (Ex 12...28 V DC)
PCE-28/ALW: (11…36V DC)
output 0..10V
13…30 VDC
Error due to supply voltage changes 0,005%/ V
Load resistance $R[\Omega] \leq \frac{U_{sup}[V] - 8V}{0{,}022A}$

PCE-28/Modbus - Technical data*

Metrological parameters

Accuracy ≤ ±0,1%
Long-term stability (for nominal range) ≤ accuracy for 3 years
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...30s

Please note:
version PCE-28/Modbus is not available with ATEX certificate

Electrical parameters

Power supply 4,5…28 V DC
Transmission range 1200 m
Output MODBUS RTU + 4..20 mA
Address space 1…247 devices address
Transmission speed 600…115200 bps
Parity transmission no parity, odd, even
Frame transmission 10…11bits (1, 2 bit-stop)
** more information about electrical parameters available in user's manual*

Communication

Pressure transmitters 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.

Ordering procedure

Model	Code	Description
PCE-28		Pressure transmitter
Versions, certificates	/Exia	I M1 Ex ia I Ma II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb I 1D Ex ia IIIC T110°C Da Only for transmitters with 4…20mA output
	/Exia (IECEx)	Ex ia I Ma IECEx Ex ia IIC T4/T5/T6 Ga/Gb Ex ia IIIC T110°C Da Only for transmitters with 4…20mA output
		Transmitter with output signal (0...2,5V /0...3,3V) and ATEX certificate is supplied as a model: PC-29B/Exia II 1/2G Ex ia IIC T6/T5 Ga/Gb I M1 Ex ia I Ma IECEx Ex ia IIC T6/T5 Ga/Gb Ex ia I Ma
		Transmitter with output signal (0...5V /0,5...4,5V) and ATEX certificate is supplied as a model: PC-29A/Exia II 1/2G Ex ia IIB T6/ T5 Ga/Gb I M1 Ex ia I Ma IECEx Ex ia IIB T6/T5 Ga/Gb Ex ia I Ma
more than one option is available	/MR	Marine certificate – DNV, BV
	/Tlen	For oxygen service (sensor filled with Fluorolube fluid), only M and G1/2 connection
	/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
	/0,16%	Accuracy <0,16% (available for ranges >400mbar)
	/Modbus	Modbus communication protocol (not available with ATEX)
	/SIL 1	SIL 1 certificate; only 4..20mA output
	/TR	Response time <30ms; only 4..20mA output
Measuring range	/…÷… [required units]	Measuring range
Analogue output signal	*(without marking)*	4...20mA / power supply 8...36VDC (Ex 9…28VDC)
	/0÷10V	0...10VDC /power supply 13...30VDC
	/0÷2,5V	0...2,5VDC / power supply 3,3VDC
	/0÷3,3V	0...3,3VDC / power supply 4,5VDC
	/0÷5V	0...5VDC / power supply 8...14VDC
	/0,5÷4,5V	0,5...4,5VDC / power supply 8...14VDC
Casing, electrical connection	/PD	304SS housing, IP65, DIN43650 connector
	/PD316	316SS housing, IP65, DIN43650 connector
	/PZ	304SS housing, IP66, packing gland M20x1,5
	/PZ316	316SS housing, IP66, packing gland M20x1,5
	/PM12	Housing IP67 with thread M12x1 and connector (Exia version available from Q3/2015)
	/PK	304SS housing, IP66/67, cable electrical connection (3 m of cable in standard)
	/PKD	304SS housing, IP67, cable electrical connection (3 m of cable in standard) (Exia version available from Q3/2015)
	/SG	316LSS housing, IP68, cable electrical connection (3 m of cable in standard)
	/SGM	316LSS housing, IP68, cable electrical connection (3 m of cable in standard)
	/ALW	Aluminum housing, local display, IP65, DIN43650 connector; only 4..20mA output (Exia version available from Q3/2015)
Process connections	/M	Thread M20x1,5 (male) with Ø3 hole, wetted parts SS316L
	/M(Au)	Thread M20x1,5 (male) with Ø3 hole, gold plated diaphragm (range no. 1, 2, 3, 4)
	/G1/2	Thread G1/2" (male) with Ø3 hole, wetted parts SS316L
	/G1/2(Au)	Thread G1/2" (male) with Ø3 hole, gold plated diaphragm (range no. 1, 2, 3, 4)
	/G1/4	Thread G1/4" (male), wetted parts SS316L (Pressure limits: min. 10mbar / max. 400bar)
	/P	Thread M20x1,5 (male) with Ø12 hole, wetted parts SS316L
	/P(Hastelloy)	Thread M20x1,5 (male) with Ø12 hole, wetted parts Hastelloy C 276
	/GP	Thread G1/2" (male) with Ø12 hole, wetted parts SS316L
	/GP(Hastelloy)	Thread G1/2" (male) with Ø12 hole, wetted parts Hastelloy C 276 Pressure limits: min. 0,25bar max. 350bar
	/CM30x2	Thread M30x2 with flush diaphragm, wetted parts SS316L (Pressure limits: min. 0,1bar / max. 70bar)
	/CM30x2(Hastelloy)	Thread M30x2 with flush diaphragm, wetted parts Hastelloy C 276 (Pressure limits: min. 0,1bar / max. 70bar)
	/CG1"	Thread G1" with flush diaphragm, wetted parts SS316L (Pressure limits: min. 0,1bar / max. 70bar)
	CG1"(Hastelloy)	Thread G1" with flush diaphragm, wetted parts Hastelloy C 276 (Pressure limits: min. 0,1bar / max. 70bar)
	/CG1/2"	Thread G1/2" with flush diaphragm, wetted parts SS316L (Pressure limits: min. 2,5bar / max. 300bar)
	/RM	Thread M20x1,5 with radiator, wetted parts SS316L (Pressure limits: min. 160mbar / max. 40bar, max. temperature up to 170°C)
	/RG	Thread G1/2" with radiator, wetted parts SS316L (Pressure limits: min. 160mbar / max. 40bar, max. temperature up to 170°C)
	/1/2"NPTM	Thread 1/2"NPT Male, wetted parts SS316L
	/1/2"NPTF	Thread M20x1,5 with adapter to 1/2"NPT Female, wetted parts SS316L
	/code of diaphragm seal	Diaphragm seal (see chapter of diaphragm seals)
Accessories	/MT	Stainless Steel Tag plate mounted on wire
Other specification	/	Description of required parameters (e.g. non-standard pr. connection G3/4", M22x1,5)

Example: Pressure transmitter , range 0÷ 1 bar absolute pressure, inverted output (20..4mA), housing PK with cable L=10m, process connection G1/2"

PCE-28/1÷0 bar ABS/PK/K=10m/G1/2