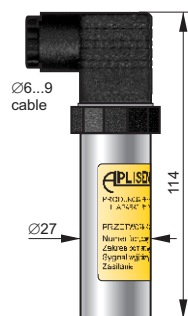


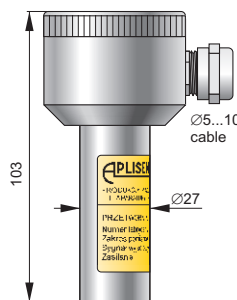
SMART PRESSURE TRANSMITTER PCE-28.SMART



- ✓ 4...20 mA output signal + HART protocol
- ✓ Intrinsic safety certificate (ATEX, IECEx)
- ✓ Accuracy 0.1%
- ✓ Marine certificate – DNV, BV



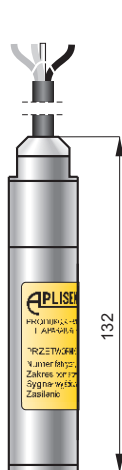
PD type
IP65



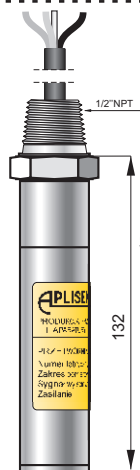
PZ type
PZ316 type
IP66



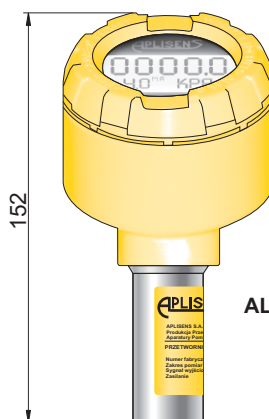
PM12 type
IP67 or IP65



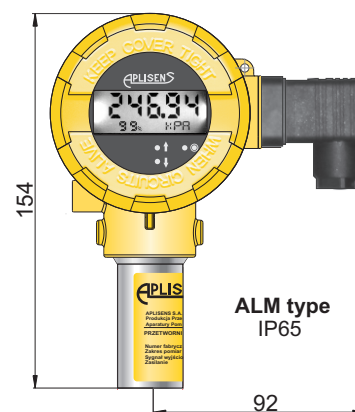
SG type
IP68



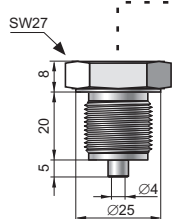
SGM type
IP68



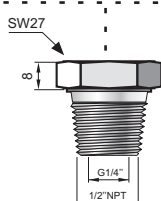
ALW type
IP65



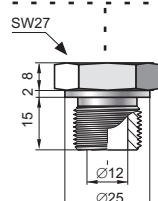
ALM type
IP65



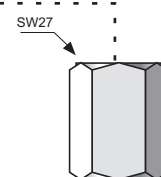
G1/2 type
G1/2", Ø4 hole
M type
M20×1.5, Ø4 hole



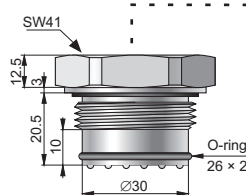
1/2" NPT type
1/2" NPT male +
internal thread G1/4"



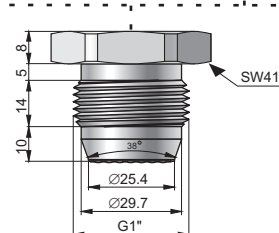
GP type
G1/2", Ø12 hole
P type
M20×1.5, Ø12 hole



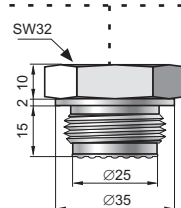
1/2" NPT F type
internal thread 1/2-14NPT
1/4" NPT F type
internal thread 1/4-18NPT



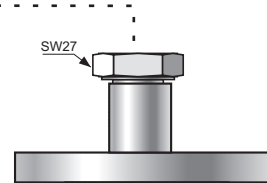
CG1 type
G1" with flush
diaphragm



CG1-S38 type
G1" with flush
diaphragm



CM30×2 type
M30×2 with flush
diaphragm



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

Application

PCE-28.SMART 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.

Communication

The communication standard for data interchange with the transmitter is the Hart protocol.

Communication with the transmitter is carried out with:

- a KAP-03, KAP-03Ex communicator
 - some other Hart type communicators, (*)
 - a PC using an HART/USB converter and Raport 2 configuration software.
- (*) .eddl files available on www.aplisens.com.

The data interchange with the transmitter enables users to:

- ♦ identify the transmitter
- ♦ configure the output parameters:
 - measurement units and the values of the start points and end points at the measurement range
 - damping time constant
 - conversion characteristic (inversion, user's non-linear characteristic)
- ♦ read the currently measured pressure value of the output current and the percentage output control level
- ♦ force an output current with a set value
- ♦ calibrate the transmitter in relation to a model pressure

Installation

The transmitter is not heavy, so it can be installed on the installation without additional mounting bracket. 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. The transmitter's electrical connections should be performed with twisted cable. The place for the communicator should be assigned before the communicator installation.

Measuring ranges

No.	Nominal measuring range (FSO)	Minimum set range	Rangeability	Overpressure limit (without hysteresis)***
1	0...1000 bar (0...100 MPa)	10 bar (1 MPa)	100:1	1200 bar (120 MPa)
2	0...600 bar (0...60 MPa)	6 bar (600 kPa)	100:1	1200 bar (120 MPa)
3	0...300 bar (0...30 MPa)	3 bar (300 kPa)	100:1	450 bar (45 MPa)
4	0...160 bar (0...16 MPa)	1,6 bar (160 kPa)	100:1	450 bar (45 MPa)
5	0...70 bar (0...7 MPa)	0,7 bar (70 kPa)	100:1	140 bar (14 MPa)
6	-1...70 bar (-0,1...7 MPa)	0,71 bar (71 kPa)	100:1	140 bar (14 MPa)
7	0...25 bar (0...2,5 MPa)	0,25 bar (25 kPa)	100:1	50 bar (5 MPa)
8	-1...25 bar (-0,1...2,5 MPa)	0,26 bar (26 kPa)	100:1	50 bar (5 MPa)
9	0...7 bar (0...0,7 MPa)	0,07 bar (7 kPa)	100:1	14 bar (1,4 MPa)
10	-1...7bar (-100...700 kPa)	0,07 bar (7 kPa)	114:1	14 bar (1,4 MPa)
11	-1...1,5bar (-100...150 kPa)	0,12 bar (12 kPa)	20:1	4 bar (400 kPa)
12	0...2 bar (0...200 kPa)	100 mbar (10 kPa)	20:1	4 bar (400 kPa)
13	0...1 bar (0...100 kPa)	50 mbar (5 kPa)	20:1	2 bar (200 kPa)
14	-0,5...0,5 bar (-50...50 kPa)	50 mbar (5 kPa)	20:1	2 bar (200 kPa)
15	0...0,25 bar (0...25 kPa)	25 mbar (2,5 kPa)	10:1	1 bar (100 kPa)
16	-100...100 mbar (-10...10 kPa)	20 mbar (2 kPa)	10:1	1 bar (100 kPa)
17	-15...70 mbar * (-1,5...7 kPa)	5 mbar (0,5 kPa)	17:1	0,5 bar (50 kPa)
18	0...1,3 bar abs (0...130 kPa abs)	100 mbar abs (10 kPa abs)	13:1	2 bar (200 kPa)
19	0...7 bar abs (0...0,7 MPa abs)	100 mbar abs (10 kPa abs)	70:1	14 bar (1,4 MPa)
20	0...25 bar abs (0...2,5 MPa abs)	0,25 bar abs (25 kPa abs)	100:1	50 bar (5 MPa)
21	0...70 bar abs (0...7 MPa abs)	0,7 bar abs (70 kPa abs)	100:1	140 bar (14 MPa)
22	0...300 bar abs (0...30 MPa abs)	3 bar abs (300 kPa abs)	100:1	450 bar (45 MPa)

* only for transmitters without diaphragm seal

Technical data

Metrological parameters

Accuracy	≤ ±0,1% of calibrated range
Long-term stability (for the basic range)	≤ accuracy for 3 years
Thermal error	< ±0,08% (FSO) / 10°C (0,1% for ranges no. 16, 17) max. ±0,25% (FSO) in the whole compensation range (0,4% for ranges 16, 17)
Thermal compensation range	-25...80°C -40...80°C – special version
Response time	16...230ms (programmable)
Additional electronic damping	0...30 s
Error due to supply voltage changes	0.002% (FSO) / V

Electrical parameters

Power supply	7,5...55 V DC (Ex 7,5...28 V) ALW and ALM version: 11...36 V DC
Output signal	4...20 mA, two wire transmission

Load resistance

$$R[\Omega] \leq \frac{U_{\text{sup}}[V] - 7,5V}{0,0225A}$$

Resistance required for communication

min. 240Ω

Materials

Wetted parts and diaphragms:	316Lss, Hastelloy C 276, Au
Casing:	304ss Optional: 316ss

Operating conditions

Operating temperature range (ambient temp.)	-40...85°C Ex version -40...80°C
Medium temperature range	-40...120°C
over 120°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	

Ordering procedure

Model	Code	Description
PCE-28.SMART		Smart pressure transmitter
Versions, certificates	/Exia.....	II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb II 1D Ex ia IIC T105°C Da I M1 Ex ia I Ma For PM12, PKD version: II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb IECEX Ex ia IIC T4/T5/T6 Ga/Gb
	/Exia (IECEX).....	Ex ia IIC T4/T5/T6 Ga/Gb Ex ia IIC T105°C Da Ex ia I Ma For ALW, ALM version: II 1/2G Ex ia IIC T4 Ga/Gb II 1D Ex ia IIC T105°C Da Ex ia IIC T4 Ga/Gb Ex ia IIC T105°C Da
	/MR.....	Marine certificate – DNV, BV (not available in ALW and ALM version)
	/Tlen.....	For oxygen service (sensor filled with Fluorolube fluid), only G1/2" connection
more than one option is available	/-40...+80°C.....	Extended thermal compensation range -40 + 80°C
Nominal measuring range	/0+1000 bar.....	Range 0+1000 bar (0+100 MPa) Min. set range 10 bar (1 MPa)
	/0+600 bar.....	Range 0+600 bar (0+60 MPa) Min. set range 6 bar (600 kPa)
	/0+300 bar.....	Range 0+300 bar (0+30 MPa) Min. set range 3 bar (300 kPa)
	/0+160 bar.....	Range 0+160 bar (0+16 MPa) Min. set range 1,6 bar (160 kPa)
	/0+70 bar.....	Range 0+70 bar (0+7 MPa) Min. set range 0,7 bar (70 kPa)
	/-1+70 bar.....	Range -1+70 bar (-0,1+7 MPa) Min. set range 0,71 bar (71 kPa)
	/0+25 bar.....	Range 0+25 bar (0+2,5 MPa) Min. set range 0,25 bar (25 kPa)
	/-1+25 bar.....	Range -1+25 bar (-0,1+2,5 MPa) Min. set range 0,26 bar (26 kPa)
	/0+7 bar.....	Range 0+7 bar (0+700 kPa) Min. set range 0,07 bar (7 kPa)
	/-1+7 bar.....	Range -1+7 bar (-100+700 kPa) Min. set range 0,07 bar (7 kPa)
	/-1+1,5 bar.....	Range -1+1,5 bar (-100+150 kPa) Min. set range 120 mbar (12 kPa)
	/0+2 bar.....	Range 0+2 bar (0+200 kPa) Min. set range 100 mbar (10 kPa)
	/0+1 bar.....	Range 0+1 bar (0+100 kPa) Min. set range 50 mbar (5 kPa)
	/-0,5+0,5 bar.....	Range -0,5+0,5 bar (-50+50k Pa) Min. set range 50 mbar (5 kPa)
	/0+0,25 bar.....	Range 0+0,25 bar (0+25 kPa) Min. set range 25 mbar (2,5 kPa)
	/-100+100 mbar.....	Range -100+100mbar (-10+10 kPa) Min. set range 20 mbar (2 kPa)
	/-15+70 mbar.....	Range -15+70 mbar (-1,5+7 kPa) Min. set range 5 mbar (0,5 kPa)
	/0+1,3 bar ABS.....	Range 0+1,3 bar ABS (0+130 kPa ABS) Min. set range 0,1 bar ABS (10 kPa ABS)
	/0+7 bar ABS.....	Range 0+7 bar ABS (0+700 kPa ABS) Min. set range 0,1 bar ABS (10 kPa ABS)
	/0+25 bar ABS.....	Range 0+25 ABS (0+2,5 MPa ABS) Min. set range 0,25 bar ABS (25 kPa ABS)
	/0+70 bar ABS.....	Range 0+70 bar ABS (0+7 MPa ABS) Min. set range 0,7 bar ABS (70 kPa ABS)
	/0+300 bar ABS.....	Range 0+300 bar ABS (0+30 MPa ABS) Min. set range 0,3 bar ABS (30 kPa ABS)
Measuring set range	/...+... [required units]	Calibrated range in relation to 4mA and 20mA output
Casing, electrical connection	/PD.....	Housing IP65 with DIN EN 175301-803 connector
	/PZ.....	304SS housing, IP66, packing gland M20x1,5
	/PZ316.....	316SS housing, IP66, packing gland M20x1,5
	/PM12 (IP67).....	304SS housing, IP67 with thread M12x1 and connector with cable (3 m in standard)
	/PM12 (IP65).....	304SS housing, IP65 with thread M12x1 (without cable)
	/SG.....	316LSS housing, IP68, cable electrical connection
	/SGM.....	316LSS housing, IP68, cable electrical connection (3 m of cable in standard)
	/ALW *.....	Aluminum housing, local display, IP65, DIN43650 connector
Process connections	/ALM *.....	Aluminum housing, local display, IP65, DIN43650 connector
	/M.....	Thread M20x1,5 (male) with Ø4 hole, wetted parts SS316L
	/G1/2.....	Thread G1/2" (male) with Ø4 hole, wetted parts SS316L
	/G1/2(Au).....	Thread G1/2" (male) with Ø4 hole, gold plated diaphragm (range no. 1, 2, 3, 4, 5)
	/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
	/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
	/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"-S38.....	Thread G1" with flush diaphragm, wetted parts SS316L (Pressure limits: min. 0,1bar / max. 1bar)
	/CG1/2".....	Thread G1/2" with flush diaphragm, wetted parts SS316L (Pressure limits: min. 2,5bar)
	/1/2"NPTM.....	Thread 1/2"NPT Male, G1/4" Female, wetted parts SS316L (Pressure limits: ½"NPT Male max. 690bar, G1/4" Female max. 1000bar)
	/1/2"NPTF.....	Thread M20x1,5 with adapter to 1/2"NPT Female, wetted parts SS316L (Pressure limits: max. 690bar)
	/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)

* - pushbuttons allows to change display settings only

Example: Pressure transmitter, output 4...20mA + HART, version Exia, nominal measuring range 0...7bar, calibrated range 0...6bar, process connection ½"NPT male, electrical connection DIN EN 175301-803 connector.

PCE-28.SMART/Exia/0..7bar/0..6bar/PD/1/2"NPTM