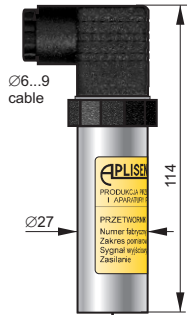


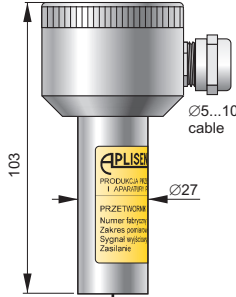
SMART PRESSURE TRANSMITTER PCE-28.SMART



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



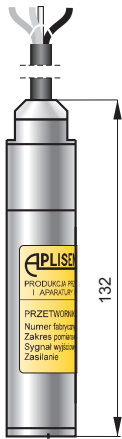
PD type
IP65



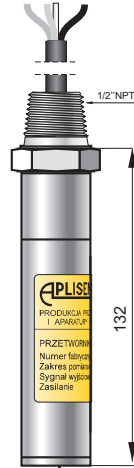
PZ type
PZ316 type
IP66



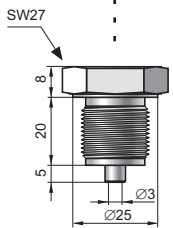
PM12 type
IP67



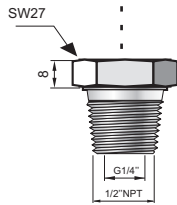
SG type
IP68



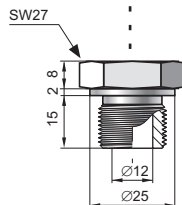
SGM type
IP68



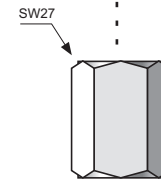
G1/2 type
G1/2", Ø3 hole
M type
M20×1.5, Ø3 hole



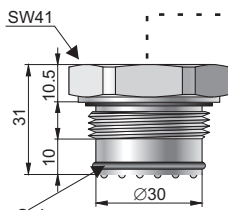
1/2" NPT type
1/2" NPT male +
internal thread G1/4"



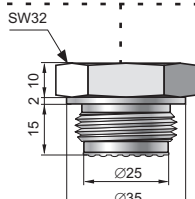
GP type
G1/2", Ø12 hole
P type
M20×1.5, Ø12 hole



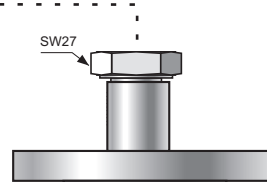
1/2" NPT F type
internal thread 1/2-14NPT



CG1 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/Bluetooth 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...300 bar	(0...30 MPa)	3 bar	(300 kPa)	100:1	450 bar	(45 MPa)
3	0...160 bar	(0...16 MPa)	1,6 bar	(160 kPa)	100:1	450 bar	(45 MPa)
4	0...70 bar	(0...7 MPa)	0,7 bar	(70 kPa)	100:1	140 bar	(14 MPa)
5	0...25 bar	(0...2,5 MPa)	0,25 bar	(25 kPa)	100:1	50 bar	(5 MPa)
6	0...7 bar	(0...0,7 MPa)	0,07 bar	(7 kPa)	100:1	14 bar	(1,4 MPa)
7	-1...7bar	(-100...700 kPa)	0,07 bar	(7 kPa)	114:1	14 bar	(1,4 MPa)
8	-1...1,5bar	(-100...150 kPa)	0,12 bar	(12 kPa)	20:1	4 bar	(400 kPa)
9	0...2 bar	(0...200 kPa)	100 mbar	(10 kPa)	20:1	4 bar	(400 kPa)
10	0...1 bar	(0...100 kPa)	50 mbar	(5 kPa)	20:1	2 bar	(200 kPa)
11	-0,5...0,5 bar	(-50...50 kPa)	50 mbar	(5 kPa)	20:1	2 bar	(200 kPa)
12	0...0,25 bar	(0...25 kPa)	25 mbar	(2,5 kPa)	10:1	1 bar	(100 kPa)
13	-100...100 mbar	(-10...10 kPa)	20 mbar	(2 kPa)	10:1	1 bar	(100 kPa)
14	-15...70 mbar *	(-1,5...7 kPa)	5 mbar	(0,5 kPa)	17:1	0,5 bar	(50 kPa)
15	0...1,3 bar abs	(0...130 kPa abs)	100 mbar abs	(10 kPa abs)	13:1	2 bar	(200 kPa)
16	0...7 bar abs	(0...0,7 MPa abs)	100 mbar abs	(10 kPa abs)	70:1	14 bar	(1,4 MPa)
17	0...25 bar abs	(0...2,5 MPa abs)	0,25 bar abs	(25 kPa abs)	100:1	50 bar	(5 MPa)
18	0...70 bar abs	(0...7 MPa abs)	0,7 bar abs	(70 kPa abs)	100:1	140 bar	(14 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. 13, 14) max. ±0,25% (FSO) in the whole compensation range (0,4% for ranges 13, 14)
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)
Output signal	4...20 mA, two wire transmission
Load resistance	$R[\Omega] \leq \frac{U_{sup}[V] - 7,5V}{0,0225A}$
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 more than one option is available	/Exia.....	II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb II 1D Ex ia IIIC T105°C Da I M1 Ex ia I Ma																																																									
	/Exia (IECEX).....	Ex ia I Ma IECEX Ex ia IIC T4/T5/T6 Ga/Gb Ex ia IIIC T105°C Da																																																									
	/MR.....	Marine certificate – DNV, BV																																																									
	/Tlen..... /-40...+80°C.....	For oxygen service (sensor filled with Fluorolube fluid), only M and G1/2 connection Extended thermal compensation range -40 ÷ 80°C																																																									
Nominal measuring range	/0+1000 bar.....	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;"></th> <th style="width: 33%; text-align: center;">Range</th> <th style="width: 33%; text-align: center;">Min. set range</th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">0+1000 bar (0+100 MPa)</td> <td style="text-align: center;">10 bar (1 MPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+300 bar (0+30 MPa)</td> <td style="text-align: center;">3 bar (300 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+160 bar (0+16 MPa)</td> <td style="text-align: center;">1,6 bar (160 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+70 bar (0+7 MPa)</td> <td style="text-align: center;">0,7 bar (70 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+25 bar (0+2,5 MPa)</td> <td style="text-align: center;">0,25 bar (25 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+7 bar (0+700 kPa)</td> <td style="text-align: center;">0,07 bar (7 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">-1+7 bar (-100+700 kPa)</td> <td style="text-align: center;">0,07 bar (7 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">-1+1,5 bar (-100+150 kPa)</td> <td style="text-align: center;">120 mbar (12 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+2 bar (0+200 kPa)</td> <td style="text-align: center;">100 mbar (10 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+1 bar (0+100 kPa)</td> <td style="text-align: center;">50 mbar (5 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">-0,5+0,5 bar (-50+50k Pa)</td> <td style="text-align: center;">50 mbar (5 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+0,25 bar (0+25 kPa)</td> <td style="text-align: center;">25 mbar (2,5 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">-100+100mbar (-10+10 kPa)</td> <td style="text-align: center;">20 mbar (2 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">-15+70 mbar (-1,5+7 kPa)</td> <td style="text-align: center;">5 mbar (0,5 kPa)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+1,3 bar ABS (0+130 kPa ABS)</td> <td style="text-align: center;">0,1 bar ABS (10 kPa ABS)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+7 bar ABS (0+700 kPa ABS)</td> <td style="text-align: center;">0,1 bar ABS (10 kPa ABS)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+25 bar ABS (0+2,5 MPa ABS)</td> <td style="text-align: center;">0,25 bar ABS (25 kPa ABS)</td> </tr> <tr> <td></td> <td style="text-align: center;">0+70 bar ABS (0+7 MPa ABS)</td> <td style="text-align: center;">0,7 bar ABS (70 kPa ABS)</td> </tr> </tbody> </table>		Range	Min. set range		0+1000 bar (0+100 MPa)	10 bar (1 MPa)		0+300 bar (0+30 MPa)	3 bar (300 kPa)		0+160 bar (0+16 MPa)	1,6 bar (160 kPa)		0+70 bar (0+7 MPa)	0,7 bar (70 kPa)		0+25 bar (0+2,5 MPa)	0,25 bar (25 kPa)		0+7 bar (0+700 kPa)	0,07 bar (7 kPa)		-1+7 bar (-100+700 kPa)	0,07 bar (7 kPa)		-1+1,5 bar (-100+150 kPa)	120 mbar (12 kPa)		0+2 bar (0+200 kPa)	100 mbar (10 kPa)		0+1 bar (0+100 kPa)	50 mbar (5 kPa)		-0,5+0,5 bar (-50+50k Pa)	50 mbar (5 kPa)		0+0,25 bar (0+25 kPa)	25 mbar (2,5 kPa)		-100+100mbar (-10+10 kPa)	20 mbar (2 kPa)		-15+70 mbar (-1,5+7 kPa)	5 mbar (0,5 kPa)		0+1,3 bar ABS (0+130 kPa ABS)	0,1 bar ABS (10 kPa ABS)		0+7 bar ABS (0+700 kPa ABS)	0,1 bar ABS (10 kPa ABS)		0+25 bar ABS (0+2,5 MPa ABS)	0,25 bar ABS (25 kPa ABS)		0+70 bar ABS (0+7 MPa ABS)	0,7 bar ABS (70 kPa ABS)
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Measuring set range	/...+... [required units]	Calibrated range in relation to 4mA and 20mA output																																																									
Casing, electrical connection	/PD.....	Housing IP65 with 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 not available)																																																									
	/SG.....	316LSS housing, IP68, cable electrical connection (3 m of cable in standard)																																																									
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																																																									
	/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)																																																									
/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 , output 4..20mA + HART, version Exia, nominal measuring range 0..7bar, calibrated range 0..6bar, process connection 1/2"NPT male, electrical connection DIN43650 connector.

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