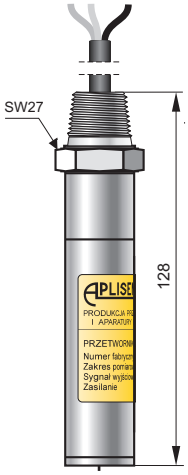
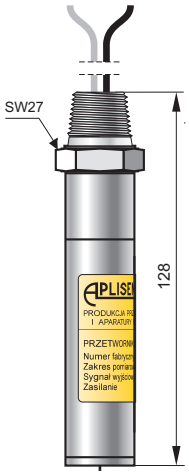
EXPLOSION PROOF
SMART PRESSURE TRANSMITTER
PCE-28.SMART/EXD

- ✓ **4…20 mA output signal + HART protocol**
- ✓ **Accuracy 0.1%**
- ✓ **NACE compatibility**
- ✓ **Measuring range up to 1380bar**

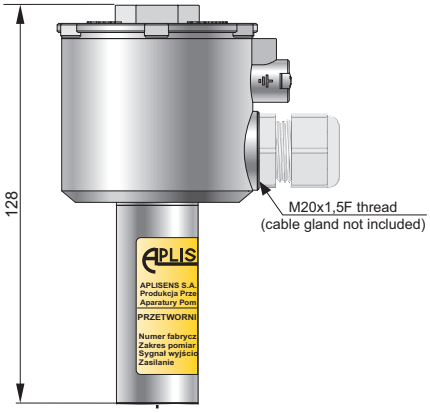
SGM (1/2"NPTM)
cable connection
IP68
(IP66 for gauge pressure <80bar)

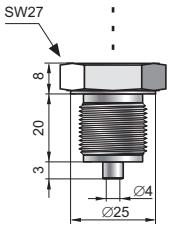


FL (1/2"NPTM)
flying leads
IP68
(IP66 for gauge pressure <80bar)

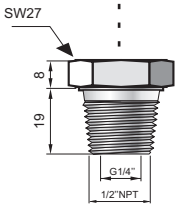


PZ2
IP66

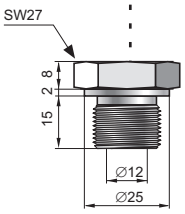




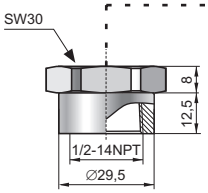
G1/2 type
G1/2″, Ø4 hole



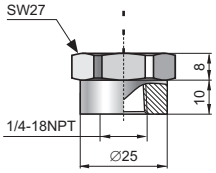
1/2”NPT type
1/2”NPT male +
internal thread G1/4”



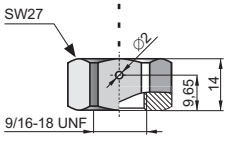
GP type
G1/2″, Ø12 hole



1/2NPTF type
1/2-14 NPT female



1/4NPTF type
1/4-18 NPT female



Autoclave
type F-250-C
(9/16-18 UNF)

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…1380 bar	(0…138 MPa)	13,8 bar	(1,38 MPa)	100:1	1600 bar	(160 MPa)
2	0…1000 bar	(0…100 MPa)	10 bar	(1 MPa)	100:1	1000 bar	(100 MPa)
3	0…600 bar	(0…60 MPa)	6 bar	(600 kPa)	100:1	1200 bar	(120 MPa)
4	0…300 bar	(0…30 MPa)	3 bar	(300 kPa)	100:1	450 bar	(45 MPa)
5	0…160 bar	(0…16 MPa)	1,6 bar	(160 kPa)	100:1	450 bar	(45 MPa)
6	0...70 bar	(0...7 MPa)	0,7 bar	(70 kPa)	100:1	140 bar	(14 MPa)
7	-1...70 bar	(-0,1...7 MPa)	0,71 bar	(71 kPa)	100:1	140 bar	(14 MPa)
8	0...25 bar	(0...2,5 MPa)	0,25 bar	(25 kPa)	100:1	50 bar	(5 MPa)
9	-1...25 bar	(-0,1...2,5 MPa)	0,26 bar	(26 kPa)	100:1	50 bar	(5 MPa)
10	0...7 bar	(0...0,7 MPa)	0,07 bar	(7 kPa)	100:1	14 bar	(1,4 MPa)
11	-1…7 bar	(-100…700 kPa)	0,07 bar	(7 kPa)	114:1	14 bar	(1,4 MPa)
12	-1…1,5 bar	(-100…150 kPa)	0,12 bar	(12 kPa)	20:1	4 bar	(400 kPa)
13	0...2 bar	(0...200 kPa)	100 mbar	(10 kPa)	20:1	4 bar	(400 kPa)
14	0...1 bar	(0...100 kPa)	50 mbar	(5 kPa)	20:1	2 bar	(200 kPa)
15	-0,5...0,5 bar	(-50...50 kPa)	50 mbar	(5 kPa)	20:1	2 bar	(200 kPa)
16	0...0,25 bar	(0...25 kPa)	25 mbar	(2,5 kPa)	10:1	1 bar	(100 kPa)
17	-100...100 mbar	(-10...10 kPa)	20 mbar	(2 kPa)	10:1	1 bar	(100 kPa)
18	-15...70 mbar *	(-1,5...7 kPa)	5 mbar	(0,5 kPa)	17:1	0,5 bar	(50 kPa)
19	0...1,3 bar abs	(0...130 kPa abs)	100 mbar abs	(10 kPa abs)	13:1	2 bar	(200 kPa)
20	0...7 bar abs	(0...0,7 MPa abs)	100 mbar abs	(10 kPa abs)	70:1	14 bar	(1,4 MPa)
21	0...25 bar abs	(0...2,5 MPa abs)	0,25 bar abs	(25 kPa abs)	100:1	50 bar	(5 MPa)
22	0...70 bar abs	(0...7 MPa abs)	0,7 bar abs	(70 kPa abs)	100:1	140 bar	(14 MPa)
23	0...300 bar abs	(0...30 MPa abs)	3 bar abs	(300 kPa abs)	100:1	450 bar	(45 MPa)

* *only for tranmitters 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. 17, 18)
max. ±0,25% (FSO) in the whole compensation range (0,4% for ranges 17, 18)

Thermal compensation range -25...80°C

Additional electronic damping 0...30 s

Error due to supply voltage changes 0.002% (FSO) / V

Electrical parameters

Power supply 7,5...30 V DC

Output signal 4...20 mA, two wire transmission

Load resistance $R[\Omega] \le \frac{U_{sup}[V] - 7{,}5V}{0{,}0225A}$

Resistance required for communication min. 240Ω

Materials

Wetted parts and diaphragms: 316Lss, Hastelloy C 276

Casing: 304ss

Optional: 316ss

Operating conditions

Operating temperature range (ambient temp.)

FL electrical connection -40...80°C*

SGM electrical connection -40...65°C*

** more information available in user's manual and certificate*

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/Exd		Smart pressure transmitter II 2G Ex db IIC T6/T5/T4 Gb II 2D Ex tb IIIC T85°C/T100°C/T120°C Db I M2 Ex db I Mb (only for PZ2 casing) Ex db IIC T6/T5/T4 Gb IECEx Ex tb IIIC T85°C/T100°C/T120°C D Ex db I Mb (only for PZ2 casing)	
Versions, certificates	/MR /NACE	Marine certificate – DNV, BV NACE MR-01-75 certificate	
Nominal measuring range		Range	Min. set range
	/0÷1380 bar	0÷1380 bar (0÷138 MPa)	13,8 bar (1,38 MPa)
	/0÷1000 bar	0÷1000 bar (0÷100 MPa)	10 bar (1 MPa)
	/0÷600 bar	0÷600 bar (0÷60 MPa)	6 bar (600 kPa)
	/0÷300 bar	0÷300 bar (0÷30 MPa)	3 bar (300 kPa)
	/0÷160 bar	0÷160 bar (0÷16 MPa)	1,6 bar (160 kPa)
	/0÷70 bar	0÷70 bar (0÷7 MPa)	0,7 bar (70 kPa)
	/-1÷70 bar	-1÷70 bar (-0,1÷7 MPa)	0,71 bar (71 kPa)
	/0÷25 bar	0÷25 bar (0÷2,5 MPa)	0,25 bar (25 kPa)
	/-1÷25 bar	-1÷25 bar (-0,1÷2,5 MPa)	0,26 bar (26 kPa)
	/0÷7 bar	0÷7 bar (0÷700 kPa)	0,07 bar (7 kPa)
	/-1÷7 bar	-1÷7 bar (-100÷700 kPa)	0,07 bar (7 kPa)
	/-1÷1,5 bar	-1÷1,5 bar (-100÷150 kPa)	120 mbar (12 kPa)
	/0÷2 bar	0÷2 bar (0÷200 kPa)	100 mbar (10 kPa)
	/0÷1 bar	0÷1 bar (0÷100 kPa)	50 mbar (5 kPa)
	/-0,5÷0,5 bar	-0,5÷0,5 bar (-50÷50k Pa)	50 mbar (5 kPa)
	/0÷0,25 bar	0÷0,25 bar (0÷25 kPa)	25 mbar (2,5 kPa)
	/-100÷100 mbar	-100÷100 mbar (-10÷10 kPa)	20 mbar (2 kPa)
	/-15÷70 mbar	-15÷70 mbar (-1,5÷7 kPa)	5 mbar (0,5 kPa)
	/0÷1,3 bar ABS	0÷1,3 bar ABS (0÷130 kPa ABS)	0,1 bar ABS (10 kPa ABS)
	/0÷7 bar ABS	0÷7 bar ABS (0÷700 kPa ABS)	0,1 bar ABS (10 kPa ABS)
	/0÷25 bar ABS	0÷25 ABS (0÷2,5 MPa ABS)	0,25 bar ABS (25 kPa ABS)
	/0÷70 bar ABS	0÷70 bar ABS (0÷7 MPa ABS)	0,7 bar ABS (70 kPa ABS)
	/0÷300 bar ABS	0÷300 bar ABS (0÷30 MPa ABS)	0,3 bar ABS (30 kPa ABS)
Measuring set range	/…÷… [required units]	Calibrated range in relation to 4mA and 20mA output	
Casing, electrical connection	/SGM (1/2"NPTM)	316LSS housing, cable electrical connection (3 m of cable in standard)	
	/FL (1/2"NPTM)	316LSS housing, flying leads (2 m of flying leads in standard)	
	/PZ2	304SS housing, IP66, electrical connection M20x1,5F	
Process connection	/G1/2	Thread G1/2'' (male) with ∅4 hole, wetted parts SS316L Pressure limits: max. 1000bar	
	/GP	Thread G1/2'' (male) with ∅12 hole, wetted parts SS316L Pressure limits: min. 0,25bar / max. 350bar	
	/GP(Hastelloy)	Thread G1/2'' (male) with ∅12 hole, wetted parts Hastelloy C 276 Pressure limits: min. 0,25bar / max. 350bar	
	/1/2"NPTM	Thread 1/2''NPT Male, wetted parts SS316L Pressure limits: max. 690bar	
	/1/2"NPTF	Thread 1/2''NPT Female, wetted parts SS316L Pressure limits: min. 10bar / max. 690bar	
	/1/4"NPTF	Thread 1/4''NPT Female, wetted parts SS316L Pressure limits: min. 10bar / max. 690bar	
	/Autoclave	Compatible with Autovalve type F-250-C Pressure limits: min. 400bar / max. 1380bar	
Accessories	/MT	Stainless Steel Tag plate mounted on wire	
Other specification	/	Description of required parameters	