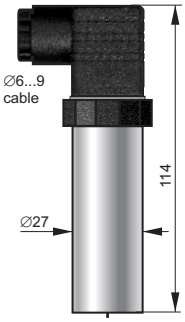
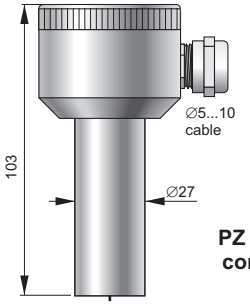
SMART PRESSURE TRANSMITTER BPT128S

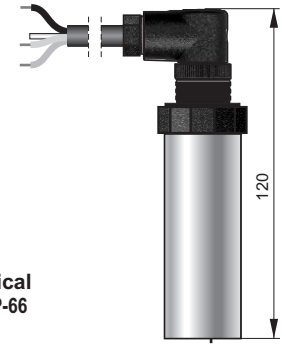
- ✓ **4…20 mA output signal + HART protocol**
- ✓ **ATEX Intrinsic safety**
- ✓ **Accuracy 0.1%**
- ✓ **Marine certificate DNV**



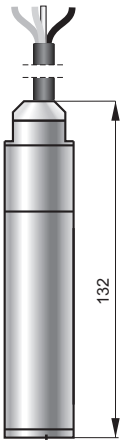
PD type electrical connection, IP-65
Connector DIN 43650



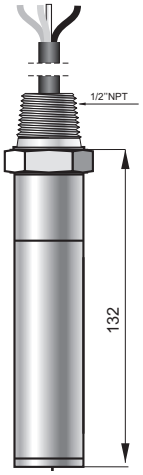
PZ type electrical connection, IP-66



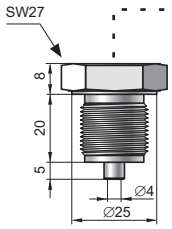
PM12 type electrical connection, IP-67



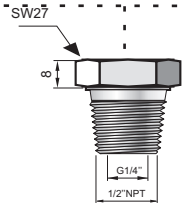
SG type electrical connection, IP-68
Length of cable: according to client specification.



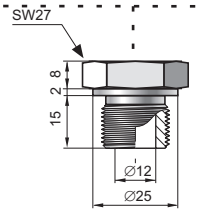
SGM type electrical connection, IP-68
Length of cable: according to client specification.



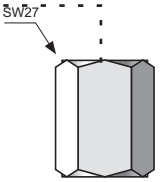
G1/2 type
G1/2″, Ø4 hole
M type
M20×1.5, Ø4 hole



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

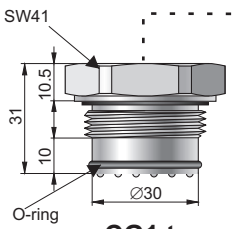


GP type
G1/2″, Ø12 hole
P type
M20×1.5, Ø12 hole

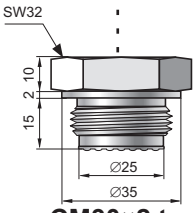


1/2"NPT F type
internal thread 1/2-14NPT

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



CG1 type
G1″ with flush diaphragm



CM30×2 type
M30×2 with flush diaphragm

Application

BPT128.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 communicator,
◊ some other Hart type communicators,
◊ a PC using an RS-HART converter and RAPORT 2 configuration software.

The data interchange with the transmitter enables the 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	(1MPa)	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...6 bar	(-100...600kPa)	300mbar	(30 kPa)	23:1	14 bar	(1.4 MPa)
8	0...2 bar	(0...200 kPa)	100 mbar	(10 kPa)	20:1	4 bar	(400 kPa)
9	0...1 bar	(0...100 kPa)	50 mbar	(5 kPa)	20:1	2 bar	(200 kPa)
10	-0.5...0.5 bar	(-50...50 kPa)	50 mbar	(5 kPa)	20:1	2 bar	(200 kPa)
11	0...0.25 bar	(0...25 kPa)	25 mbar	(2.5 kPa)	10:1	1 bar	(100 kPa)
12	-100...100 mbar *	(-10...10 kPa)	20 mbar	(2 kPa)	10:1	1 bar	(100 kPa)
13	-15...70 mbar*	(-1.5...7 kPa)	5 mbar	(0.5 kPa)	17:1	0.5 bar	(50 kPa)
14	0...1.3 bar abs	(0...130 kPa abs)	100 mbar abs	(10 kPa abs)	13:1	2 bar	(200 kPa)
15	0...7 bar abs	(0...0,7 MPa abs)	0.07 bar abs	(7 kPa abs)	100:1	14 bar	(1.4 MPa)
16	0...25 bar abs	(0...2.5 MPa abs)	0.25 bar abs	(25 kPa abs)	100:1	50 bar	(5 MPa)
17	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*

Measurement of lower pressure ranges, possible using transmitter BPT2000GALW with GP process connection (page II/ 12).

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 12, 13)
max. ±0.25% (FSO) in the whole compensation range (0.4% for ranges 12, 13)

Thermal compensation range -25...80°C
-40...80°C – special version

Time Constant 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 (EEx 7,5...28 V)

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

Load resistance $R[\Omega] \le \frac{U_{sup}[V] - 7{,}5V}{0.02A} \cdot 0.85$

Resistance required for communication 240...1100 Ω

Materials

Wetted parts and diaphragms: 316Lss, Hastelloy C 276, Au

Casing: 304ss

Optional: 316ss

Operating conditions

Operating temperature range (ambient temp.) -40...85°C
EEx version -40…80°C

Medium temperature range -40...120°C

over 120°C – measurement with the use of 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
BPT128.SMART		Smart Pressure Transmitter.
Versions, certificates*	/Exia	Ex II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb , I M1 Ex ia I Ma, II 1D Exia IIIC T105C Da + IECEx (only for transmitters with 4..20mA out).
	/MR	Marine certificate - DNV
*) more than one option is available	/Tlen	For oxygen service(sensor filled with Fluorolube fluid, only M,G1/2 pr. conn.)
	/-40…+80C	Extended thermal compensation range -40 - 80°C

		Range	Min. set range
Nominal measuring range	/0÷1000bar	0÷1000bar (0÷100MPa)	10bar (1MPa)
	/0÷300bar	0÷300bar (0÷30MPa)	3bar (300kPa)
	/0÷160bar**	0÷160bar (0÷16MPa)	1,6 bar (160kPa)
	/0÷70bar	0÷70bar (0÷7MPa)	0,7bar (70kPa)
	/0÷25bar	0÷.25bar (0÷2,5MPa)	0,25bar (25kPa)
	/0÷7bar	0÷7bar (0÷700KPa)	0,07bar(7kPa)
	/0÷2bar	0÷2bar (0÷200kPa)	100mbar (10kPa)
	/0÷1bar	0÷1bar (0÷100kPa)	50mbar (5kPa)
	/0÷0,25bar	0÷0,25bar (0÷25kPa)	25mbar (2,5kPa)
	/-0.5÷ +0.5bar	-0,5÷0,5bar (-50÷50kPa)	50mbar (5kPa)
	/-1÷6bar	-1÷6bar (-100÷600kPa)	300mbar (30kPa)
	/-100÷100mbar	-100÷100mbar (-10÷10kPa)	20mbar (2kPa)
	/-15÷70mbar	-15÷70mbar (-1,5÷7kPa)	5mbar (0,5kPa)
	/0÷1.3bar ABS	0÷1.3bar absolute pressure (0÷130kPa abs)	100mbar abs (10kPa abs)
	/0÷7barABS	0÷7bar absolute pressure (0÷700kPa abs)	0,07bar abs (7kPa abs)
	/0÷25barABS	0÷25bar absolute pressure (0÷2.5MPa abs)	0,25bar abs (25kPa abs)
**) non-standard ranges available on request	/0÷70bar ABS	0÷70bar absolute pressure (0÷7MPa abs)	0,7bar abs (70kPa abs)

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.
	/PZ/316	316SS housing, IP66, packing gland M20x1,5.
	/PM12	Housing IP67 with thread M12x1 and connector (not avaliable with ATEX)
	/SG	316LSS housing, IP68, cable electrical connection
	/SGM	316LSS housing, IP68, cable electrical connection

Process connections	⇒ /M	Thread M20x1,5 (male) with Ø4hole, wetted parts SS316L	
	/M.(Au)	Thread M20x1,5 (male) with Ø4hole, gold plated diaphragm (range no. 1, 2, 3, 4)	
	/G1/2	Thread G1/2" (male) with Ø4hole , wetted parts SS316L	
	/G1/2"(Au)	Thread G1/2" (male) with Ø4hole , gold plated diaphragm (range no. 1, 2, 3, 4)	
	/P	Thread M20x1,5 (male) with Ø12hole, wetted parts SS316L	*Not avaliable with range 1, 2*
	/P. (Hastelloy)	Thread M20x1,5 (male) with Ø12hole, wetted parts Hastelloy C 276	
	/GP	Thread G1/2" (male) with Ø12hole , wetted parts SS316L	
	/GP (Hastelloy)	Thread G1/2" (male) with Ø12hole , 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)	
	/CG1/2"	Thread G1/2" with flush diaphragm, wetted parts SS316L (Pressure limits: min. 2,5bar / max. 600bar)	
	/1/2"NPT M	Thread ½"NPT Male, wetted parts SS316L	
	/1/2"NPT F	Thread 1/2 -14NPT Female, wetted parts SS316L	
	/1/4"NPT F	Thread 1/4 -18NPT Female, wetted parts SS316L	

Other specification	/...	Description of required parameters e.g. non-standard process connection G3/4" or M22x1.5
	/MT	Stainless steel plate mounted on wire

The most typical specification is marked by "⇒" mark.

Example : Pressure transmitter , output 4..20mA + HART, version EExia, nominal measuring range 0..7bar, calibrated range 0..6bar, process connection ½"NPT male, electrical connection DIN43650 connector.

BPT128.SMART/EExia/0..7bar/0..6bar/PD/1/2"NPTM