



SMART DIFFERENTIAL PRESSURE TRANSMITTER PRE-28.SMART



- ✓ 4...20 mA output signal + HART protocol
- ✓ Intrinsic safety certificate (ATEX, IECEx)
- ✓ Static pressure limit up to 420 bar
- ✓ Accuracy 0,1%
- ✓ Gold plated diaphragms (Au)
- ✓ Wetted parts material Hastelloy C276
- ✓ Marine certificate DNV, BV **NEW**



PD type
IP65



PZ type
PZ316 type
IP66



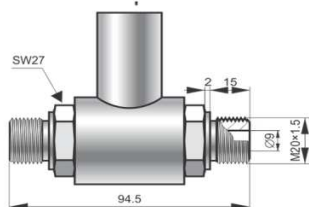
PM12 type
IP67



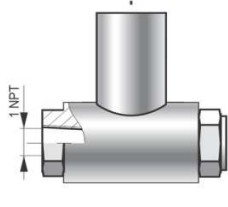
SG type
IP68



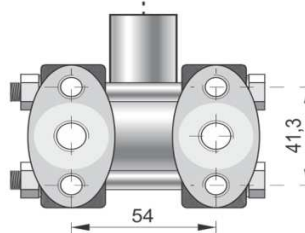
SGM type
IP68



P type process connection



PN type process connection



C and CR type process connection to mount
with a valve manifold



Measuring ranges

No.	Nominal measuring range (FSO)	Minimum set range	Rangeability	Overpressure limit/ static pressure limit
1	0...70 bar (0...7 MPa)	7 bar (700 kPa)	10:1	exception: 70 bar for P type C-type: 250 / 320 / 420 bar (250 bar for PED version) P-type 40 bar for
2	0...16 bar (0...1,6 MPa)	1,6 bar (160 kPa)	10:1	
3	0...2,5 bar (0...250 kPa)	0,2 bar (20 kPa)	12,5:1	
4	0...1 bar (0...100 kPa)	50 mbar (5k Pa)	20:1	
5	0...0,25 bar (0...25 kPa)	10 mbar (1k Pa)	25:1	
6	-0,5...0,5 bar (-50...50 kPa)	0,1 bar (10 kPa)	10:1	
7	-100...100 mbar (-10...10 kPa)	10 mbar (1 kPa)	20:1	
8	-5...70 mbar (-0,5...7 kPa)	4 mbar (0,4 kPa)	18:1	
9	-25...25 mbar (-2,5...2,5 kPa)	2 mbar (0,2 kPa)	25:1	

Technical data

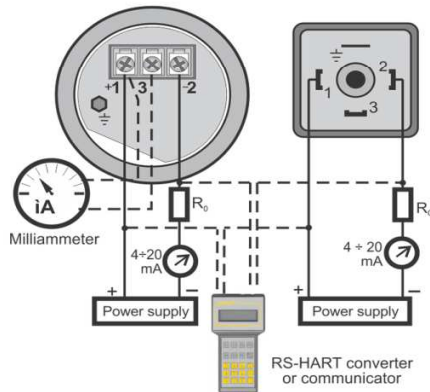
Metrological parameters

Accuracy
Long-term stability (for the basic range) Δ accuracy for 3 years
Thermal error $< \pm 0,08\%$ (FSO) / 10°C
max. $\pm 0,3\%$ (FSO) in the whole compensation range
Thermal compensation range -25...80°C
Zero shift error for static pressure
0,01% (FSO) / 10 bar for range no. 3, 4, 5, 6, 7, 8
0,03% (FSO) / 10 bar for range no. 1, 2
0,08% (FSO) / 10 bar for ranges no. 9
Zeroing the transmitter in conditions of static pressure can eliminate this error.
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 VDC (Ex ia 7,5...28 VDC)
Output signal 4...20 mA, two wire transmission
Load resistance $R[\Omega] \Delta \frac{U_{sup}[V] - 7,5V}{0,0225A}$
Resistance required for communication min. 240 Ω

Electrical diagram



$\Delta \pm 0,1\%$ of output set range

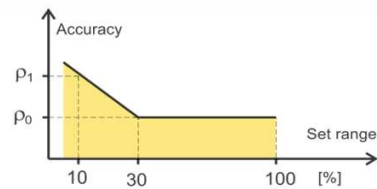
Materials

Wetted parts type P, PN process connection: SS316L
type P(H) process connection: SS316L or Hastelloy C276
type C process connection: SS316L
Diaphragms SS316L, Hastelloy C 276, Au
Casing: SS304
Optional: SS316

Operating conditions

Operating temperature range (ambient temp.) -25...85°C
Exi a version -25...80°C
Medium temperature range -25...120°C
over 120°C – measurement with use an impulse line or diaphragm seals
up to 100°C - PED version
CAUTION: the medium must not be allowed to freeze in the impulse line or close to the process connection of the transmitter

Accuracy depending on the set range



$?_0$ – error for nominal measuring range (0...100% FSO)
 $?_1$ – error for range 0...10% FSO
 $?_1 = 2 \times ?_0$

Numerical error values are given in the technical data under metrological parameters



Ordering procedure

Model	Code	Description																				
PRE-28.SMART		Smart differential pressure transmitter																				
Versions, certificates more than one option 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).....	IECEX Ex ia I Ma Ex ia IIC T4/T5/T6 Ga/Gb Ex ia IIIC T105°C Da																				
	/MR.....	Marine certificate – DNV, BV																				
	/Tlen.....	For oxygen service (sensor filled with Fluorolube fluid), only M and G1/2 connection																				
	/320 bar..... /420 bar.....	Static pressure 320 bar, only for C process connection Static pressure 420 bar, only for C process connection																				
Nominal measuring range *) non-standard ranges available on request	/0+70 bar.....	<table border="1"> <thead> <tr> <th>Range</th> <th>Min. set range</th> </tr> </thead> <tbody> <tr> <td>0+70 bar (0+7000 kPa)</td> <td>7bar (700 kPa)</td> </tr> <tr> <td>0+16 bar (0+1600 kPa)</td> <td>1,6bar (160 kPa)</td> </tr> <tr> <td>0+2,5 bar (0+250 kPa)</td> <td>0,2bar (20 kPa)</td> </tr> <tr> <td>0+1 bar (0+100 kPa)</td> <td>50mbar (5 kPa)</td> </tr> <tr> <td>0+0,25 bar (0+25 kPa)</td> <td>10mbar (1 kPa)</td> </tr> <tr> <td>-0,5+0,5 bar (50+50 kPa)</td> <td>0,1bar (10 kPa)</td> </tr> <tr> <td>-0,1+0,1 bar (-10+10 kPa)</td> <td>10mbar (1 kPa)</td> </tr> <tr> <td>-5+70mabr.....</td> <td>4mbar (0,4 kPa)</td> </tr> <tr> <td>-25+25mbar.....</td> <td>2 mbar (0,2 kPa)</td> </tr> </tbody> </table>	Range	Min. set range	0+70 bar (0+7000 kPa)	7bar (700 kPa)	0+16 bar (0+1600 kPa)	1,6bar (160 kPa)	0+2,5 bar (0+250 kPa)	0,2bar (20 kPa)	0+1 bar (0+100 kPa)	50mbar (5 kPa)	0+0,25 bar (0+25 kPa)	10mbar (1 kPa)	-0,5+0,5 bar (50+50 kPa)	0,1bar (10 kPa)	-0,1+0,1 bar (-10+10 kPa)	10mbar (1 kPa)	-5+70mabr.....	4mbar (0,4 kPa)	-25+25mbar.....	2 mbar (0,2 kPa)
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/-5+70mabr.....																						
/-25+25mbar.....																						
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 available from Q3/2015)																				
	/SG.....	316LSS housing, IP68, cable electrical connection (3 m of cable in standard)																				
Process connections	/SGM.....	316LSS housing, IP68, cable electrical connection (3 m of cable in standard)																				
	/C.....	Thread 1/4NPT F on the cover flanges cover flanges material SS316. Allows mounting with a valve manifold. Process connection of cover flange: M10 (option /C(7/16) - 7/16UNF)																				
	/CR.....	C-type process connection rotated 90°																				
	/P.....	Thread M20x1,5 (male)																				
	/PN.....	Thread 1/4"NPT (female)																				
Material of diaphragms (refers only to C, CR, P, PN process connection)	/code of diaphragm seal.....	Diaphragm seal (see chapter of diaphragm seals) mounted on Hi side of transmitter, Lo side 1/4NPT Female																				
	(without marking).....	Diaphragms material SS316L																				
	/H.....	Diaphragms material Hastelloy C276																				
Gasket (refers only to C, CR process connection)	/P and /PN – all wetted parts in Hastelloy C276 on request																					
	/I(Au).....	Gold plated diaphragms																				
	(without marking).....	FPM Viton																				
Accessories	/NBR.....	NBR (for oxygen service)																				
	/PTFE.....	PTFE																				
	/C-2".....	Mounting bracket for 2" pipe (to C process conn.), mat. zincd steel																				
	/C-2"(SS).....	Mounting bracket for 2" pipe (to C process conn.), mat. Stainless Steel																				
	/F125.....	Mounting bracket for 2" pipe (to P process conn.), mat. Stainless Steel																				
	/RedSpaw P.....	Connector to weld impulse pipes dia. 12 and 14 mm, material 15HM(SO) or SS316(S). Only process connection P type																				
Other specification	/RedSpaw C.....	Connector to weld impulse pipes dia. 12 and 14 mm, material 15HM. Only process connection C type.																				
	/Red d/P 1/2".....	Adapter for differential pressure transmitters with C type process connection, output thread 1/2NPT F. Material SS316L																				
	/I.....	Description of required parameters (e.g. non-standard pr. connection G3/4", M22x1,5)																				