

Technical Datasheet



D Series

SMART Compact Pressure Transmitter

Model: DPCE-28.SMART

Key Features

- Accuracy $\pm 0.1\%$.
- 4-20mA output signal.
- Fully HART ® compatible.
- ATEX certified (Intrinsic Safety).
- Hastelloy C276 wetted parts option.



Series Overview

- The D-Series pressure, differential pressure and temperature transmitters offer customers cost-effective and accurate solutions to their individual process requirements.
- Available with a wide range of process connections and easily configurable via the D-Soft software, the D-Series can be used for a variety of applications when pressure, differential pressure, temperature, level or flow measurements are needed.

Other products in the series include:

- DPRE-28 SMART Differential Pressure Transmitter



Product applications

The DPCE-28.SMART D-Series is suitable for a wide range of applications for measuring:

- Differential pressure
- Level
- Flow

The choice of models available ensures that the DPRE-28.SMART D-Series is suitable for use in:

- Corrosive atmospheres
- Resistant to chemical attack

How can we help you?

Delta Controls' offers fast, efficient and knowledgeable support when and where you need it. Please visit our web site at www.delta-controls.com to find your local support centre or call us on:

+44 (0) 1252 729140

D-Series
Model: DPCE-28.SMART

Application & Construction

The DPCE-28.SMART Pressure Transmitters are suitable for measurement of the pressure, underpressure and absolute pressure of gases, vapours and liquids. The active sensing element is a piezoresistive silicon sensor separated from the medium by a diaphragm and by a specifically selected type of manometric liquid.

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 a HART/USB/Bluetooth converter and D-Soft configuration software

(*) .eddl file available at www.delta-controls.com

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	(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...7 bar	(-100...700 kPa)	0,07 bar	(7 kPa)	114:1	14 bar	(1,4 MPa)
8	-1...1,5 bar	(-100...150kPa)	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	≤ accuracy for 3 years (for the nominal measuring range)
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 ia 7.5...28 VDC)
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 240 Ω

Materials

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

Technical Data (cont.)

Operating conditions

Operating temperature range (ambient temp.)

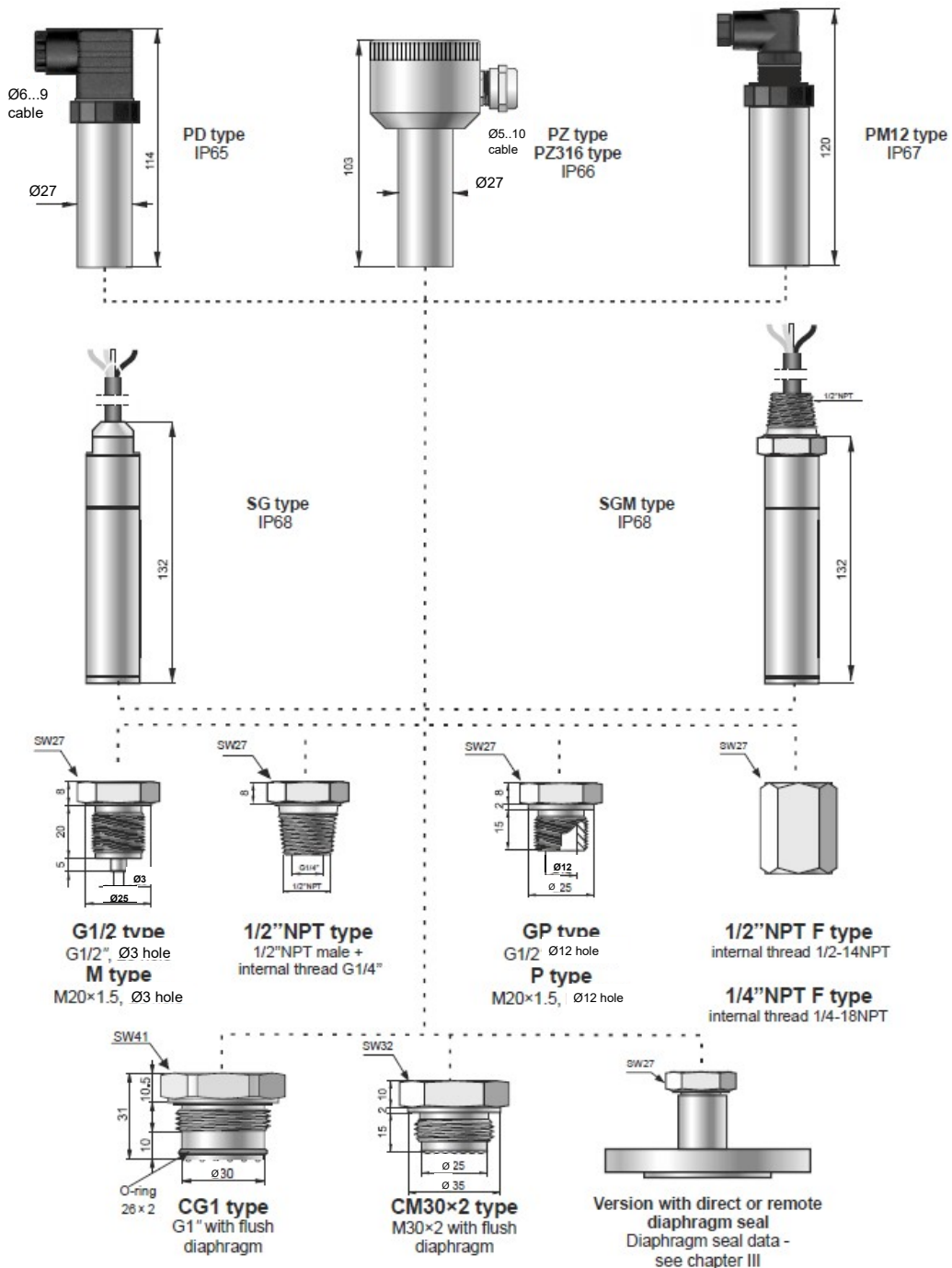
-40...85°C
Ex version -40...80°C

CAUTION: the medium must not be allowed to freeze in the impulse line or close to the process connection of the transmitter

Medium temperature range -40...120°C

over 120°C – measurement with the use of impulse line or diaphragm seals

Dimensions



D-Series
Model: DPCE-28: SMART

How to Order

Model	Code	Description	
DPCE-28.SMART		Smart pressure transmitter	
Versions, certificates* more than one option is available	/Exia /-40...+80°C.....	II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb II 1 D Ex ia IIIC T105°C Da I M1 Ex ia I Ma Extended thermal compensation range -40 ÷ 80°C	
Nominal measuring range		Range	Min. set range
	/0÷1000 bar.....	0÷1000 bar (0÷100 MPa)	10 bar (1 MPa)
	/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)
	/0÷25 bar.....	0÷25 bar (0÷2,5 MPa)	0,25 bar (25 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÷100mbar (-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)	
/0÷70 bar ABS.....	0÷70 bar ABS (0÷7 MPa ABS)	0,7 bar ABS (70 kPa 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	
	/PZ316.....	316SS housing, IP66, packing gland M20x1,5	
	/PM12.....	Housing IP67 with thread M12x1 and connector	
	/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	

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 DIN43650 connector.

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

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