

PRESSURE TRANSMITTER

MODEL CODE : EPT

APPLICATION AND CONSTRUCTION

Smart pressure transmitters are applicable to the measurement of the pressure, under pressure and absolute pressure of gases, vapors 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. The casing is made of aluminum alloy cast or 316SS stainless steel, degree of protection IP66/IP67. The design of the casing enables the use of a local display, rotation of the display, rotation of the casing by 0–340° relative to the sensor, and a choice of cable direction.

The communication standard for data interchange with the transmitter is the Hart protocol.

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 can be installed directly on the installation. An universal mounting bracket is provided to transmitter fitting on 2" pipe (the JU 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. When the special process connections are required for the measurement of levels and pressures (e.g. at food and chemical industries), the transmitter is provided with an KLEEV diaphragm seal. Installing accessories and a full scope of diaphragm seals are described in detail in the further part of the catalogue. The transmitter's electrical connections should be performed with twisted cable. The place for the communicator should be assigned before the communicator installation.

- 4 to 20 mA output signal + HART protocol (special version: 0 to 20 mA or 0 to 5 mA output signal + HART protocol)
- Display with back light
- Programmable range, zero shift, characteristic and damping ratio with local panel keys
- Accuracy 0.075% (0.05% on request)
- Gold plated diaphragm (Au)



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TECHNICAL SPECIFICATIONS STANDARD VERSION

METROLOGICAL PARAMETERS

Accuracy	: $L \pm 0.075\%$ of the calibrated range
	: ($L \pm 0.1\%$ for range no. 17)
	: Special version: $\leq \pm 0.05\%$ of the calibrated range
Long-term stability (for the nominal measuring range)	: = Accuracy for 3 years
	: = 2 x accuracy for 5 years
	: HS version: accuracy for 6 years
Thermal error	: $< \pm 0.05\%$ (FSO) / 10°C (0,1% for ranges no. 14, 15, 17)
	: max. $\pm 0.25\%$ (FSO) in the whole compensation range
	: (0.4% for ranges no. 14, 15, 17)
Thermal compensation range	: -25 to 80°C
	: Special version: -40 to 80°C
Response time	: 16 to 480ms (programmable)
Additional electronic damping	: 0 to 60 s
Error due to supply voltage changes	: 0.002% (FSO) / V

ELECTRICAL PARAMETERS

Power supply	: 10 to 55 VDC
Output signal	: 420 mA, two wire transmission
Load resistance (for standard version)	: $R[?] = U_{\text{sup}} [\text{V}] 10\text{V} / 0.0225\text{A}$
Resistance required for communication	: min. 240 Ω

MATERIALS

Wetted parts and diaphragms	: 316LSS, Hastelloy C 276
Casing	: Aluminum, 316SS
Material of window	: Polycarbonate glass, hardened glass

OPERATING CONDITIONS

Operating temperature range (ambient temp.)	: -40 to 85°C
Medium temperature range	: -40 to 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

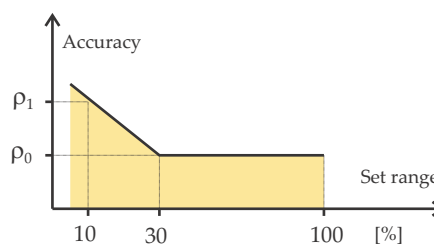
ACCURACY DEPENDING ON THE SET RANGE

ρ_0 – error for nominal measuring range (0...100% FSO)

ρ_1 – error for range 0...10% FSO

$\rho_1 = 2 \times \rho_0$

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



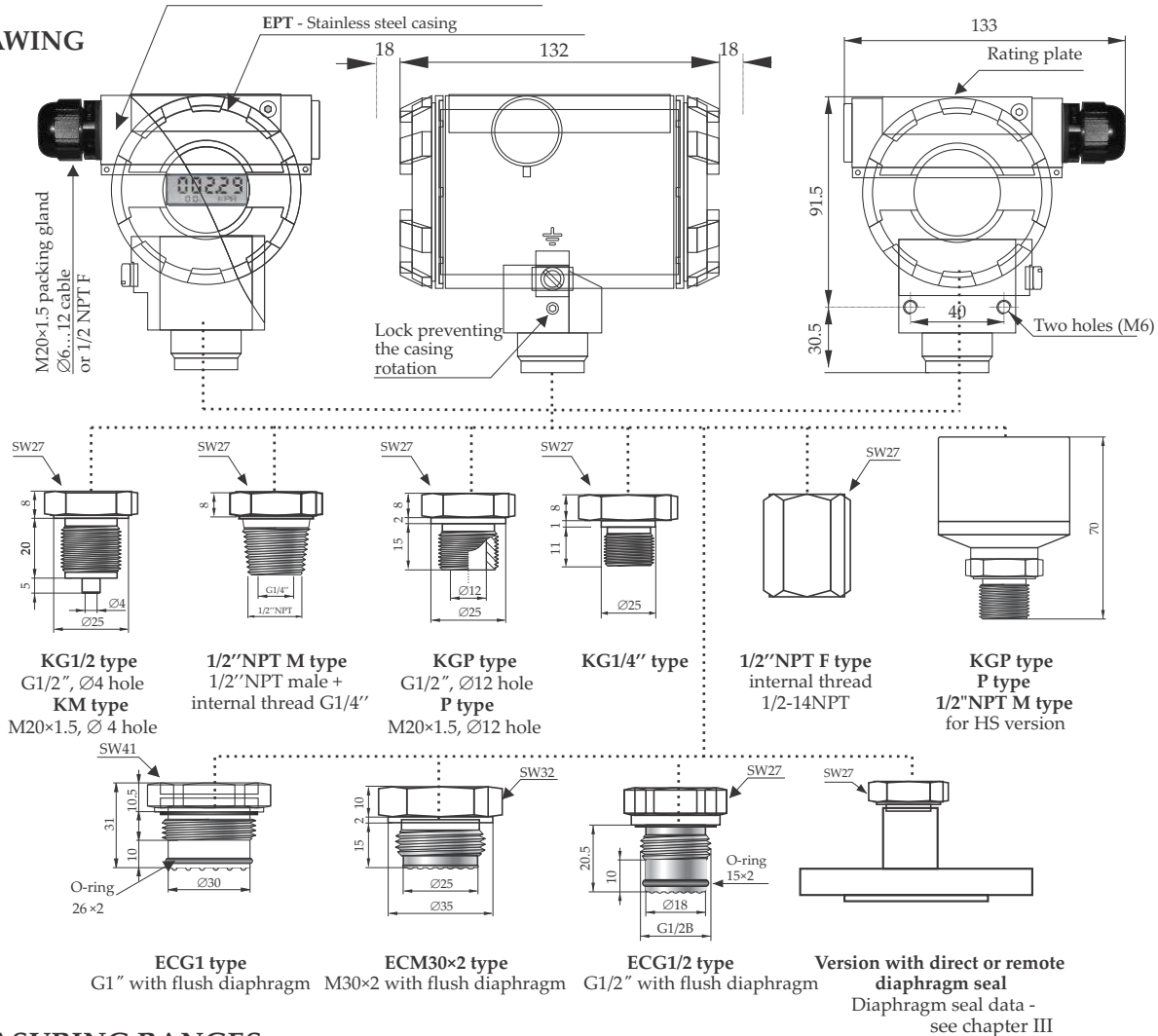
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HOW TO ORDER

EPT - Aluminum epoxy painted casing

DRAWING



MEASURING RANGES

No.	Nominal measuring range (FSO)	Minimum set range	Rangeability	Overpressure limit (without hysteresis)***
1	0 to 1000 bar (0 to 100 Mpa)	10 bar (1 MPa)	100:1	1200 bar (120 MPa)
2	0 to 600 bar (0 to 60 Mpa)	6 bar (600 kPa)	100:1	1200 bar (120 MPa)
3	0 to 300 bar** (0 to 30 Mpa)	3 bar (300 kPa)	100:1	450 bar (45 MPa)
4	0 to 160 bar** (0 to 16 Mpa)	1.6 bar (160 kPa)	100:1	450 bar (45 MPa)
5	0 to 70 bar ** (0 to 7 Mpa)	0.7 bar (70 kPa)	100:1	140 bar (14 MPa)
6	0 to 25 bar ** (0 to 2.5 MPa)	0.25 bar (25 kPa)	100:1	50 bar (5 MPa)
7	0 to 7 bar** (0 to 0.7 MPa)	0.07 bar (7 kPa)	100:1	14 bar (1.4 MPa)
8	-1 to 7 bar** (-100 to 700 kPa)	0.07 bar (7 kPa)	114:1	14 bar (1.4 MPa)
9	-1 to 1.5 bar** (-100 to 150 kPa)	0.12 bar (12 kPa)	20:1	4 bar (400 kPa)
10	0 to 2 bar ** (0 to 200 kPa)	100 mbar (10 kPa)	20:1	4 bar (400 kPa)
11	0 to 1 bar ** (0 to 100 kPa)	50 mbar (5 kPa)	20:1	2 bar (200 kPa)
12	-0.5 to 0.5 bar** (-50 to 50 kPa)	50 mbar (5 kPa)	20:1	2 bar (200 kPa)
13	0 to 0.25 bar** (0 to 25 kPa)	25 mbar (2.5 kPa)	10:1	1 bar (100 kPa)
14	-100 to 100 mbar** (-10 to 10 kPa)	20 mbar (2 kPa)	10:1	1 bar (100 kPa)
15	-15 to 70 mbar ** (-1.5 to 7 kPa)	5 mbar (0.5 kPa)	17:1	0.5 bar (50 kPa)
16	-25 to 25 mbar * / ** (-2.5 to 2.5 kPa)	2 mbar (0.2 kPa)	25:1	1 bar (100 kPa)
17	-7 to 7 mbar * / ** (-0.7 to 0.7 kPa)	1 mbar (0.1 kPa)	14:1	1 bar (100 kPa)
18	0 to 1.3 bar abs (0 to 130 kPa abs)	100 mbar abs (10 kPa abs)	13:1	2 bar (200 kPa)
19	0 to 7 bar abs (0 to 0.7 MPa abs)	100 mbar abs (10 kPa abs)	70:1	14 bar (1.4 MPa)
20	0 to 25 bar abs (0 to 2.5 MPa abs)	0.25 bar abs (25 kPa abs)	100:1	50 bar (5 MPa)
21	0 to 70 bar abs (0 to 7 MPa abs)	0.7 bar abs (70 kPa abs)	100:1	140 bar (14 MPa)
22	0 to 300 bar abs (0 to 30 MPa abs)	3 bar abs (300 kPa abs)	100:1	450 bar (45 MPa)

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BASIC MODEL

MONOCRYSTALLINE SILICON PRESSURE TRANSMITTER

CASING, OUTPUT SIGNAL

AL	Aluminum housing, IP66/IP67, with display, output 4-20mA + Hart
SS	Stainless steel housing, IP66, with display, output 4-20mA + Hart

NOMINAL MEASURING RANGE : REFER TABLE

MEASURING SET RANGE

÷ [REQUIRED UNITS] Calibrated range in relation to 4mA and 20mA output

PROCESS CONNECTIONS

M	Thread M20x1.5 (male) with Ø4 hole, wetted parts SS316L	} Not available with range no. 1, 2, 3
M(Au)	Thread M20x1.5 (male) with Ø4 hole, gold plated diaphragm (range no. 1, 2, 3, 4, 5)	
G1/2	Thread G1/2" (male) with Ø4 hole, wetted parts SS316L	
G1/2(Au)	Thread G1/2" (male) with Ø4 hole, gold plated diaphragm (range no. 1, 2, 3, 4, 5)	
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: 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 Pressure limit:	
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)	

ELECTRICAL CONNECTION

(WITHOUT MARKING)	Packing gland M20x1.5
US	Thread 1/2" NPT Female

ACCESSORIES

JU	Mounting bracket type AL for 2" pipe, material zinc steel
FN	Mounting bracket type AL for 2" pipe, material stainless steel
ST	Stainless Steel plate fixed to the housing
MT	Stainless Steel Tag plate mounted on wire

EPT

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X OR XX

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