Type: Precont® PK4SH

Ultra-compact pressure transmitter / pressure switch for general industrial applications

Technical information TI01.19

In brief

up to 600 bar pressure

process temperature 200°C

Protection IP69K

0,15% high accuracy

fast response time

Application

- Machinery and plant engineering
- Air-conditioning and refrigeration plant engineering
- Hydraulic and pneumatic systems
- Process industry
- Environmental technology
- Facility and building automation

Main features

- Measuring ranges from 10 bar up to 600 bar
- Metallic internal diaphragm
- Process temperature range –40°C to +125°C/+200°C
- Fully welded robust steel enclosure
- Ultra-compact construction
- High protection class IP69K/IP67
- Highest accuracy to ≤ 0,15%
- Electronic 4…20mA HART®
- Certification ATEX / IECEx: Ex ia IIC Ga / Ex ia IIIC Da

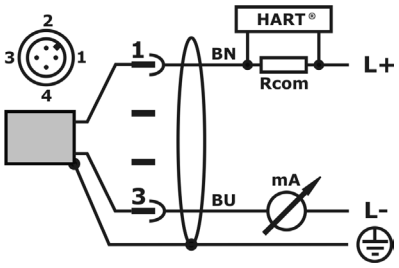
Description

The device is an electronic pressure transmitter / pressure switch for monitoring, control and continuous measurement of pressures.
The pressure transmitter is suitable for demanding measuring requirements, especially at constricted installation situations and high temperature stress.
Due to its high accuracy and the digital adjustability by HART® the device can be suited to a wide variety of applications.
The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.
A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.
Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.
A factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like factory certifications for drink water suitability.
Customer specific special versions can be realized on request, e.g. special designs for the process connection or other process materials.

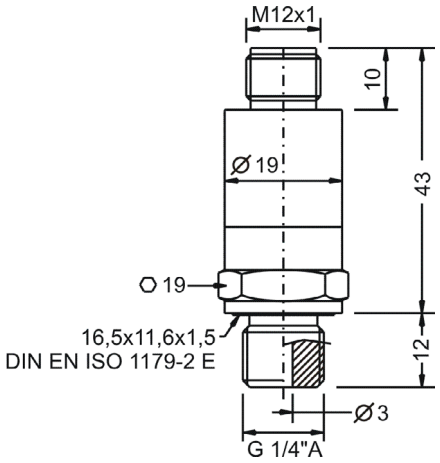
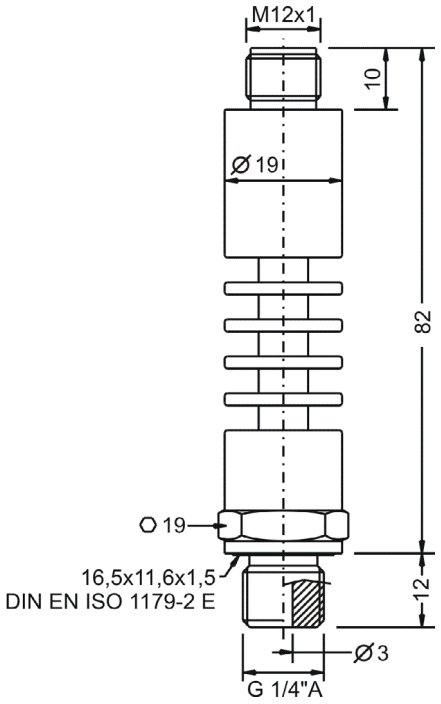
Technical Data

Measuring range										
Nom. pressure PN rel.	[bar]	0…10	0…40	0…100	0…600	-	-	-	-	-
Under-/Overload press.	[bar]	-1/20	-1/80	-1/2000	-1/1200	-	-	-	-	-
Burst pressure	[bar]	300	800	2000	3000	-	-	-	-	-
Output type A – Current 4…20mA HART®										
Analogue output 4…20mA	3,9…20,5mA / ≥ 3,8mA / ≤ 22mA / dI ≤ 1µA									
Permitted load	RL ≤ (Us - 9V) / 22mA									
Time behavior	T90 ≤ 8ms (t_d = 0s) / ton ≤ 0,2s (t_d = 0s)									
Interface	HART®-compliant (7.0) / 1200 Bit/s									
Communication resistor	≥ 250Ω, external									
Auxiliary power										
Supply voltage Us polarity protected Residual ripple voltage Supply current	Type A – 4…20mA HART®: 9…35VDC / ≤ 2Vpp / ≤ 22mA Type A – 4…20mA HART® Ex: 9…30VDC / ≤ 2Vpp / ≤ 22mA									
Measuring accuracy										
Reference conditions	EN/IEC 60770-1: Characteristic deviation – Limit value adjustment 15..25°C / 860..1060kPa / 45..75%r.F. / ton240s / 24VDC±0,1V /vertical, sensor downside									
	Characteristic deviation = Nonlinearity + Hysteresis + Reproducibility FSO = Full Scale Output = Nominal measuring range Tk = Temperature coefficient TD (Turn-Down) = FSO / adjusted measuring range Higher deviations possible for special adjustment									
Resolution measuring input	FSO ≥ 16 Bit									
Characteristic deviation	≤ ±0,15%/±0,5%FSO (TD=1)									
Hysteresis	≤ ±0,1%FSO									
Reproducibility	≤ ±0,05%FSO									
Influence of auxiliary power	≤ ±0,002%FSO/V									
Long term drift	≤ ±0,2%FSO/year (TD=1)									
Temperature deviation	Tk Zero (TD=1) ≤ ±0,015%FSO/K									
	Tk Span (TD=1) ≤ ±0,015%FSO/K									
Mounting position	negligible									
Process conditions										
Process temperature	Standard: -40°C...+125°C / ATEX/IECEx: see certificate Extended: -40°C...+200°C / ATEX/IECEx: see certificate Gasket FPM: max. -25°C...+200°C									
Pressure cycles	≥ 100 Mio. (1,2xPN)									
Environmental conditions										
Environmental temperature	-40°C...+125°C ATEX/IECEx: see certificate									
	Process temperature type 1 – Extended -40°C...+200°C: -40°C...+125°C / Process temperature -40°C...+150°C -40°C...+100°C / Process temperature +150°C...+175°C -40°C...+85°C / Process temperature +175°C...+200°C ATEX/IECEx: see certificate									
Protection level	IP69K/IP67 (EN/IEC 60529)									
Climatic classification	4K4H (EN/IEC 60721-3-4)									
Shock classification	500g [1ms] (EN/IEC 60068-2-27)									
Vibration classification	20g [10…2000 Hz] (EN/IEC 60068-2-6)									
EM compatibility	Operation device class B / Industrial range (EN/IEC 61326)									
Insulation voltage	500Vac									
Ignition protection type	ATEX/IECEx: II 1 G Ex ia IIC T1…T6 Ga ATEX/IECEx: II 1 D Ex ia IIIC T80°C…T195°C Da ATEX: II 3 G Ex ec IIC T1…T6 Gc									
MTTF	463 years									
Tightening torque	≤ 50Nm									
Weight	0,05kg / 0,07kg									
Materials										
Process wetted	Process temperature type 0 – Standard -40°C...+125°C: Steel 1.4548/630, steel 1.4404/316L, FPM									
	Process temperature type 1 – Extended -40°C...+200°C: Steel 2.4668/Inconel alloy 718, steel 1.4404/316L, FPM									
Not process wetted	CrNi-steel, PUR, Acrylic copolymer, FPM									

Electrical connection

Electronic output type A Current 4…20mA HART®


Dimensions (mm)

Process temperature type 0 – Standard -40…+125°C Process connection type 3 – Thread ISO 228-1 – G¼"A, DIN EN ISO 1179-2 E	Process temperature type 1 – Standard -40…+200°C Process connection type 3 – Thread ISO 228-1 – G¼"A, DIN EN ISO 1179-2 E
	

Order code

Type
PK4S Standard

Measuring system – material diaphragm (process wetted) / sensor type
H CrNi-steel / strain gauge

Approval
S Standard
X ATEX II 1 G / IECEx Ex ia IIC Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Da

Process connection
3 Thread ISO 228-1 – G¼"A, DIN EN ISO 1179-2 E
Y others

Material process gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®)
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
10 0…10 bar
13 0…40 bar
19 0…100 bar
24 0…600 bar
YY Special measuring range

Electronic – output
A Current 4…20mA, HART®-compliant, 2-wire

Electronic – function
S Standard

Process temperature
0 Standard –40°C…+25°C
1 Extended –40°C…+200°C, temperature decoupler

Pressure type
R Gauge pressure

Measuring system – accuracy
4 0,5%
8 Xcellence – 0,15%, linearization protocol

Electrical connection
S Plug M12x1

Additional options
-ML Measurement point designation / TAG – Laser marking
-KL Customer label on device – Laser marking
-TN Type label neutral
-WT Factory certification – drink water suitability
-KF Configuration / Preset
-WK Factory calibration – calibration certificate

Precont® PK4S	H			V	C		A	S		R		S	

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