PU-06

Pressure Measuring Transmitter for General Industrial Applications Class 0.25 or 0.35

Features

/ Accuracy class up to 0.25
/ Stainless steel sensor
/ Robust design
/ High precision and linearity
/ Excellent media compatibility
/ Excellent long-term stability
/ Variety of electrical and mechanical connections
/ Optional Ex- and SIL 2-version

Description:

The high quality pressure sensors of PU-06 series are accurate and reliable transmitters that measure the applied pressure by a piezo-resistive sensor element (not wetted). The pressure-dependent resistance signal output by this sensor element is converted into a current or voltage signal. Selectively, a current signal of 4 to 20 mA in 2-wire method or a current signal of 0 to 20 mA respectively a voltage signal of 0 to 10 VDC in 3-wire method can be supplied. Other types of output signals are available on request. The PU-06 with the front flush sensor element is particularly suited for sticky or tenacious media as the media cannot creep into the device and destroy or clog it.

Application:

The PU-06 pressure transmitters are used for measuring pressure in fluid or gaseous materials. The sensor element is made of stainless steel and therefore compatible with a variety number of media. If the measured media require other conditions due to hostile nature, viscosity or temperature of the media, the transmitters can be equipped with diaphragm seals to allow flange connections, milk tube joints or tri-clamp joints (other types on request). Due to its compact design, accuracy and material combination the PU-06 is perfectly suited for a wide range of industrial applications.

Version:

PU-06 Pressure Measuring Transmitter Class 0.35 or 0.25

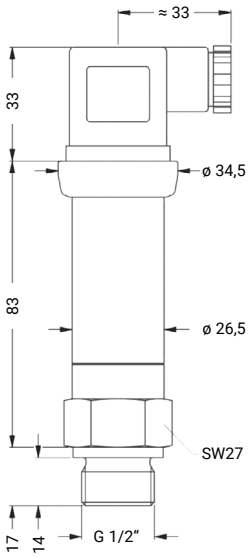
Output signal: Possible output signals are: 4. . .20 mA in 2-wire method (optional as SIL 2- or/ and intrinsically safe version) or 0. . .20 mA respectively 0. . .10 VDC in 3-wire method (other output signals on request).

Calibration: On request, the devices can be calibrated for operating ranges „E“ up to „U“ at absolute pressure.

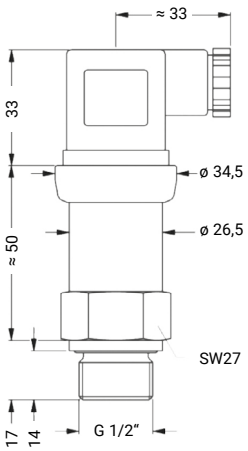
Process connection: On request, the devices can be supplied for operating ranges „B“ up to „O“ with a front flush sensor, that can even be welded to the pressure port. In this case wetted parts are fully stainless steel, because no gasket is necessary. This is recommended for viscous or sticky media.

Dimensions in mm:

SIL- and Ex-Version /



Standard- and Ex-Version /



Ordering Codes:

Order no.	PU-06.	1.	1.	1.	1.	1.	1.	L.	0

PU-06 Pressure Measuring Transmitter

Output signal /
1 = 4. . .20 mA, 2-wire
2 = 0. . .20 mA, 3-wire
3 = 0. . .10 VDC, 3-wire
4 = Intrinsically safe 4. . .20 mA, 2-wire
5 = SIL2 4. . .20 mA, 2-wire
6 = SIL2 intrinsically safe 4. . .20 mA, 2-wire

Calibration /
1 = gauge pressure[1]
2 = absolute pressure[2]

Accuracy /
1 = 0.35 % (0.5 % for PN < 0.4 bar)
2 = 0.25 % (PN ≥ 0.4 bar)

Electrical connection /
1 = male and female plug ISO 4400
2 = male plug Binder Series 723 (5-pole)
3 = cable outlet with 2m PVC cable
4 = male plug M12x1 (4-pole) / metal
5 = compact field housing stainless steel 1.4305

Process connection /
1 = G 1/2“ DIN 3852
2 = G 1/2“ EN 837
3 = G 1/4“ DIN 3852
4 = G 1/4“ EN 837
5 = G 1/2“ DIN 3852 with front flush sensor[3]
6 = G 1/2“ DIN 3852 open pressure port[3]
7 = 1/2“ NPT

Gasket /
1 = FKM
2 = EPDM (only for PN ≤ 160 bar)
3 = without (welded version)[4]

Operating range /
A = -1. . .0 bar
B = 0. . .0.10 bar
C = 0. . .0.16 bar
D = 0. . .0.25 bar
E = 0. . .0.40 bar
F = 0. . .0.60 bar
G = 0. . .1.0 bar
H = 0. . .1.6 bar
I = 0. . .2.5 bar
J = 0. . .4.0 bar
K = 0. . .6.0 bar
L = 0. . .10 bar
M = 0. . .16 bar
N = 0. . .25 bar
O = 0. . .40 bar
P = 0. . .60 bar[5]
Q = 0. . .100 bar[5]
R = 0. . .160 bar[5]
S = 0. . .250 bar[5]
T = 0. . .400 bar[5]
U = 0. . .600 bar[5]
9 = customized operating range (on request)

Options /
0 = none
1 = transmitter power supply for Zone 0 (on request)
9 = special (please specify in detailed text)

1 measurement starts with ambient pressure
2 absolute pressure possible from 0.4 bar
3 for operating range „A“ to „O“ only
4 welded version only with pressure ports according to EN 837
5 The ranges P to U are not available as welded version (gasket option 4)

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Technical Specifications:

Accuracy /	nach IEC 60770
Standard:	P_N ≥ 0.4 bar: ≤ ± 0.35 % FSO P_N < 0.4 bar: ≤ ± 0.50 % FSO
Option:	P_N ≥ 0.4 bar: ≤ ± 0.25 % FSO (≤ ± 0.10 % FSO on request)
Mechanical stability /	
Vibration:	10 g RMS (25. . .2000 Hz) as per DIN EN 60068-2-6
Shock:	500 g / 1 ms as per DIN EN 60068-2-27 (100 g / 11 ms operat. range Q-U)
max. Temperature /	
Medium:	-40. . .+125°C
Ambient / electronics:	-40. . .+85°C
Storage:	-40. . .+100°C
Ambient Ex-version:	in Zone 0: -20. . .+60°C (with p_{atm} 0.8 bar. . .1.1 bar) in Zone 1 or higher: -20. . .+70°C
Process connection /	G 1/2" DIN 3852 (standard), G 1/4" DIN 3852, G 1/2" EN 837, G 1/4" EN 837, 1/2" NPT and G 1/2" DIN 3852 with flush sensor or with open pressure port
Materials /	
Process connection:	stainless steel 1.4404
Housing:	stainless steel 1.4404
Compact field housing	stainless steel 1.4305, cable gland brass, nickel plated
Gaskets:	FKM (standard), EPDM (only for PN ≤ 160 bar)
Diaphragm:	stainless steel 1.4435
Wetted parts /	pressure connection, gaskets and diaphragm
Weight /	depending on the version approx. 140 g (without cable) or approx. 200 g (without cable)

Electrical Specifications:

Supply voltage /	
2-wire, 4. . .20 mA:	V_S = 8. . .32 VDC
2-wire, 4. . .20 mA, Ex:	V_S = 10. . .28 VDC
3-wire, 0. . .20 mA:	V_S = 14. . .30 VDC
3-wire, 0. . .10 V:	V_S = 14. . .30 VDC
Permissible load /	
2-wire, current:	R_{max} = [(V_S - V_{Smin}) / 0.02 A] Ω
3-wire, current:	R_{max} = 240 Ω
3-wire, voltage:	R_{max} = 10 kΩ
Current consumption /	
Signal output current:	max. 25 mA
Signal output voltage:	max. 7 mA
Influence effects /	
Supply:	0.05 % FSO / 10 V
Load:	0.05 % FSO / kΩ
Long term stability /	≤ ± 0.1 % FSO / year ar reference cond.
Response time /	
2-wire:	≤ 10 ms
3-wire:	≤ 3 ms
Electrical protection /	
Short-circuit prot.:	permanent
Reverse polarity prot.:	no damage, but also no function
Electromagnetic compatibility:	emission and immunity according to EN 61326
Option Ex-protection:	Zone 0: II 1G Ex ia IIC T4 Ga Zone 20: II 1D Ex ia IIIC T 85°C Da Safety technical max. values: U_i = 28 VDC, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF
Protection class /	
IP 65:	ISO 4400
IP 67:	Binder S. 723, 5-pole;Stecker M12x1, 4-pole; Compact field housing, Cable outlet PVC
IP 68:	Cable outlet with ventilation tube
ATEX Directive /	2014/34/EU
CE-conformity /	
EMC-Directive:	2014/30/EU
Equipment Directive:	2014/68/EU (module A) (this directive is only valid for devices with max. permissible overpressure > 200 bar)

Thermal effects:

Thermal effects (offset and span)				
Nominal pressure PN [bar]	-1. . .0	< 0,40	≥ 0,40	≥ 60
Tolerance band [% FSO]	≤ ± 0,75	≤ ± 1,00	≤ ± 0,75	≤ ± 0,75
in compens. range [°C]	-20. . .85	0. . .70	-20. . .85	0. . .70°C

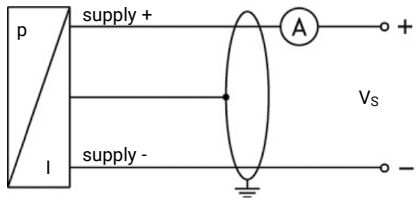
Operating ranges and permissible overpressure:

Vacuum resistance: $P_N \geq 1$ bar: unlimited resistance; $P_N < 1$ bar: on request

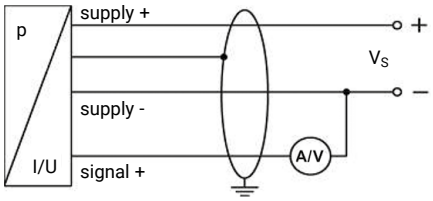
Nominal pressure gauge	Nominal pressure absolute	Permissible overpressure	Burst pressure ≥
-1. . .0 bar		5 bar	7.5 bar
0. . .0.10 bar		0.5 bar	1.5 bar
0. . .0.16 bar		1 bar	1.5 bar
0. . .0.25 bar		1 bar	1.5 bar
0. . .0.40 bar	0. . .0.40 bar	2 bar	3 bar
0. . .0.60 bar	0. . .0.60 bar	5 bar	7.5 bar
0. . .1.0 bar	0. . .1.0 bar	5 bar	7.5 bar
0. . .1.6 bar	0. . .1.6 bar	10 bar	15 bar
0. . .2.5 bar	0. . .2.5 bar	10 bar	15 bar
0. . .4.0 bar	0. . .4.0 bar	20 bar	25 bar
0. . .6.0 bar	0. . .6.0 bar	40 bar	50 bar
0. . .10 bar	0. . .10 bar	40 bar	50 bar
0. . .16 bar	0. . .16 bar	80 bar	120 bar
0. . .25 bar	0. . .25 bar	80 bar	120 bar
0. . .40 bar	0. . .40 bar	105 bar	210 bar
0. . .60 bar	0. . .60 bar	105 bar	210 bar
0. . .100 bar	0. . .100 bar	210 bar	1000 bar
0. . .160 bar	0. . .160 bar	600 bar	1000 bar
0. . .250 bar	0. . .250 bar	1000 bar	1250 bar
0. . .400 bar	0. . .400 bar	1000 bar	1250 bar
0. . .600 bar	0. . .600 bar	1000 bar	1800 bar

Wiring diagrams:

2-wire-system (current)

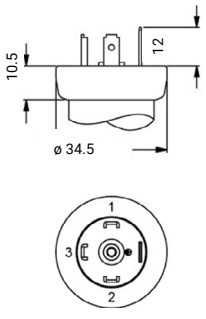


3-wire-system (current / voltage)

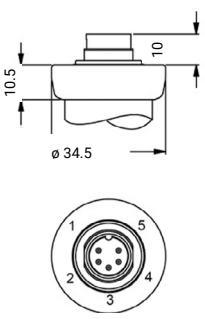


Electrical Connections:

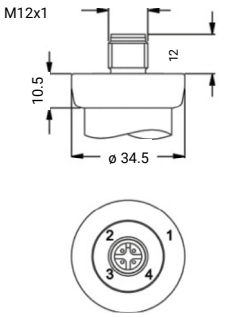
Standard / **Optional /**



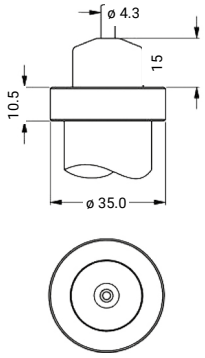
ISO 4400 (IP65)



Binder series 723 5-wire (IP 67)

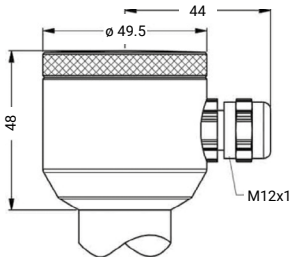


M12x1 4-wire (IP 67)

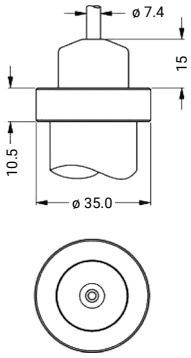


Cable outlet with PVC cable [4] (IP 67)

[4] standard: 2 m PVC cable without ventilation tube; Permissible temperature: -5. . .+70°C-



Compact field housing (IP 67)



Cable outlet, cable with ventilation tube [5] (IP 68)

[5] different cable types and lengths available, permissible temperature depends on kind of cable

Electrical connections /

Electrical connections		ISO 4400	Binder 723 (5-wire)	M12x1 (4-wrire)	Field housing	Cable colours (DIN 47100)
2-wire	supply +	1	3	1	IN +	white
	supply -	2	4	2	IN -	brown
	load	load	5	4	load	yellow/green (shade)
3-wire	supply +	1	3	1	IN +	white
	supply -	2	4	2	IN -	brown
	signal +	3	1	3	out +	green
	load	load	5	4	load	yellow/green (shade)

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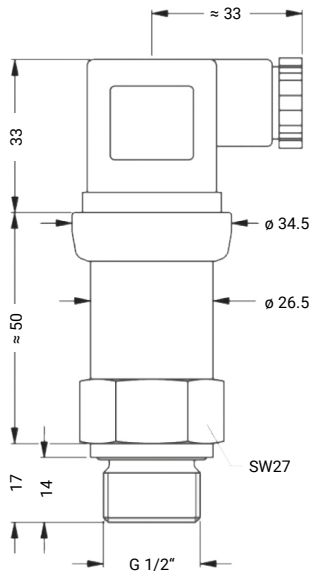
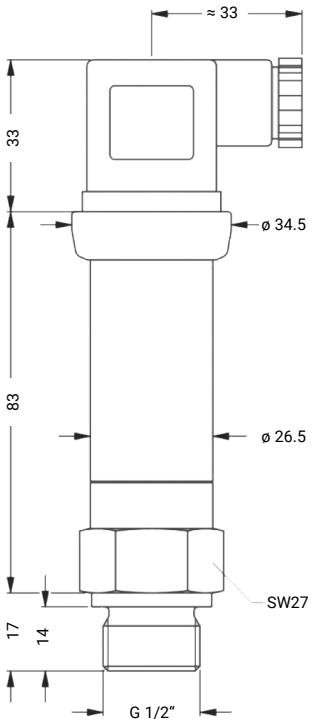
Mechanical connection:

Standard for accuracy 0.35 % / 0.25 % /



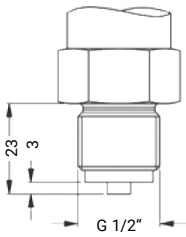
G 1/2" DIN 3852 with ISO 4400

Standard for SIL- and Ex-Version /

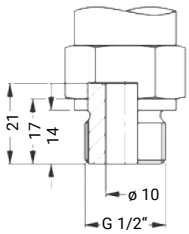


G 1/2" DIN 3852 with ISO 4400

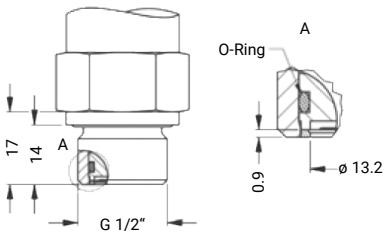
Optional /



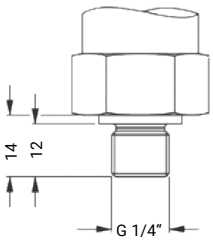
G 1/2" EN 837



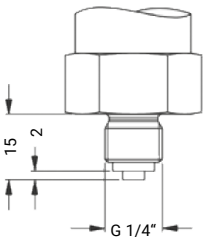
G 1/2" open port



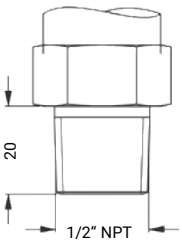
G 1/2" DIN 3852 with flush sensor



G 1/2" DIN 3852



G 1/4" EN 837



1/2" NPT

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