PU-07

Pressure Measuring Transmitter with Ceramic Sensor Class 0.5

Features

/ High chemical resistance
/ Measuring cell from ceramics
/ Up to 600 bar
/ 4. . .20 mA or 0. . .10 VDC
/ Protection class IP 65 / IP 67
/ Variety of electrical and mechanical connections
/ Optional Ex- and SIL 2-version
/ Optional pressure port made from PVDF
/ Suitable for oxygen (on request)

Description:

Series PU-07 pressure transmitters are equipped with a chemical resistant thick-film ceramic measuring cell and are especially well suited for viscous, pasty, contaminated and aggressive media as well as for low-pressure oxygen applications. In this measurement method, depending on the measuring range, the applied physical pressure on the sensor is converted into a pressure-proportional electronic signal which is either available as 4 . . .20 mA in 2-wire technology or as 0. . .20 mA respectively as 0. . .10 VDC in 3-wire technology. Other options are Ex-, Sil2- and Ex-SIL2- as well as customized designs.

Application:

The PU-07 pressure transmitters are used for measuring pressure in fluid or gaseous materials. By the option with front flush diaphragm the devices are particularly suited for sticky or tenacious media as the media cannot creep into and destroy or clog them. Versions with the optional pressure port made from PVDF find their use in many aggressive media, to which stainless steel is not resistant. Due to compact design, accuracy and material combination, this series is recommended for a wide range of industrial applications.

Versions:

PU-07 Pressure Meas. Transmitter Class 0.5

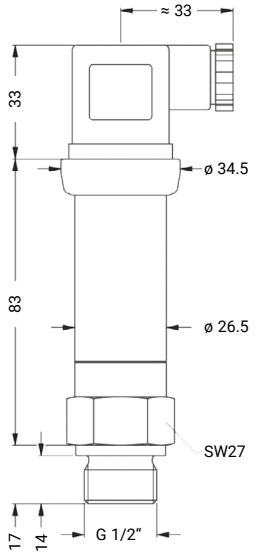
Output signal: Possible output signals are:
4. . .20 mA in 2-wire method (optional as SIL 2- or/ and intrinsically safe version)
or 0. . .20 mA respectively 0. . .10 VDC in 3-wire method (other output signals on request).

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

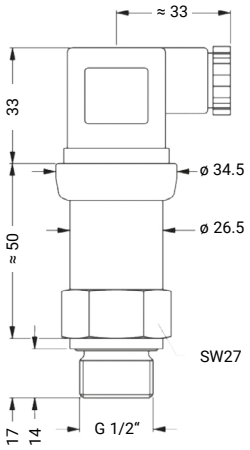
Pro**cess connection:** On request, the devices can be supplied for operating ranges „A“ up to „K“ with a semi-flush sensor. This is recommended for viscous or sticky media.

Dimensions in mm:

SIL- and Ex-Version /



Standard- and Ex-Version /



Ordering Codes:

Order no.	PU-07.	1.	1.	1.	1.	1.	1.	L.	0

PU-07 Pressure transmitter

Output signal /
1 = 4. . .20 mA, 2-wire
2 = 0. . .20 mA, 3-wire
3 = 0. . .10 VDC, 3-wire
4 = 4. . .20 mA, 2-wire, Ex-protection
5 = 4. . .20 mA, 2-wire, SIL2
6 = 4. . .20 mA, 2-wire, SIL2, Ex-protection
9 = other (on request)

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

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

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 semi-flush sensor[2]
6 = G 1/2“ DIN 3852 open pressure port
7 = 1/2“ NPT
9 = other (on request)

Seal /
1 = FKM
2 = EPDM (for PN ≤ 160 bar only)
9 = other (on request)

Pressure connection /
1 = st. steel 1.4404 (316L)
2 = PVDF [3]
9 = other (on request)

Operating range /
A = -1. . .0 bar
B = 0. . .0.4 bar
C = 0. . .0.6 bar
D = 0. . .1.0 bar
E = 0. . .1.6 bar
F = 0. . .2.5 bar
G = 0. . .4.0 bar
H = 0. . .6.0 bar
I = 0. . .10 bar
J = 0. . .16 bar
K = 0. . .25 bar
L = 0. . .40 bar
M = 0. . .60 bar
N = 0. . .100 bar
O = 0. . .160 bar
P = 0. . .250 bar
Q = 0. . .400 bar
R = 0. . .600 bar
9 = other (on request)

Option /
0 = without
1 = transmitter power supply for Zone 0 (on request)
2 = oxygen application [4] (on request)
9 = special (please specify in detailed text)

[1] absolute pressure possible from 0.6 bar (operating range „C“)
[2] possible for nominal pressure ranges PN ≤ 25 bar, absolute pressure ranges on request
[3] PVDF only with G 1/2“ DIN 3852 open pressure port (up to 60 bar), min. permissible temp. is -30°C
[4] oxygen application with FKM-gasket up to 25 bar and with EPDM-gasket up to 15 bar possible

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Electrical Specifications:

Supply voltage /

2-wire, 4. . .20 mA:	U_B = 8. . .32 VDC
2-wire, 4. . .20 mA, Ex:	U_B = 10. . .28 VDC
3-wire, 0. . .20 mA:	U_B = 14. . .30 VDC
3-wire, 0. . .10 V:	U_B = 14. . .30 VDC

Load /

2-wire, current:	R_{max} = [(U_B - U_{Bmin}) / 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:	005 % FSO / 10 V
Load:	0.05 % FSO / kΩ

Long term stability / ≤ ± 0.3 % FSO / year at ref. conditions

Response time /

2-wire:	≤ 10 ms
3-wire:	≤ 3 ms

Thermal error / ≤ ± 0.2% of full scale value / 10 K
or zero and span in compensated range
-25. . .+85°C

Short-circuit prot. / permanent

Reverse polarity prot. / no damage, but also no function

EMC / emission and immunity as per EN 61326

Protection class / acc. to diagrams of electrical contacts

Option Ex-Protection /

St. steel pres. port:	Zone 0: II 1G Ex ia IIC T4 Ga Zone 20: II 1D Ex ia IIIC T 85°C Da
Plastic pressure port:	Zone 1: II 2G Ex ia IIC T4 Gb Zone 21: II 2D Ex ia IIIC T 85°C Db Safety technical max. values: Ui = 28 VDC, Ii = 93 mA, Pi = 660 mW, Ci ≈ 0 nF, Li ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF

Option SIL 2 / as per IEC 61508 / IEC 61511

Option oxygen application / for PN ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible max. values are 25 bar / 150°C

ATEX-Directive / 2014/34/EU

CE-conformity / EMV-Directive: 2004/108/EG; Pressure Equip. Directive: 2014/68/EU (module A)[8]

Technical Specifications:

Accuracy / ≤ ± 0.5 % FSO[5]

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

max. Temperature /

Medium:	-40. . .+125°C
Ambient / electronics	-40. . .+85°C
Storage:	-40. . .+100°C
Ambient Ex-version:	in Zone 0: -20. . .+60°C (for p_{atm} 0.8 bar. . .1.1 bar) from Zone 1: -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 semi-flush sensor or with open pressure port

Materials /

Process connection:	st. steel 1.4404 (standard), optional for G 1/2" open port with nominal pressure range up to 60 bar: PVDF[6]
Housing:	Edelstahl 1.4404
Compact field housing:	st. steel 1.4305, cable gland brass, nickel plated
Gaskets:	FKM (standard) and EPDM (only for PN ≤ 160 bar)
Diaphragm:	ceramics Al_2O_3 96 %

Wetted parts / pressure connection, gaskets and diaphragm

Weight / approx. 140 g (without cable)

[5] accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysteresis, repeatability)
[6] for pressure port of PVDF the medium temperature range is -30°C. . .+60°C

Op. Ranges and Overpress.:

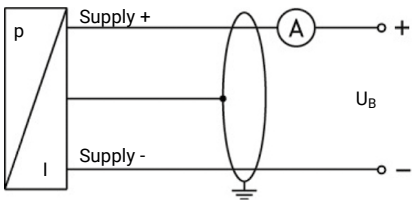
Vacuum resistance: $P_N \geq 1$ bar: unlimited resistance; $P_N < 1$ bar: on request

Nom. pressure relative	Nom. pressure absolute	Overpressure	Burst pressure ≥
-1. . .0 bar		4 bar	7 bar
0. . .0.40 bar		1 bar	2 bar
0. . .0.60 bar	0. . .0.60 bar	2 bar	4 bar
0. . .1.0 bar	0. . .1.0 bar	2 bar	4 bar
0. . .1.6 bar	0. . .1.6 bar	4 bar	5 bar
0. . .2.5 bar	0. . .2.5 bar	4 bar	7.5 bar
0. . .4.0 bar	0. . .4.0 bar	10 bar	12 bar
0. . .6.0 bar	0. . .6.0 bar	10 bar	18 bar
0. . .10 bar	0. . .10 bar	20 bar	30 bar
0. . .16 bar	0. . .16 bar	40 bar	50 bar
0. . .25 bar	0. . .25 bar	40 bar	75 bar
0. . .40 bar	0. . .40 bar	100 bar	120 bar
0. . .60 bar	0. . .60 bar	100 bar	180 bar
0. . .100 bar	0. . .100 bar	200 bar	300 bar
0. . .160 bar	0. . .160 bar	400 bar	500 bar
0. . .250 bar	0. . .250 bar	400 bar	750 bar
0. . .400 bar	0. . .400 bar	600 bar	1000 bar
0. . .600 bar[7]	0. . .600 bar[7]	800 bar	1100 bar

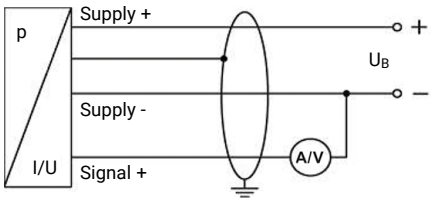
[7] nominal pressure 600 bar without UL certification

Wiring diagram:

2-Wire-System (current)

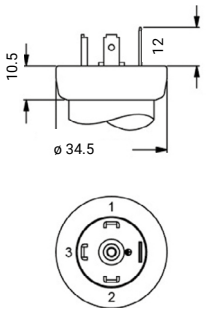


3-Wire-System (current / voltage)



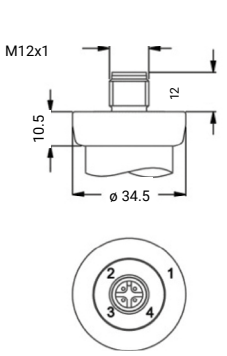
Electrical Connections:

Standard / **Optional /**



ISO 4400 (IP65)

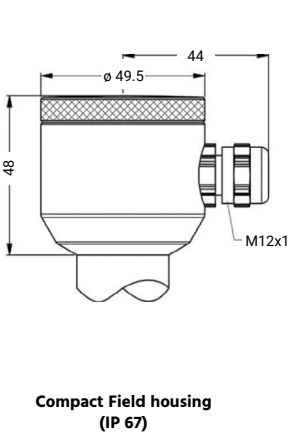
Binder Series 723 5-wire (IP 67)



M12x1 4-wire (IP 67)

Cable output with PVC-cable [9] (IP 67)

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



Compact Field housing (IP 67)

Cable output, cable with vent [10] (IP 68)

[10] 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-wire)	Field housing	Cable colours (DIN 47100)
2-wire-system	supply +	1	3	1	IN +	white
	supply -	2	4	2	IN -	brown
	shield	ground	5	4	ground	yellow/green
3-wire-system	supply +	1	3	1	IN +	white
	supply -	2	4	2	IN -	brown
	signal +	3	1	3	Out +	green
	shield	ground	5	4	ground	yellow/green

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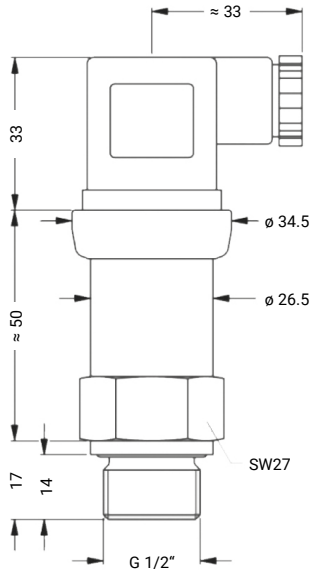
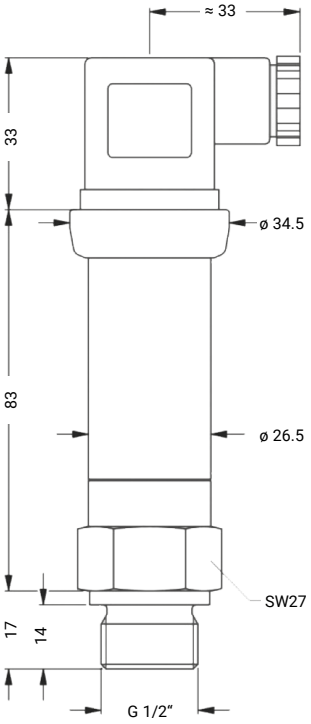
Mechanical Connections:

Standard for Accuracy 0.35 % / 0.25 %



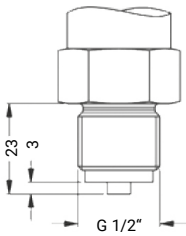
G 1/2" DIN 3852 with ISO 4400

Standard for SIL- and Ex-Version

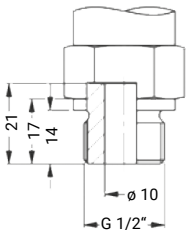


G 1/2" DIN 3852 with ISO 4400

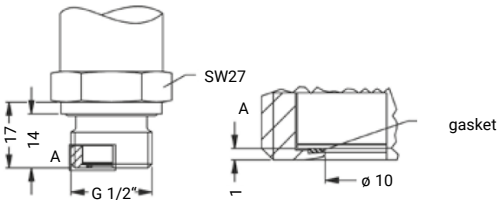
Optional



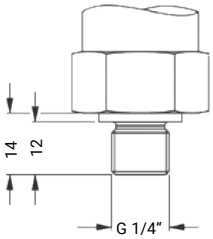
G 1/2" EN 837



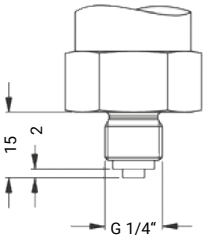
G 1/2" open port



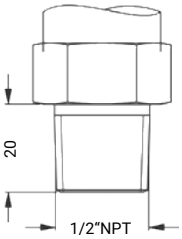
G 1/2"quasi-flush DIN 3852; M20x1,5[11]



G 1/4" DIN 3852



G 1/4" EN 837



1/2" NPT

[11] possible for nominal pressure ranges PN ≤ 25 bar; absolute pressure ranges on request

This data sheet contains product specifications, properties are not guaranted. Subject to change without notice.

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