



# PU-08

## Low Pressure Measuring Transmitter with Ceramic Sensor Class 0.25 or 0.35



## Features

- / High chemical resistance
- / Ceramic measuring cell
- / Up to 20 bar
- / 4...20 mA or 0...10 VDC
- / Protection class up to IP 68
- / Variety of process connections
- / Optional pressure port made of PVDF
- / Optional intrinsically safe ver.

## Description:

Series PU-08 pressure transmitters are equipped with a chemical resistant, capacitive ceramic measuring cell for detection of low system pressures. Optional configurations such as versions with a 99,9%  $Al_2O_3$  ceramic diaphragm or a thermoplastic connection made of PVDF expand the wet-side area of applications. Depending on the selected operating range, physical pressure is converted into a proportional electrical signal, which is either available as 4...20 mA in 2-wire technology or as 0...10 VDC in 3-wire technology. For applications in explosive areas, intrinsically safe versions are available.

## Application:

Series PU-08 pressure transmitters are used in the measurement of low system pressure of liquid or gaseous media. Due to compact design, accuracy and high media resistance, PU-08 are ideal for a wide range of applications, for example in environmental technology, process technology, laboratory technology as well as in industrial technology. Preferred media are water, fuels, oils and gases.



## Versions:

### PU-08 Pressure Measuring Transm. Class 0.35 or 0.25

#### Output signal:

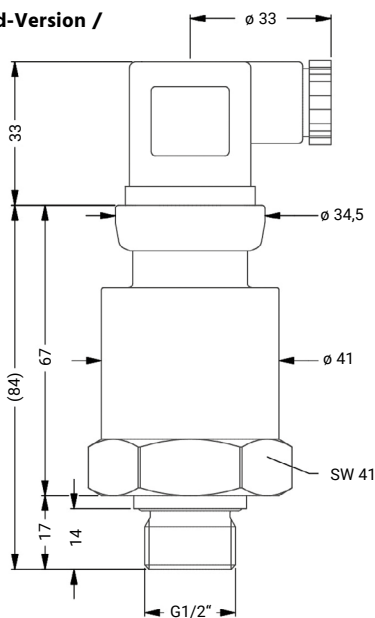
Possible output signals are: 4...20 mA in 2-wire method (optional as intrinsically safe version) or 0...10 VDC in 3-wire method (other output signals on request).

**Calibration:** On request, the devices can be calibrated for operating ranges „H“ up to „O“ at absolute pressure (other on request).

**Process connection:** Optional, the devices can be supplied with a G 1/2" DIN 3852 open pressure port made of PVDF. This is recommended for aggressive media, due to the high chemical resistance.

## Dimensions in mm:

#### Standard-Version /



## Ordering Codes:

Order no. **PU-08.** 1. 1. 1. 1. 1. 1. 1. 1. H. 0

#### PU-08 Pressure Transmitter

#### Output signal /

- 1 = 4...20 mA, 2-wire
- 2 = 0...10 VDC, 3-wire
- 3 = 4...20 mA, 2-L, Ex-protection T4
- 4 = 4...20 mA, 2-L, Ex-protection T6
- 9 = Other (on request)

#### Calibration /

- 1 = relative pressure
- 2 = absolute pressure<sup>1</sup>

#### Accuracy /

- 1 = 0.35 %
- 2 = 0.25 % (Option for PN ≥ 0.6 bar)

#### 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<sup>2</sup>
- 4 = cable outlet, cable with ventilation tube<sup>3</sup>
- 5 = male plug M12 x 1 (4-pole) / metal
- 6 = 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 1/2" DIN 3852 open pressure port
- 4 = 1/2" NPT
- 9 = Other (on request)

#### Gasket /

- 1 = FKM
- 2 = EPDM
- 9 = Other (on request)

#### Pressure connection /

- 1 = stainless steel 1.4404 (316L)
- 2 = PVDF<sup>4</sup>
- 9 = Other (on request)

#### Diaphragm /

- 1 = ceramics Al<sub>2</sub>O<sub>3</sub> 96 %
- 2 = ceramics Al<sub>2</sub>O<sub>3</sub> 99,9 %
- 9 = Other (on request)

#### Operating range /

- A = 0...0.04 bar
- B = 0...0.06 bar
- C = 0...0.10 bar
- D = 0...0.16 bar
- E = 0...0.25 bar
- F = 0...0.40 bar
- G = 0...0.60 bar
- H = 0...1.0 bar
- I = 0...1.6 bar
- J = 0...2.5 bar
- K = 0...4.0 bar
- L = 0...6.0 bar
- M = 0...10 bar
- N = 0...16 bar
- O = 0...20 bar
- 9 = Other (on request)

#### Options /

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

<sup>1</sup> absolute pressure possible from operating range „H“ ( less than operating range „H“ on request )

<sup>2</sup> standard: 2 m PVC cable ( permissible temperature: -5°C...+70°C ), other cable lengths on request

<sup>3</sup> different cable types and lengths available, permissible temperature depends on kind of cable

<sup>4</sup> PVDF only with G 1/2" DIN 3852 open pressure port, minimum permissible temperature is -30°C



## Electrical Specifications:

### Supply voltage /

2-wire, 4...20 mA:	$U_B = 9...32$ VDC
2-wire, 4...20 mA, Ex:	$U_B = 14...28$ VDC
3-wire, 0...10 V:	$U_B = 12.5...32$ VDC

### Load /

current 2-wire:	$R_{max} = [(U_B - U_{Bmin}) / 0.02 A] \Omega$
voltage 3-wire:	$R_{min} = 10$ k $\Omega$

### Current consumption /

signal output current:	max. 21 mA
signal output voltage:	max. 5 mA

### Influence effects /

Supply:	0.05 % FSO / 10 V
Load:	0.05 % FSO / k $\Omega$

### Long term stability /

$\leq \pm 0.1$  % FSO / year at reference cond.

### Start-up time /

700 ms

### Mean measuring time /

5 / s

### Response time /

mean response time: < 200 ms  
max. response time: 380 ms

### Thermal error /

$\leq \pm 0.1\%$  of full scale value / 10 K for zero and span in compensated range -20...+80°C

### Short-circuit prot. /

permanent

### Rev. polarity protection /

no damage, but also no function

### Emission and Immunity /

as per EN 61326

### Protection class /

ISO 4400:	IP 65
Binder S. 723, 5-wire:	IP 67
Plug M12 x 1, 4-wire:	IP 67
Compact field housing:	IP 67
Cable outlet PVC:	IP 67
Cable outlet with ventilation tube:	IP 68

### Option Ex-Protection /

St. Steel-connection:	Zone 0: II 1G Ex ia IIC T4 Ga (option: II 1G Ex ia IIC T6 Ga) Zone 20: II 1D Ex ia IIIC T85°C Da Safety technical max. values $U_i = 28$ VDC, $I_i = 93$ mA, $P_i = 660$ mW, $C_i \leq 14$ nF, $L_i \leq 0$ $\mu$ H, $C_{GND} = 27$ nF
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Connecting cables: (by factory)	capacity: signal line / shield also signal line / signal line: 220 pF / m inductance: signal line / shield also signal line / signal line: 1,5 $\mu$ H / m
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### ATEX-Directive /

2014/34/EU

### CE-Conformity /

EMC-Directive: 2014/30/EU

## Technical Specifications:

### Accuracy /

Standard:	$\leq \pm 0.35$ % FSO <sup>5</sup>
Option:	$\leq \pm 0.25$ % FSO <sup>5</sup> (for PN $\geq 0,6$ bar)

### Mechanical stability /

Vibration:	10 g RMS (20...2000 Hz) as per DIN EN 60068-2-6
Shock:	100 g / 1 ms as per DIN EN 60068-2-27

### max. Temperature /

Media:	-40...+125°C
Ambient / Electronics:	-40...+85°C
Storage:	-40...+100°C
Ambient Ex-Version:	in Zone 0: -20...+60°C (at $p_{atm}$ 0.8 bar...1.1 bar) from Zone 1: -25...+70°C for T6: -25...+60°C

### Process connection /

G 1/2" DIN 3852 (standard),  
G 1/2" DIN 3852 open port,  
G 1/2" EN 837 and 1/2" NPT

### Materials /

Process connection:	st. steel 1.4404 (standard), opt. for G 1/2" open port in PVDF <sup>6</sup>
Housing:	st. steel 1.4404
Compact field housing:	stainless steel 1.4301, cable gland brass, nickel plated
Gaskets:	FKM (standard) or EPDM
Diaphragm:	ceramics Al <sub>2</sub> O <sub>3</sub> 96% (standard) and ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%

### Wetted parts /

pressure connection, gaskets  
and diaphragm

### Lifespan /

> 100 x 10<sup>6</sup> load cycles

### Weight /

approx. 200 g (without cable)

<sup>5</sup> accuracy according to IEC 60770 - limit point adjustment  
(non-linearity, hysteresis, repeatability)

<sup>6</sup> for pressure port of PVDF the medium temperature range is -30°C...+60°C



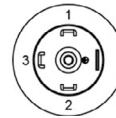
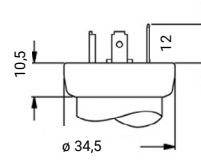
# Op. Ranges & Overpressure:

Nominal press. relative	Nominal press. absolute	Permissible overpressure	Underpressure
0 .. 0.04 bar		2 bar	- 0.2 bar
0 .. 0.06 bar		2 bar	- 0.2 bar
0 .. 0.10 bar		4 bar	- 0.3 bar
0 .. 0.16 bar		4 bar	- 0.3 bar
0 .. 0.25 bar		6 bar	- 0.5 bar
0 .. 0.40 bar	(0 .. 0.4 bar) <sup>7</sup>	6 bar	- 0.5 bar
0 .. 0.60 bar	(0 .. 0.6 bar) <sup>7</sup>	8 bar	- 0.5 bar
0 .. 1.0 bar	0 .. 1.0 bar	8 bar	- 0.5 bar
0 .. 1.6 bar	0 .. 1.6 bar	15 bar	- 1.0 bar
0 .. 2.5 bar	0 .. 2.5 bar	25 bar	- 1.0 bar
0 .. 4.0 bar	0 .. 4.0 bar	25 bar	- 1.0 bar
0 .. 6.0 bar	0 .. 6.0 bar	35 bar	- 1.0 bar
0 .. 10 bar	0 .. 10 bar	35 bar	- 1.0 bar
0 .. 16 bar	0 .. 16 bar	45 bar	- 1.0 bar
0 .. 20 bar	0 .. 20 bar	45 bar	- 1.0 bar

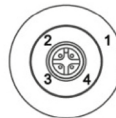
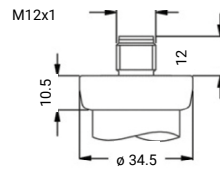
<sup>7</sup> on request

# Electrical Connection:

## Standard /

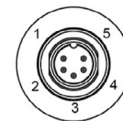
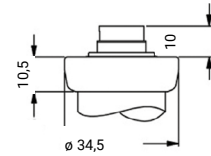


**ISO 4400 (IP 65)**

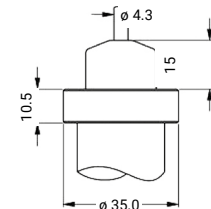


**M12 x 1 4-wire (IP 67)**

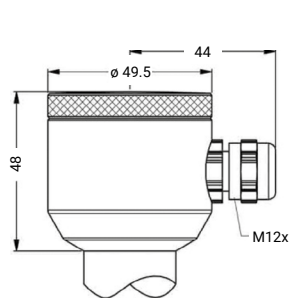
## Optional /



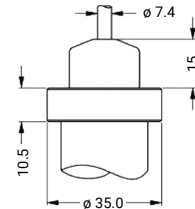
**Binder Series 723 5-wire (IP 67)**



**Cable output with PVC-cable<sup>8</sup> (IP 67)**



**Compact-Field housing (IP 67)**



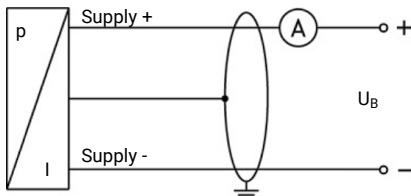
**Cable output, cable with vent<sup>9</sup> (IP 68)**

<sup>8</sup> standard: 2 m PVC cable without ventilation tube; permissible temperature: -5 .. +70°C

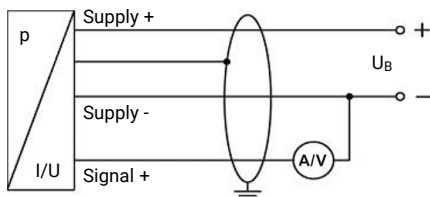
<sup>9</sup> different cable types and lengths available; permissible temp. depends on kind of cable

# Wiring diagrams:

## 2-Wire-System (Current)



## 3-Wire-System (Current / Voltage)

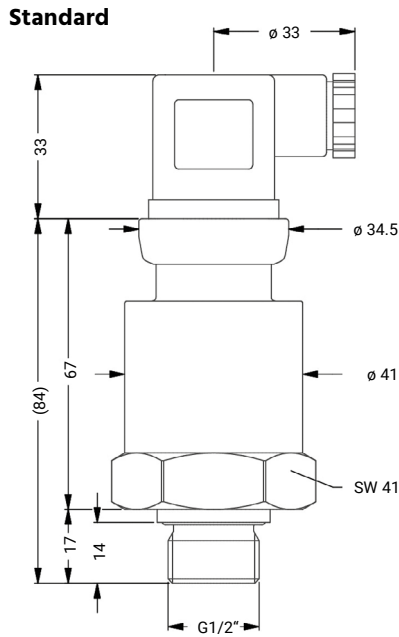


## Electrical connections /

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

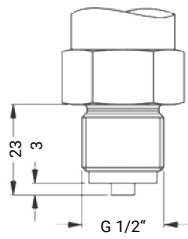


# Mechanical Connection:

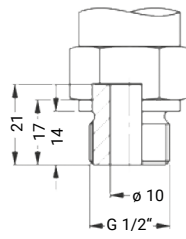


**G 1/2" DIN 3852  
 with ISO 4400**

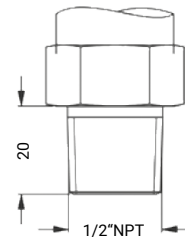
**Optional**



**G 1/2" EN 837**



**G 1/2" open port**



**1/2" NPT**

