



PD111

**Pressure transmitter for
general industrial application**

User guide

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Intended use

1. Intended use

The PD111 is a pressure transmitter with internal diaphragm made of stainless steel AISI 316L and with a silicon measuring cell. The transmitter is applied for gauge pressure measurement in liquid and gaseous media compatible with stainless steel AISI 316L / 1.4435 (AISI 304L / 1.4307). The pressure is converted into an electrical signal 4-20mA.

Restrictions on process medium:





- process medium may not corrode the wetted parts of the transmitter
- process medium may not crystallize or harden in process connection
- process medium temperature must be between -40 and +100 °C

The pressure transmitters described in this guide may be operated only in explosion proof areas without aggressive vapors and gases.

Safety

2. Safety

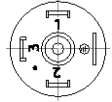
Explanation of the symbols and keywords used:

- | | |
|--|--|
|  DANGER | <i>DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</i> |
|  WARNING | <i>WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</i> |
|  CAUTION | <i>CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.</i> |
|  NOTICE | <i>NOTICE indicates a potentially harmful situation which, if not avoided, may result in damage of the product itself or of adjacent objects.</i> |

Specification

3. Specification

Table 3.1 Specification

Measuring ranges					
Nominal pressure, bar	0...-1	0...0,16	0...0,25	0...0,4	0...0,6
Max. working pressure (MWP), bar	2...-1	0,7	0,7	2	2
Burst pressure (OPL*), bar	4	1,4	1,4	4	4
Nominal pressure, bar	0...1	0...1,6	0...2,5	0...4	0...6
Max. working pressure (MWP), bar	2	10	10	10	20
Burst pressure (OPL*), bar	4	20	20	20	40
Nominal pressure, bar	0...10	0...16	0...25		
Max. working pressure (MWP), bar	20	60	60		
Burst pressure (OPL*), bar	40	120	120		
Vacuum resistance					
$P_N \geq 1$ bar	unlimited vacuum resistance				
$P_N < 1$ bar	on request				
Power supply	12...36 V DC				
Current consumption, max.	70 mA				
Output signal	4-20 mA				
Accuracy					
standard	± 0.5 % FSO				
option**	± 0.25 % FSO				
Permissible load	0...1200 ohm				
Influence effects					
supply	0.01 % FSO / 10 V				
load	0.05 % FSO / 1 kohm				
Temperature influence	$\leq 0,1$ % / 10 °C				
Response time	≤ 100 ms				
Short circuit protection	yes				
Reverse polarity protection	yes				
Permissible temperatures					
process media	-40...+100 °C				
ambient	-40...+80 °C				
storage	-40...+80 °C				
IP Code	IP65				
Electromagnetic compatibility (EMC)	EMI and interference immunity according to EN 61326				
Shock resistance	480 g / 1 ms (according to EN 60068-2-27)				
Vibration resistance	9 g at 25..2000 Hz (according to EN 60068-2-6)				
Materials					
Process connection	Stainless steel 1. 4307				
Enclosure	Stainless steel 1. 4307				
Sealing	no sealing (laser-welding diaphragm)				
Diaphragm	Stainless steel 1.4435				
Media wetted parts	Process connection and diaphragm				
Lifetime	> 500 000 Horas				
Process connection	M20x1.5; G1/2"; G1/4" (look Chapter 9)				
Electrical connection	EN 175301-803 A ISO 4400				
Supply +	1				

Specification

Supply - Shield	2 Ground contact	
Mounting position	any	
Dimensions	92 x 52 x 34 mm	
Weight	approx. 400 g	
CE conformity	EMC Directive: 2004/108/EC	

Note * OPL – over pressure limit

** except the following ranges: 0...0.16; (bar)

Wiring

4. Wiring

The transmitter is connected in accordance with the wiring diagram (Fig. 4.1) considering the load resistance requirements.

► **NOTICE** | *Signal cables should be routed separately or screened from the supply cables.*

► **NOTICE** | *Only a shielded cable may be used for the signal lines.*

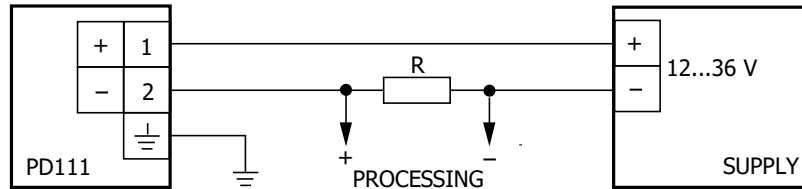


Fig. 4.1 Wiring diagram

Use the diagram (Fig. 4.2) to select the permissible load resistance.

Recommendation:
 $U = 24 \pm 2 \text{ V}$
 $R = 500 \pm 50 \text{ ohm}$

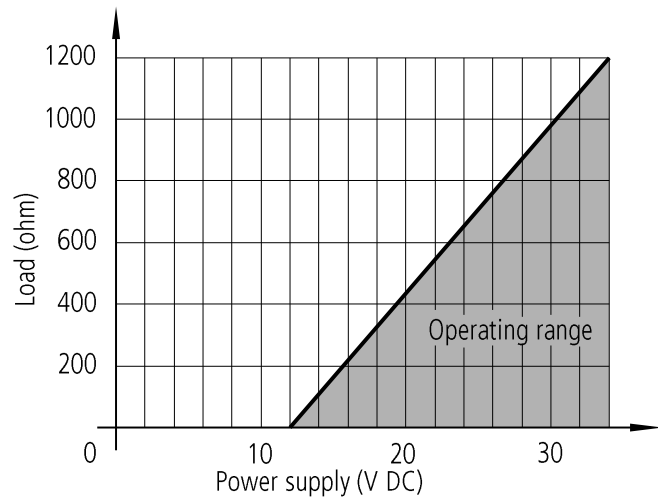


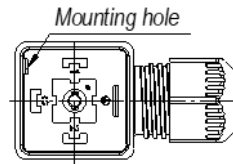
Fig. 4.2 Load diagram

► **NOTICE** | *Switch on the power supply only after the wiring of the device has been completely performed.*

Connector mounting

5. Connector mounting

- Strip approx. 35 mm of the cable and remove approx. 5 mm insulation from each wire end.
- Loosen the screw 1.
- Lever the terminal holder 5 out of the enclosure 2 using the mounting hole on the seal 6.
- Unscrew the cable fitting 4 and take out the cable seal 3.
- Lead the cable through the cable fitting 4 and the cable seal 3 in the enclosure 2.



► **NOTICE**

Inproper mounting.

Enclosure seal can become damaged.

Do not push the terminal holder 5 out using the screw hole or the cable fitting 4.

- Unscrew the cable fitting 4 and take out the cable seal 3.
- Lead the cable through the cable fitting 4 and the cable seal 3 in the enclosure 2.
- Connect the cable ends in accordance with the wiring diagram (Fig. 4.1).
- Loosen the screw terminals of the terminal holder 5, connect the stripped wire ends in accordance with the wiring diagram (Fig. 4.1) and screw the screw terminals in tight.
- Put the terminal holder 5 and snap the connector seal 6 in the enclosure 2.
- When screwing the cable fitting 4, make sure the cable fitting 4 with the cable seal 3 are assembled correctly and the cable seal 3 is not damaged.
- Plug the socket (2+5+6) to the contacts 7.
- Tighten the screw 1.

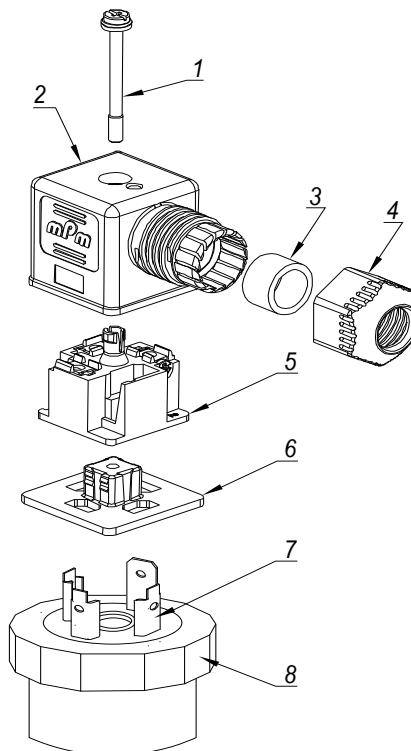


Fig. 5.1 Angular connector according to EN 175301-803

6. Maintenance and cleaning

The pressure transmitter PD111 is maintenance-free. If needed the housing of the device can be cleaned using a damp cloth and non-aggressive cleaning solutions, in switched-off state.

When cleaning the diaphragm, the following is to observe:

- The device may be cleaned only after placing the device out of service correctly.
- The diaphragm can usually be cleaned carefully with a non-aggressive cleaning solution and a soft brush or sponge.

Transport and storage

7. Transport and storage

The device packaging must ensure a shockproof transport and storage. The original packaging offers an optimal protection.

If the device is not taken into service immediately after delivery, it must be carefully stored in a safe and protected place.

Storage temperature range: -40...+80 °C.



WARNING

Remove all the adherent media rests on the process connection before storing the device after operation. This is particularly important if the medium is hazardous to health, e.g. radioactive, carcinogenic, toxic, caustic, etc.



NOTICE

***The device may have been damaged while shifting.
Check the device for transport damages and completeness!
Report the transport damage immediately to the shipper and akYtec GmbH!***

Faults

8. Faults

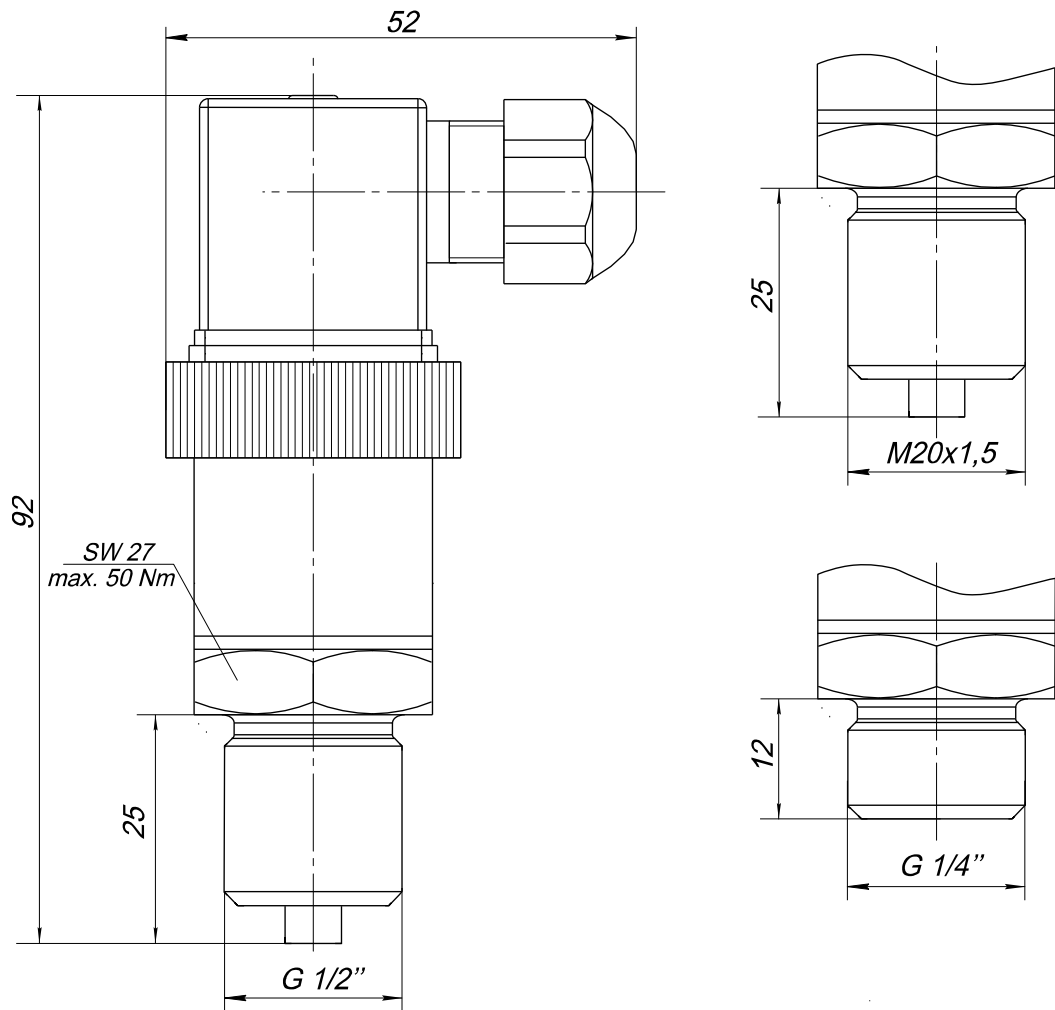
Table 8.1 Faults

Fault	Possible cause	Remedy
No output signal	Cable breakdown	Check the cable line
	Electrical short in power supply circuit	Check the cable line
	Voltage reversal	Reverse polarity
Output signal is unstable or remains constant even if pressure is changing	Process connection is blocked up	Clean the connection*
	Loss of pressure integrity in the process connection	Find the leakage and fix it
	Missing electrical contact	Switch off power supply and check the contacts

* **Nota:** When cleaning the process connection any mechanical influence on the diaphragm must be avoided.

Dimensions

9. Dimensions



Ordering code

10. Ordering code

PD111							
Input	[bar]						
0...-1	*V	1	P	0	B		
0...0.16	*G	1	6	0	M		
0...0.25	G	2	5	0	M		
0...0.4	G	4	0	0	M		
0...0.6	G	6	0	0	M		
0...1	G	1	P	0	B		
0...1.6	G	1	P	6	B		
0...2.5	G	2	P	5	B		
0...4	G	4	P	0	B		
0...6	G	6	P	0	B		
0...10	G	0	1	0	B		
0...16	G	0	1	6	B		
0...25	G	0	2	5	B		
-0.125...0.125**	*C	1	2	5	M		
-0.2...0.2**	C	2	0	0	M		
-0.3...0.3**	C	3	0	0	M		
-0.5...0.5**	C	5	0	0	M		
-0.8...0.8**	C	8	0	0	M		
-1...1**	C	1	P	0	B		
-1...3**	C	3	P	0	B		
-1...5	C	5	P	0	B		
-1...9**	C	9	P	0	B		
-1...15**	C	0	1	5	B		
-1...24**	C	0	2	4	B		
Accuracy							
0.5 %						5	
0.25 %						2	
Process connection							
G1/2"						7	
G1/4"						8	

Note *V – vacuum, *G – gauge, *C – combined.

** Available only with accuracy 0.5% and process connection G1/2"