



PD121

**Pressure transmitter for pasty,
viscous and contaminated
liquid media**

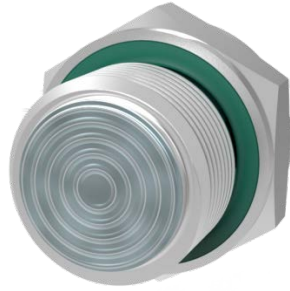
User guide

Contents

1. Intended use	2
2. Safety	3
3. Specifications	4
4. Wiring	6
5. Connector mounting	7
6. Maintenance and cleaning	8
7. Transport and storage	9
8. Faults	10
9. Dimensions	11
10. Ordering code	12

Intended use

1. Intended use



PD121 is a pressure transmitter for gauge pressure and vacuum applications.

The transmitter with a high-sensitive silicon measuring cell is and a stainless steel flush diaphragm is especially designed for pasty, viscous and contaminated liquid media compatible with stainless steel AISI 316L (1.4435) and AISI 304L (1.4307).

The output signal is 4-20mA.

Process medium requirements:






- 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 imminent dangerous situation that will result in death or serious injuries if not prevented.</i> |
|  WARNING | <i>WARNING indicates a potentially dangerous situation that could result in death or serious injuries.</i> |
|  CAUTION | <i>CAUTION indicates a potentially dangerous situation that could result in minor injuries.</i> |
|  NOTICE | <i>NOTICE indicates a potentially dangerous situation that could result in damage to property.</i> |
|  NOTE | <i>NOTE indicates helpful tips and recommendations, as well as information for efficient and trouble-free operation.</i> |

Specifications

3. Specifications

Table 3.1 Measuring ranges

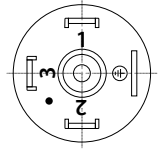
Measuring range	Max. working pressure (MWP), bar	Burst pressure*, bar
-1.0...0	-1.0...2.0	4.0
-0.6...0	-1.0...2.0	4.0
-0.4...0	-1.0...2.0	4.0
-0.25...0	-0.7...0.7	1.4
-0.16...0	-0.7...0.7	1.4
0...0.16	0.7	1.4
0...0.25	0.7	1.4
0...0.4	2.0	4.0
0...0.6	2.0	4.0
0...1.0	2.0	4.0
0...1.6	10	20
0...2.5	10	20
0...4.0	10	20
0...6.0	20	40
0...10	20	40
0...16	60	120
0...25	60	120
0...40	200	400
-0.125...0.125	-0.5...0.7	1.4
-0.2...0.2	-0.5...0.7	1.4
-0.3...0.3	-0.5...0.7	1.4
-0.5...0.5	-1.5...2.0	4
-0.8...0.8	-1.5...2.0	4
-1...1	-1.5...2.0	4
-1...3	-1.5...10	20
-1...5	-1.5...20	40
-1...9	-1.5...20	40
-1...15	-1.5...60	120
-1...24	-1.5...60	120

Note: * sensor overload limit

Table 3.2 Specifications

Power supply	12...36 V DC
Current consumption, max.	70 mA
Output signal	4-20 mA
Permissible load	0...1200 ohm
Accuracy *	± 0.5 % FSO or ± 0.25 % FSO
Supply voltage influence	0.01 % FSO / 10 V
Load influence	0.05 % FSO / 1 kohm
Temperature influence	≤ 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	Emission and 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)

Specifications

Materials		
Process connection	Stainless steel AISI 304L (1.4307)	
Enclosure	Stainless steel AISI 304L (1.4307)	
Sealing	no sealing (laser-welded diaphragm)	
Diaphragm	Edelstahl AISI 316L (1.4435)	
Media wetted parts	Process connection and diaphragm	
Lifetime	> 500 000 hours	
Process connection	G1/2"	
Electrical connection	EN 175301-803 A ISO 4400	
Supply +	1	
Supply -	2	
Shield	Ground contact	
Mounting position	any	
Dimensions	82 x 54 x 34 mm	
Weight	approx. 140 g	
CE conformity	EMC Directive: 2004/108/EC	

Note: * For available options see "Ordering code" (sect. 10)

Wiring

4. Wiring

- ⓘ NOTICE | *Signal cables should be routed separately or screened from supply cables.*
- ⓘ NOTICE | *Only a shielded cable may be used for signal lines.*
- ⓘ NOTICE | *Switch on the power supply only after the wiring of the device has been completed.*

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

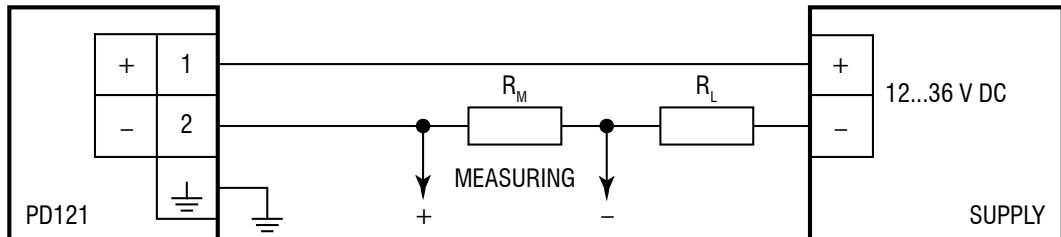


Fig. 4.1 Wiring diagram

Use the following formula to calculate a suitable load resistance:

$$R_M + R_L \leq (U_S - 7)/0.023$$

where

R_M – measuring resistor

R_L – limiting resistor

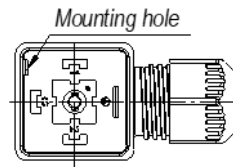
U_S – supply voltage

When selecting R_M , consider the load influence on the accuracy of 0.05 % FSO / 1 kohm.

Connector mounting

5. Connector mounting

- Strip approx. 35 mm of the cable and remove approx. 5 mm insulation from wire ends.
- Loosen the screw (1) (Fig. 5.1) and disconnect the socket (2 + 5 + 6) from the contacts (7).
- Lever the terminal holder (5) out of the enclosure (2) using the mounting hole on the seal (6).



ⓘ NOTICE

Improper mounting.

Do not push out the terminal holder (5) using the screw hole or the cable gland (4). Enclosure seal can become damaged.

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

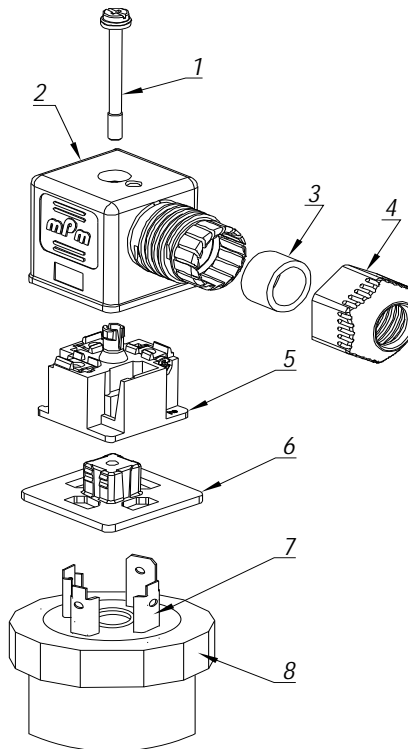


Fig. 5.1 Angular connector according to EN 175301-803

Maintenance and cleaning

6. Maintenance and cleaning

The pressure transmitter PD121 is maintenance-free. If needed, the the device can be cleaned in switched-off state using a damp cloth and non-aggressive cleaning solutions.

The following are to be observed when cleaning the diaphragm:

- Cleaning may only be carried out after the device has been taken out of service properly.
- The diaphragm can only be cleaned carefully with a non-aggressive cleaning solution and a soft brush or sponge.
- When cleaning the process connection, any mechanical impact on the diaphragm should be avoided.

ⓘ NOTICE

Improper cleaning.

Improper cleaning can cause irreparable damage to the transmitter. Never use sharp objects or compressed air to clean the membrane.

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

Before storing the device after operation, remove all the adherent media rests on the process connection. This is especially important with a hazardous medium, e.g. radioactive, carcinogenic, toxic, caustic, etc.



NOTE

***The device may have been damaged while shipping.
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 break	Check the cable
	Short circuit in the power supply	Check the cable
	Polarity reversal	Reverse the polarity
Output signal is unstable or remains constant even if pressure is changing	Process connection is clogged	Clean the connection (sect. 6)
	Loss of integrity in the process connection	Find the leakage and fix it
	Bad electrical contact	Switch off the power supply and check the contacts

Dimensions

9. Dimensions

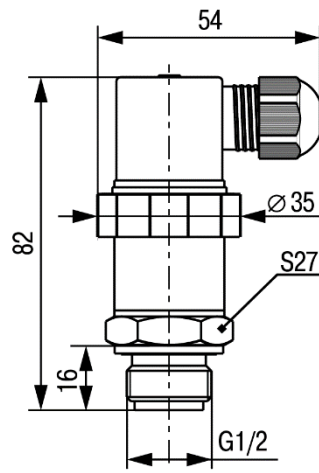


Fig. 9.1

Ordering code

10. Ordering code

PD121								
Input [bar]								
-1...0	V*	1	P	0	B			
-0.6...0	V	6	0	0	M			
-0.4...0	V	4	0	0	M			
-0.25...0	V	2	5	0	M			
-0.16...0	V	1	6	0	M	**		
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...40	G	0	4	0	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	

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

** 0.5 % accuracy only