Pressure Transmitters

Ex-protection II 2G Ex ib IIC T6 Gb according to ATEX



Applications

Pressure transmitter models PTMEx are suitable for liquid and gaseous media, which do not corrode stainless steel. When connecting to a certified intrinsically safe circuit, the devices have the ignition protection type II 2G Ex ib IIC T6 Gb according to ATEX. Two basic versions are available:

Model PTMEx 0 - 1 bar to 0 - 400 bar Overpressure Model PTMExFB 0 - 1 bar to 0 - 60 bar both models are also suitable for vacuum and compound ranges (with ventilation to the atmosphere) Absolute pressure (a) 0 - 1 bar to 0 - 25 bar

(reference point zero absolute)

The pressure transmitters are temperature-compensated and provide a calibrated output signal. The rugged design allows for application in difficult conditions, e.g. in shipping.

EMC Examination

The pressure transmitters fulfil the stability requirements for the industrial sector, for residential and commercial areas according to the European standard and hence grant their electromagnetic compatibility.

Construction

The pressure transducer element is welded in the pressure connection piece. A thin stainless steel diaphragm separates the elementary sensor from the medium.

For pressure ranges from 0 - 250 bar onwards, a thin film sensor is directly welded to the pressure connection piece.

Standard Versions

Construction Type Installation length

standard

Process Connection

PTMEx	G ½ B, stainless steel 316L (1.4404)
PTMExFB	pressure connection with membrane flush
	welded, G1/2 B according to DIN 3852

Measuring Cell / Sensor

Measuring cell	stainless steel 316L (1.4404) stainless steel 630 (1.4542)	piezo thin film
Diaphragm	stainless steel 316L (1.4404)	piezo
placed inside	stainless steel 630 (1.4542)	thin film

Sensor Sealing

- (measuring cell welded)

Case

Stainless steel, degree of protection IP65 Inner chamber ventilation for pressure ranges < 16 bar via plug screw fitting

Pressure Ranges / Overload

Pressure range-dependent, typically at least 2-fold, see ordering information

Output Signal

4...20 mA, 2-wire technology

Measuring Accuracy

Pressure ranges < 60 bar ±0.2 % of full scale value Pressure ranges \geq 60 bar \pm 0.3 % of full scale value



Location Beierfeld

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Temperature Ranges

-40 °C to +90 °C (-40 °F to +194 °F) Storage temperature Rated temperature -25 °C to +70 °C (-13 °F to +158 °F) -10 °C to +80 °C (+14 °F to +176 °F) Medium temperature with temperature decoupler -10 °C to +140 °C (+14 °F to +284 °F)

Temperature Influence in the Rated Temperature Range < 0.2 % / 10 K Zero point

< 0.2 % / 10 K

Reference Temperature

+20 °C (+68 °F)

Measuring span

Long-term Stability of Zero Point and Span Better than ±0.25 % p.a.

Reverse Voltage Protection Available

Electrical Connection

Angular plug connector according to DIN EN 175301-803, 3-pin + protective contact

For assuring the electromagnetic compatibility (EMC), please use a shielded cable (e.g. LP/LiMYCY). The shield has to be connected to the case.

Electronics

With silicone potting

Sensor Filling

Piezo Thin film silicone-free synthetic oil without

Power Supply

6...30 V DC, max. permissible operating voltage 30 V DC

Influence of the Power Supply ≤ 0.1 % FS / 10 V

Load Impedance

2-wire connection $R_{Bmax} = (U_B - 6 V) / 0.02 A$

Load Impedance Influence For load impedance change 500 Ω < 0.1 % FS

Position of Installation

Any (standard vertical)

Ex-approval

CENELEC approval ATEX Explosion protection intrinsically safe TÜV 04 ATEX 2432 X II 2G Ex ib IIC T6 Gb U_{max} < 30 V DC <150 mA Imax P_{max} <1 W <49 nF Ci Li < 33 µH

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Case Configurations, Dimensional Data (mm) and Weight (kg), Process Connections

Standard Case

without code letters

Plug connector DIN EN 175301-803

ventilation via plug screw fitting degree of protection IP65

39 for cable Ø 4...10 mm

Weight for standard case with temperature decoupler



Cable connection

ventilation via cable

degree of protection IP67

approx. 0.200 kg + approx. 0.050 kg



Circular plug connector

degree of protection IP65

with screw plug

ventilation via cable

ox. 0.200 kg



code letters FG

Screwed cable gland M 16x1.5

ventilation via sinter filter, degree of protection IP65



Options



temperature decoupler for process temperatures up to +140 °C

PTMEx (thin film)

Process Connections

PTMEx (piezo)





1∕2" NPT

SW 22

standard G1∕2 B DIN EN 837-1



1⁄2" NPT

PTMExFB



connection according to DIN 3852 Form A



with O-ring NBR

Wiring Diagrams, Accessory



Accessory

Flame arrester **"Adapt FS"** (flame penetration protection) variant 1 according to data sheet 11001, made of stainless steel 316Ti (1.4571)/ cannula stainless steel 304 (1.4301), process connection G½ B according to DIN EN 837-1, with EU-Type Examination Certificate PTB 12 ATEX 4001 X according to standard 2014/34/EU, marking of this protection system: 🐼 II G IIC



Ordering Information, Options

Basic Model	Pressure Transmi	tter			PTMEx		
Construction type	diaphragm placed diaphragm flush w	without code letters FB					
Case	standard version field housing	without code letters					
Medium temperature	standard version (with temperature o	without code letters TE					
Ignition protection type	intrinsically safe e	ib					
Temperature class	T4 (max. surface te T5 (max. surface te T6 (max. surface te	T4 T5 T6					
Pressure type	overpressure absolute pressure	without code letters (a)					
Pressure range	overp						
	0- 1 bar 0- 1.6 bar 0- 2.5 bar 0- 4 bar	-1 / 0 bar -1 / +0.6 bar -1 / +1.5 bar -1 / +3 bar	0 - 1 bar abs 0 - 1.6 bar abs 0 - 2.5 bar abs 0 - 4 bar abs	3 bar 10 bar 20 bar	e.g1 / +3 bar		
	0 – 6 bar 0 – 10 bar 0 – 16 bar 0 – 25 bar	-1 / +5 bar -1 / +9 bar -1 / +15 bar	0 – 6 bar abs 0 – 10 bar abs 0 – 16 bar abs 0 – 25 bar abs	60 bar			
	0 – 40 bar			100 bar			
	$0 - 100 \text{ bar}^{(1)}$			250 bar			
	$\begin{array}{c c} 0 - 160 & bar^{1)} \\ \hline 0 - 250 & bar^{1)} \\ \hline 0 - 400 & bar^{1)} \end{array}$			750 bar			
Output signal	standard option	420 mA 020 mA					
Process connection	standard options	G ½ B G 1 B ½" NPT M 22x1.5					
These options are to be o	ordered in written f	orm. Please contac	t us to ensure compa	tibility when combini	ing options		
Cable connection	IP67, cable ventilation; circular plug connector with screw plug M12, IP65						
Diaphragm with 6 μm gold coating	for hydrogen applications (pressure range max. 0 – 160 bar)						
Certificate	for hydrogen resistance according to EN 10204-3.1						

Connection to zone 0 using our screw adapter "Adapt FS"; connection to zone 0 by using a correspondingly approved diaphragm seal upon request

Example

Special Versions: Please describe your requirements in cleartext!

PTMEx ib T6 (r) -1 / +3 bar, 4...20 mA

 $^{\rm 1)}$ accuracy ±0.3 % FS $^{\rm 2)}$ for intermediate pressure ranges upon request