

# PP10R

pressure sensor for railway applications

PP10R-1.3###R.####.##2#00.050

## Overview

- Tested according to EN 50155
- Relative pressure measurement from -1 to 50 bar
- Robust ceramic measuring cell
- Stainless steel housing
- Compact design
- Relative pressure and vacuum measurement
- Designed for a wide range of railway applications as e.g. pantograph pressure control, coolant recirculating pumps and pneumatic and hydraulic brake systems



## EN 50155

### Technical data

#### Performance characteristics

Pressure type	Relative (gauged)
Compensated temperature range	-25 ... 85 °C
Long term stability	≤ 0.3 % FSR/a
Max. measuring error	± 1.5 % FSR Including zero-point and span error, nonlinearity (by terminal base line), hysteresis and non-repeatability (EN 61298-2)
Max. measuring span	50 bar
Measuring range	-1 ... 50 bar
Step response time	≤ 5 ms
Standard error of measurement (BFSL)	± 0.5 % FSR Including non-linearity, hysteresis and non-repeatability according BFSL
Min. measuring span	1.0 bar
Power-up time	≤ 25 ms
Temperature coefficient	≤ 0.15 % FSR/10 K , measuring span ≤ 0.3 % FSR/10 K , zero point

#### Process conditions

Process temperature	-40 ... 100 °C -25 ... 85 °C With NBR seal: -40 ... 85 °C With EPDM seal: -20 ... 85 °C With FKM (Viton®) seal:
Process pressure	Refer to section "Operating conditions"

#### Process connection

Connection variants	Refer to section "Dimensional drawings"
Wetted parts material, process connection	AISI 316L (1.4404)
Wetted parts material, membrane	Ceramic, 96% AL2O3

#### Process connection

Wetted parts material, gasket	NBR EPDM, optional FKM, optional, gaskets require a minimum ambient temperature of -20 °C and a minimum medium temperature of -25 °C
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#### Ambient conditions

Operating temperature range	-40 ... 85 °C
Storage temperature range	-40 ... 85 °C
Degree of protection (EN 60529)	IP 65 , with connector DIN EN 175301-803 A (DIN 43650 A), 4-pin IP 67 , with connector M12-A, 4-pin
Insulation resistance	> 100 MΩ 0 , 500 V DC
Insulation voltage	1 kV AC 0 , EN 50155
Shock and vibration tests (EN 61373:1999, 2010)	Category 2

#### Output signal

Current output	4 ... 20 mA , 2-wire
Voltage output	0 ... 10 V 1 ... 5 V
Load resistance	> 2 kΩ, with voltage output $R \leq (V_{DC} - 10 V)/20 \text{ mA}$ , with current output
Short circuit protection	Yes

#### Housing

Style	Compact transmitter
Overall size	Refer to section "Dimensional drawings"
Material	AISI 304 (1.4301)

#### Electrical connection

Connector	DIN EN 175301-803 A (DIN 43650 A), 4-pin M12-A, 4-pin
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## Technical data

### Power supply

Voltage supply range	10 ... 30 V DC , with 4 ... 20 mA output signal
	15 ... 30 V DC , with 0 ... 10 V output signal
	15 ... 30 V DC , with 1 ... 5 V output signal

### Compliance and approvals

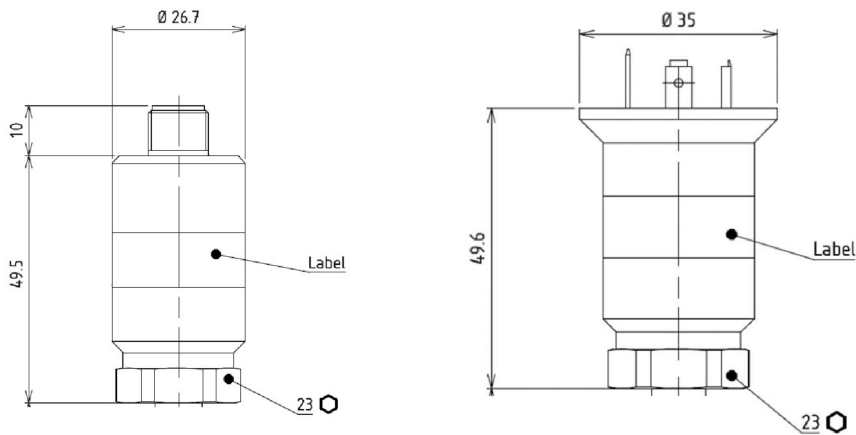
EMC	EN 50121-3-2
Railway applications	EN 50155
Fire protection	EN 45545-2

## Operating conditions

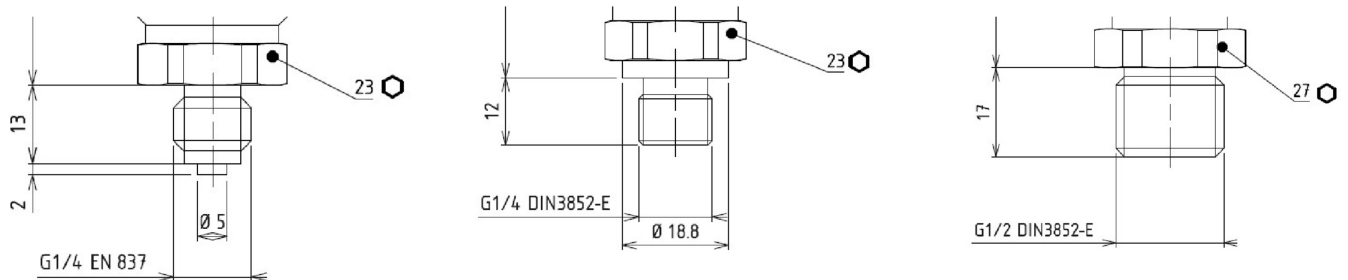
Measuring range (bar)	Proof pressure (bar)	Burst pressure (bar)
0 ... 1	4	6
0 ... 1,6		
0 ... 2,5	10	20
0 ... 4		
0 ... 6	20	35
0 ... 10		
0 ... 16	40	60
0 ... 25		
0 ... 40	100	140
0 ... 50		

## Dimensional drawings (mm)

### Housing



### Process connection



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## Electrical connection

Output type	Equivalent circuit	Electrical connection	Function	Pin assignment
4 ... 20 mA (2-wire)			+Vs	1
			Iout	3
			Frame ground	Plug thread, 4
			n.c.	2
0 ... 10 V 1 ... 5 V (3-wire)			+Vs	1
			Uout	2
			GND (0 V)	3
			Frame ground	Plug thread, 4
			+Vs	1
			Uout	2
			GND (0 V)	3
			Frame ground	Grounding lug

## Ordering information

Ordering key - Configuration possibilities see website

	PP10R	-	PP10R	1	.	3	###	.	R	##	##	##	2	#	0	0	0	5	0
<b>Product</b>	PP10R																		
<b>Product</b>	PP10R																		
pressure sensor PP10R			PP10R																
<b>Housing material</b>																			
SS 1.4301 AISI 304				1															
<b>Accuracy</b>																			
±0.5 % FS							3												
<b>Measuring range</b>																			
0...1 bar (EN)							B15												
0...1,6 bar (EN)							B16												
0 ... 2.5 bar (EN)							B18												
0 ... 4 bar (EN)							B19												
0 ... 6 bar (EN)							B20												
0 ... 10 bar (EN)							B22												
0 ... 16 bar (EN)							B24												
0...25 bar (EN)							B26												
0 ... 40 bar (EN)							B27												
0...50 bar (EN)							B28												
<b>Kind of pressure</b>																			
Relative (gauged)									R										
<b>Output signal</b>																			
4...20 mA										A1									
0...10 V										A2									
1...5 V										A3									

The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

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## Ordering information

Ordering key - Configuration possibilities see website

PP10R - PP10R 1 . 3 ### . R ## ## ## 2 # 0 0 0 5 0

### Output Connection

M12-A, 4-pin	14
DIN EN 175301-803 A (DIN 43650 A), 4-pin	44

### Process connection

G 1/4 B EN 837-1 (G30)	02
G 1/4 A DIN 3852-E (G50)	06
G 1/2 A DIN 3852-E (G51)	09

### Process connection material

Stainless steel 1.4404 AISI 316L	2
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### Seal

NBR standard	1
EPDM	2
FKM	3

### Oil filling

Without	0
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### Display

Without	0
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### ATEX

Without	0
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### Approvals

Railway (EN 50155)	5
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### Configuration

No configuration	0
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