

Series 21PY

Piezoresistive miniature pressure transmitters

Features

- Very compact and lightweight design with only 14 mm diameter
- Compensated over the entire temperature range
- Robust stainless steel housing
- High long term stability

Technology

- Insulated and encapsulated piezoresistive pressure sensor
- Fully welded design with no internal seals
- Miniaturised compensation electronics
- Direct analog signal path with high bandwidth

Typical applications

- Motorsport
- Industrial applications
- Automation technology
- Robotics

Accuracy

± 0,5 %FS

Total error band

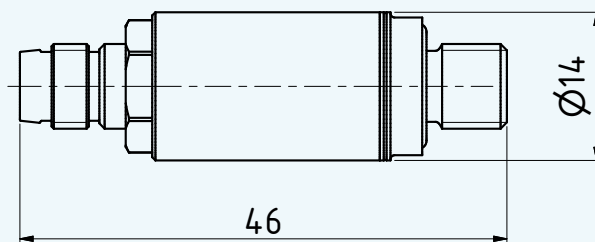
± 1,5 %FS @ -10...80 °C

Pressure ranges

0...10 to 0...600 bar



Serie 21PY



Series 21PY – Specifications

Standard pressure ranges

Absolute pressure PAA	Absolute pressure PA	Proof pressure
0...10	0...10	30
0...16	0...16	48
0...25	0...25	75
0...40	0...40	120
0...60	0...60	180
	0...100	300
	0...160	
	0...250	500
	0...400	700
	0...600	
bar abs.	bar	bar
Reference pressure at 0 bar abs. (vacuum)	Reference pressure at 1 bar abs.	Based on reference pressure

Performance

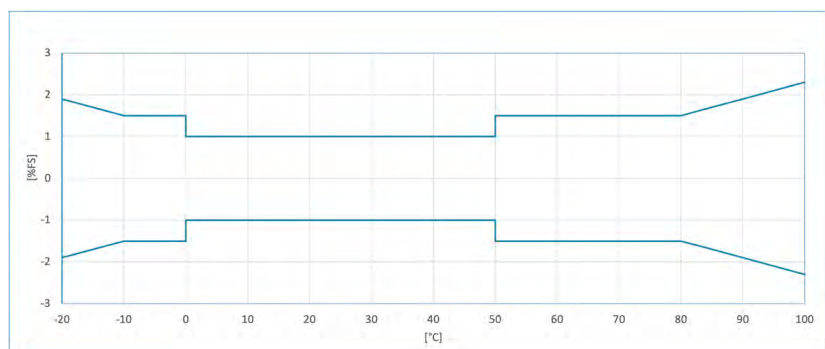
Accuracy @ RT (20...25 °C)	$\leq \pm 0,5$ %FS	Non-linearity (best fitted straight line BFSL), pressure hysteresis, non-repeatability
Total error band 0...50 °C	$\leq \pm 1,0$ %FS	Maximum deviation within the specified pressure and temperature range.
Total error band -10...80 °C	$\leq \pm 1,5$ %FS	
Compensated temperature range	-10...80 °C	
Long term stability	$\leq \pm 0,3$ %FS	Per year under reference conditions.
Position dependency	$\leq \pm 1,5$ mbar	Calibrated in vertical installation position with pressure connection facing downwards.

Total error band

This graph shows the maximum deviation over the entire medium temperature range (-20...100 °C) of the 21PY series.

Within the specified pressure and temperature range, the maximum total error has a constant value of $\pm 1,0$ %FS (0...50 °C) or $\pm 1,5$ %FS (-10...80 °C).

Experience shows that outside the specified temperature range, the total error increases linearly 0,04 %FS/K.



Series 21PY – Specifications

Electrical data

Connectivity	3-wire
Analog interface	0,5...4,5 V
Signal output limitation	0,1...4,9 V
Voltage supply	8...28 VDC
Power consumption (without communication)	< 4 mA

Start-up time (power supply ON)	< 5 ms (0...99%)
Overvoltage and reverse polarity protection	± 28 VDC
GND-CASE insulation	> 10MΩ @ 50 VDC

Analog interface

Load resistance	> 5 kΩ
Limiting frequency	1 kHz

Electrical connection

Round plug	M8 x 1	DIN EN 61076-2-101, A-coded, 3-pin
Cable	ø 3,3 mm, PE-sheath	3-pin
Standard cable lengths	2 m, 3 m	Others on request
Silicone wires	AWG28 (0,09 mm ²), L = 50 mm	Others on request

Electromagnetic compatibility

CE conformity as per 2014/30/EU (EMC)	EN IEC 61326-1 / EN IEC 61326-2-3 / EN IEC 61000-6-1 / EN IEC 61000-6-2 / EN IEC 61000-6-3 / EN IEC 61000-6-4
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Series 21PY – Specifications

Mechanical data

Materials in contact with media

Pressure connection	Stainless steel AISI 329 / 1.4460
Pressure transducer separating diaphragm	Stainless steel AISI 316L
Pressure transducer seal (internal)	None
Pressure connection seal (external)	FKM (75 Shore, -20...200 °C)

Other materials

Pressure transducer oil filling	Silicone oil
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Further details

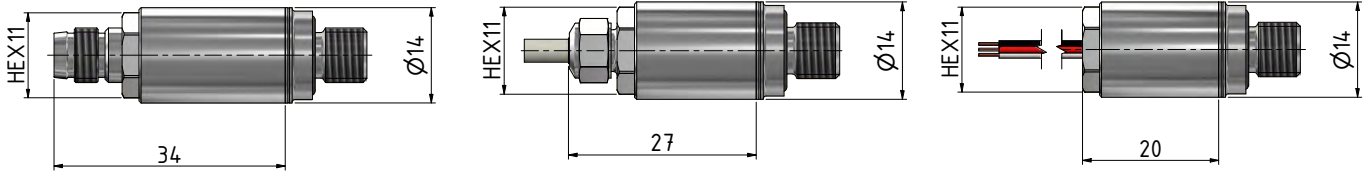
Pressure connection	M8 x 1	See Dimensions and options	
	M6 x 0,5		
Diameter x length	ø 14 mm x approx. 46 mm		
Weight (excluding cable)	approx. 21 g		
Recommended tightening torque	8 Nm ±10%	M8 x 1	Thread and locating surface non-lubricated
	4 Nm ±10%	M6 x 0,5	

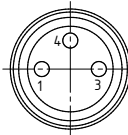
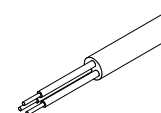
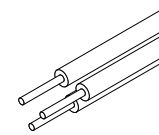
Environmental conditions

Medium temperature range	-20...100 °C	Icing not permitted.	
Ambient temperature range	-20...100 °C		
Storage temperature range	-20...100 °C		
Protection	IP67	Round plug M8 x 1	
	IP67	Cable gland	
	IP54	Wires	
Notes	Degrees of protection are only valid with the corresponding mating plug in the connected state.		
Vibration resistance	10 g, 10...2000 Hz, ± 10 mm	IEC 60068-2-6	
Shock resistance	50 g, 11 ms	IEC 60068-2-27	
Load cycles @ RT (20...25 °C)	> 10 mn. pressure cycles	0...100 %FS	For pressures > 400 bar on request.

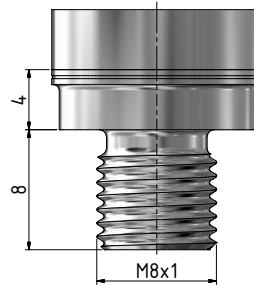
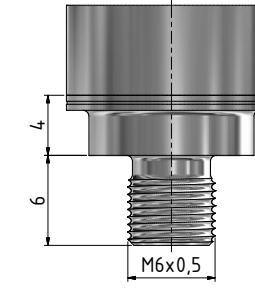
Series 21PY – Dimensions and options

Electrical connections



Round plug	3-wire	Cable gland	3-wire	Wires	3-wire																		
M8 x 1	0,5...4,5 V	Cable ø 3,3	0,5...4,5 V	L = 50 mm	0,5...4,5 V																		
	<table border="1"> <tr><td>1</td><td>+Vs</td></tr> <tr><td>3</td><td>GND</td></tr> <tr><td>4</td><td>+OUT</td></tr> </table>	1	+Vs	3	GND	4	+OUT		<table border="1"> <tr><td>BN</td><td>+Vs</td></tr> <tr><td>GN</td><td>GND</td></tr> <tr><td>WH</td><td>+OUT</td></tr> </table>	BN	+Vs	GN	GND	WH	+OUT		<table border="1"> <tr><td>BK</td><td>+Vs</td></tr> <tr><td>WH</td><td>GND</td></tr> <tr><td>RD</td><td>+OUT</td></tr> </table>	BK	+Vs	WH	GND	RD	+OUT
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WH	GND																						
RD	+OUT																						

Available pressure connections

M8 x 1	M6 x 0,5
	
DIN 13-5	DIN 13-3

Other pressure connections available on request.

Other customer-specific options



- Other compensated pressure ranges
- Other electrical connections
- Other electronics: C-Line with ratiometric interface
- Modifications to customer-specific applications

Examples of similar products

- Series 21PHB: Pressure transmitter for dynamic applications with analogue interface
- Series M5HB: Pressure transmitter with miniaturised sensor head for highly dynamic applications with analogue interface
- Series M8coolHB: Pressure transmitter for high operating temperature equipped with cooling channels sensor head with analogue interface
- Series 20PY: OEM Pressure transmitters with analogue interface
- Series 20PC: OEM Pressure transmitters with miniaturised chip-in-oil technology and analog ratiometric output signal
- Series 20PD: OEM Pressure transmitters with miniaturised chip-in-oil technology and I²C interface

Series 21PY – Accessories

Accessories

Calibration certificate	Mating plug to M8
	
<p>Issued by KELLER.</p>	<ul style="list-style-type: none"> Mating plug to M8, cable 5 m PN 603390.0031