

Series 25SXio

High-precision piezoresistive pressure transmitters with front-flush metal diaphragm and IO-Link interface

Features

- IO-Link interface compliant with IEC 61131-9
- Various process data formats
- Can be used as a pressure switch
- Easy connection to the bus system via IO-Link master
- Excellent long-term stability



Technology

- Insulated and encapsulated piezoresistive pressure sensor chip
- Front-flush, seamless design with no internal seal
- High-quality pressure transducer and tried-and-tested mathematical compensation

Typical applications

- Automation technology
- Hydraulics and pneumatics
- Industrial applications
- Food industry
- Biotechnology
- Pharmaceutical industry
- Chemical industry

Accuracy

± 0,1 %FS

Total error band

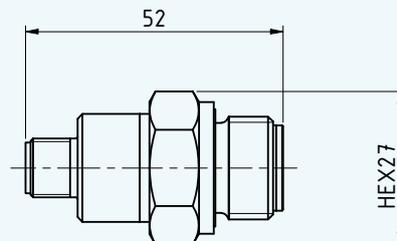
± 0,25 %FS @ -10...80 °C

Pressure ranges

0...0,16 to 0...400 bar



Series 25SXio



Series 25SXio – Specifications

Standard pressure ranges

Relative pressure PR		Proof pressure
0...0,16	-0,16...0,16	3
0...0,25	-0,25...0,25	
0...0,4	-0,4...0,4	
0...0,6	-0,6...0,6	
0...1	-1...0	
0...1,6	-1...1,6	9
0...2,5	-1...2,5	
0...4	-1...4	12
0...6	-1...6	18
0...10	-1...10	30
0...16	-1...16	48
0...25	-1...25	75
bar rel.		bar
Reference pressure at atmospheric pressure		Based on reference pressure

Absolute pressure PAA	Absolute pressure PA	Proof pressure
0,5...1,1		3
0...1		
0...1,6		9
0...2,5		
0...4	0...4	12
0...6	0...6	18
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	0...100	300
0...160	0...160	500
0...250	0...250	
0...400	0...400	800
bar abs.	bar	bar
Reference pressure at 0 bar abs. (vacuum)	Reference pressure at 1 bar abs.	Based on reference pressure

Performance

Pressure

Accuracy @ RT (20...25 °C)	$\leq \pm 0,1$ %FS	Non-linearity (best fit straight line, BFSL), pressure hysteresis, non-repeatability, zero point deviation and amplification deviation
Total error band (-10...80 °C)	$\leq \pm 0,25$ %FS	Max. Deviation within the compensated pressure and temperature range. Experience shows that, outside the compensated temperature range, the total error band in the ambient temperature range is expanded by 0,1 %FS.
Compensated temperature range	-10...80 °C	
Long-term stability	$\leq \pm 0,15$ %FS	Per year under reference conditions, annual recalibration recommended.
Position dependency	$\leq \pm 1,5$ mbar	Calibrated in vertical installation position with pressure connection facing downwards.
Resolution	0,005 %FS	
Signal stability	0,03 %FS	Noise-free
Internal measurement rate	2500 Hz	The maximum output rate is 1600 Hz (600 μ s cycle time).
Pressure range reserve	± 10 %	Outside the pressure range reserve, +Inf / -Inf is displayed. If there is an error in the device, NaN is displayed.
Vacuum resistance	For operating pressures $\leq 0,1$ bar abs., a vacuum-optimised version is recommended.	
Note	For pressure ranges < 1 bar, all data apply with reference to a full-range signal (FS) of 1 bar.	

Temperature

Accuracy (-10...80 °C)	$\leq \pm 2$ °C	The temperature is measured on the pressure sensor chip that sits behind the metallic diaphragm. The data applies within the compensated temperature range.
Resolution	$\leq 0,01$ °C	
Internal measurement rate	≥ 10 Hz	

Series 25SXio – Specifications

Electrical data

Connectivity	Digital
Digital interface	IO-Link or 1 x switching signal
Voltage supply	8...32 VDC
Power consumption (without switching current)	< 15 mA
Voltage insulation	± 32 VDC

Start-up time (power supply ON)	< 50 ms
Overvoltage protection and reverse polarity protection	± 32 VDC
GND case insulation	> 10 MΩ @ 500 VDC

Switch output for use as pressure switch

Type	NPN, PNP, push-pull
Output current	Limited to < 200 mA
Output voltage	@ 200 mA load current High gauge: > (supply voltage - 1,75 V) Low gauge: < 1,75 V
Switching functions	Hysteresis function Window function
Switch delay	Configurable switch-on and switch-off delay.

Digital interface

Type	IO-Link V1.1	
Communication protocols	Smart Sensor Profile SSP 3.2	Pressure values and switching signal
	Extended process data	With pressure and temperature values and switching signal.
	Switching signal channel	Switching signal available on the plug even without IO-Link.
	Bootloader (FWUP)	For function upgrades at a later stage.
	Identification & diagnosis (I&D)	
	Process data variable	
Identification	25SXio	Plain text identification
Pressure unit	Pa	
Unit of temperature	°C	
Data type	Fixed point/floating point	Switchable
Baud rates	COM3: 230,4 kBaud	
Cycle time	≥ 600 us	Configurable (via IO-Link master)
Cable length	≤ 20 m	

Electrical connection

Standard plug	Round plug	M12 x 1	DIN EN 61076-2-101, A-coded, 4-pin
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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 25SXio – Specifications

Mechanical data

Materials in contact with media

Pressure connection	Stainless steel AISI 316L	
Pressure transducer diaphragm	Stainless steel AISI 316L	
Pressure transducer seal (internal)	None	
Pressure connection seal (external)	FKM (75 Shore) -20...200 °C	For median temperatures < -20 °C, FVMQ (70 Shore, -60...175 °C) is used. Optional: EPDM (-40...150 °C)

Other materials

Pressure transducer oil filling	Silicone oil
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Further details

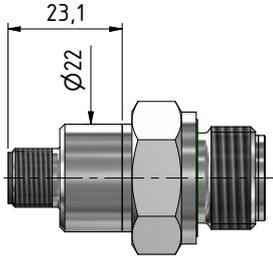
Pressure connection	G1/2 front-flush	See dimensions and variants
Diameter × length	ø 22 mm × approx. 52 mm	
Weight	approx. 100 g	

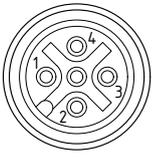
Environmental conditions

Medium temperature range	-20...125 °C	Optional: -40...125 °C	Icing not permitted.
Ambient temperature range	-20...85 °C	Optional: -40...85 °C	
Storage temperature range	-20...85 °C		
Protection	IP67	Round plug, M12 x 1	For relative pressure IP54.
Notes	<ul style="list-style-type: none"> Degrees of protection are valid with the corresponding mating plug. The design implementation of the ventilation for relative pressure versions can be found in the respective technical drawing. 		
Vibration resistance	10 g, 10...2000 Hz, ±10 mm	IEC 60068-2-6	
Shock resistance	50 g, 6 ms	IEC 60068-2-27	
Load cycles @ RT (20...25 °C)	> 10 million pressure cycles	0...100 %FS	

Series 25SXio – Dimensions and variants

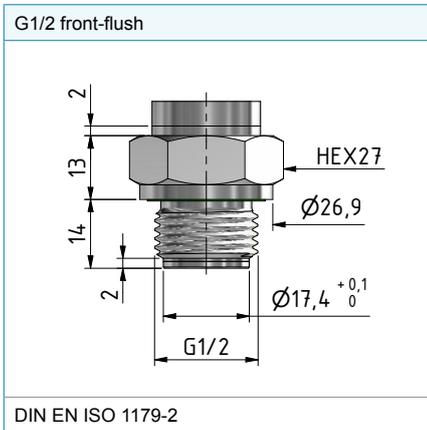
Electrical connections



M12	
M12 × 1	IO-Link
	1 L+
	2 n.c.
	3 L-
	4 C/Q

Series 25SXio – Dimensions and variants

Available pressure connections



Customised configurations on request

- Other compensated pressure ranges
- Preconfigured transmitter (e.g. for direct use as pressure switch)
- Parts that come into contact with media made from Hastelloy C-276, Inconel 718 or titanium available
- Other oil filling types for pressure transducers
- O-rings made of other materials
- Integration of application-specific calculations
- Modifications to customer-specific options

Examples of similar products

- Series 21Zio: Pressure transmitter with IO-Link interface in a compact design
- Series 23SZio: Pressure transmitter with IO-Link interface for elevated requirements
- Series 23SXio: High-precision pressure transmitter with IO-Link interface
- Series 23SX: High-precision pressure transmitter with RS485 interface
- Series 23SXc: High-precision pressure transmitter with CANopen interface
- Series 35X: Pressure transmitter with front-flush metal diaphragm and maximum performance
- Pressure transmitter module: Pressure transducer with electronics (e.g. series 9LX or 20SX with thread) for integration in one's own systems

Series 25SXio – Scope of delivery and accessories

Scope of delivery

Calibration certificate



Accessories

Calibration certificate	Mating plug to M12
	
<p>Issued by an external calibration laboratory of the German accreditation body DAkkS or the Swiss accreditation body SAS.</p>	<ul style="list-style-type: none"> • Angled socket, cable 5 m <i>PN 602515.0093</i> • Angled socket, cable 2 m <i>PN 602515.0094</i> • Female connector, cable 5 m <i>PN 602515.0095</i> • Female connector, cable 2 m <i>PN 602515.0096</i>