



PIEZORESISTIVE PRESSURE TRANSMITTERS

SERIES 23 SY / 25 Y

ABSOLUTE AND GAUGE PRESSURE / ACCURACY 0,25 %FS

The Y-line transmitters have an extremely small temperature error. This is achieved using an additional circuit containing a temperature sensor that subdivides the temperature range into fields that are 1,5 Kelvin (K) wide. The TK zero and TK compensation values are calculated for each field and programmed into the additional circuit. During operation, these values are fed into the analogue signal path depending on the temperature. Each temperature is the „calibration temperature“ for this transmitter. The accuracy thereof is mainly determined by linearity. 120 fields are available, representing a possible temperature range of 180 K. The wider the temperature range, the greater the amount of testing that is needed to minimise the inaccuracy of the mathematical model.

The Series 23 SY / 25 Y product line is outstanding due to its extreme ruggedness towards electromagnetic fields. The limits of the CE standard are undercut by a factor of up to 10 with conducted and radiated fields.



Series 23 SY

• **Series 23 SY** Ranges 0,1...1000 bar Fully welded (no internal seals)

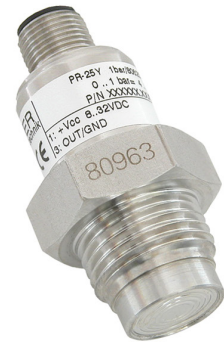
• **Series 25 Y** Ranges 0,5...1000 bar Flush, fully welded.

A Comprehensive Range

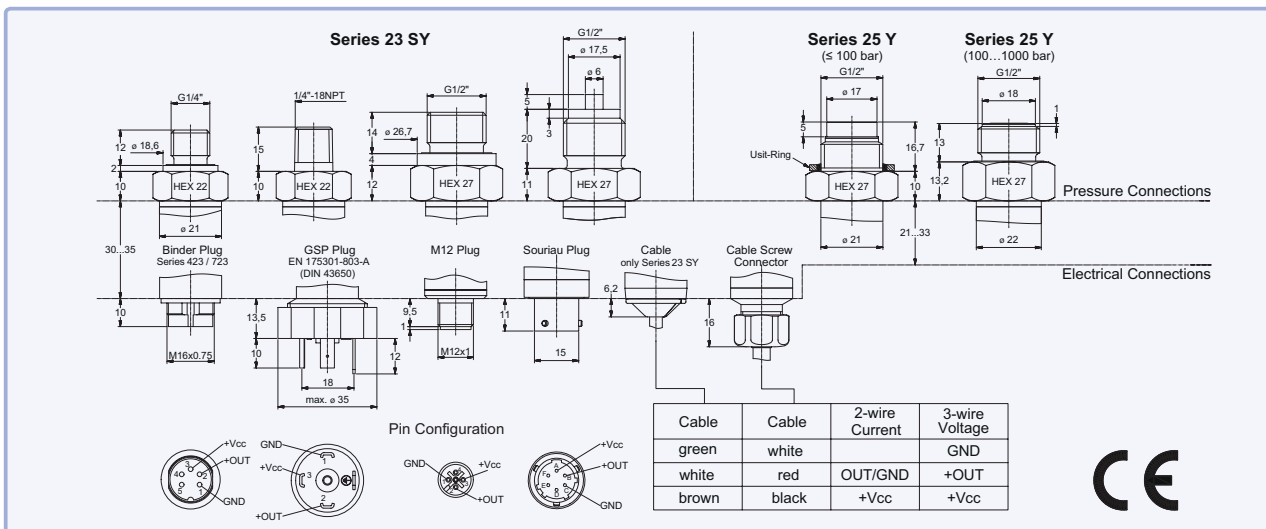
Absolute, barometric, gauge (positive and negative pressures). Many nominal pressure ranges. Current or voltage output.

Flexibility

A modular concept is used, with fast and economical production achieved by using off-the-shelf sensors. Numerous options and variations are available to meet customers' specific requirements: Pressure ranges, pressure ports, signal outputs, electrical connectors, etc.



Series 25 Y





Specifications

Pressure Ranges (FS) in bar

PR-23 SY	-1 -0,5 -0,2 -0,1 0,1 ±0,1 0,2 ±0,2 0,5 ±0,5	1 ±1 2 5 10 20																	
PA-23 SY	-1	1 ±1 2 5 10 20	50 100 200 400 600 1000 ⁴⁾																
PAA-23 SY		0,5 1	2 5 10 20 50 100 200 400 600 1000 ⁴⁾																
PR-25 Y	-1 -0,5	0,5 ±0,5	1 ±1 2 5 10 20																
PA-25 Y	-1	1 ±1 2 5 10 20	50 100 200 400 600 1000																
PAA-25 Y		0,5 1	2 5 10 20 50 100 200 400 600 1000																

Overpressure 4 4 4 4 4 4 4 4 4 4 4 12 12 40 40 80 100 200 300 1100* 1100 1100

PR: Vented Gauge. Zero at atmospheric pressure PA: Sealed Gauge. Zero at 1000 mbar abs. PAA: Absolute. Zero at vacuum *for 25 Y: up to 600 bar

Pressure Range	Accuracy ¹⁾	Error Band @ 0...50 °C ²⁾		Error Band @ -10...80 °C ²⁾	
		typ.	max.	typ.	max.
> 2...1000 bar	±0,25 %FS	±0,3 %FS	±0,5 %FS	±0,4 %FS	±0,7 %FS
> 0,3...2 bar	±0,25 %FS	±0,6 %FS	±1,0 %FS	±0,8 %FS	±1,5 %FS
0,1...0,3 bar ³⁾	±0,50 %FS	±2 mbar	±3 mbar	±2,5 mbar	±4,5 mbar

¹⁾ Linearity (best straight line) + Hysteresis + Repeatability

²⁾ Accuracy + Temperature Coefficient + Zero + Span Tolerance

³⁾ Pressure Range 0,1 bar: Linearity ±1 %FS Max; 0,5...4,5 V output not available; 4...20 mA / 0...5 V / 0...10 V outputs only.

⁴⁾ Measuring range 1000 bar only suited for static applications

Storage-/Operating Temperature -40...100 °C

Long Term Stability Range > 2 bar 0,1 %FS typ. 0,2 %FS max.
Range ≤ 2 bar 2 mbar typ. 4 mbar max.

Type	2-wire	3-wire	3-wire	3-wire
Signal Output	4...20 mA	0...10 V	0...5 V	0,5...4,5 V
Limitation Signal Output	3,2...22,3 mA	-1,2...11,2 V	-0,6...5,6 V	0,1...4,9 V
Supply	8...32 VDC	13...32 VDC	8...32 VDC	8...32 VDC
Load Resistance	< (U-8 V) / 0,025 A	> 5 kΩ	> 5 kΩ	> 5 kΩ
Limiting Frequency	2 kHz	2 kHz	2 kHz	2 kHz
Power Consumption		max. 5 mA	max. 5 mA	max. 4 mA

Electrical Connection - Plug: Binder-423/723 (5-pole), GSP EN 175 301-803-A (DIN 43650), M12 (4-pole), Souriau (MIL-C26482)
- Cable

Pressure Connection Series 23 SY: G1/4", 1/4"-18NPT, G1/2", G1/2" Mano
Series 25 Y: G1/2"

Response Time (Supply ON) (0...99 %) < 5 ms

Insulation > 10 MΩ@300 V

EMC EN 61000-6-2: 2005 / EN 61000-6-3: 2007 / EN 61326-2-3: 2006

Dead Volume Change < 0,1 mm³

Material in Media Contact - Stainless Steel AISI 316L (1.4404/1.4435); 25 Y > 400 bar: Inconel 718

- USIT or Viton® O-Ring (no internal seals)

Protection Class Plug: IP65...IP67 (depending on connection and with corresponding mating plug)

Cable: IP54 Cable Screw Connection: IP68

Weight ≈ 120 g (depending on version)

Endurance > 10 million cycles, 0...100 %FS at 25 °C⁴⁾

Oil Filling Silicone oil

Options

Temperature Range Other temperature ranges on request. Maximal range: -40...+120 °C

Oil Filling Fluorocarbon oil (O₂-compatible), olive-oil, lowest temperature oil (-55 °C)

Pressure Ranges Intermediate ranges on request, e.g. barometer 0,7...1,2 bar abs.

Pressure Connection, Electrical Connection Others on request

Intrinsic Safety (ATEX) See also data sheet 23 SY Ei / 25 Y Ei / 26 Y Ei