

INTRINSICALLY SAFE PRESSURE TRANSMITTERS FOR GAS AND DUST ATMOSPHERES

SERIES 23SY-Ei / 25Y-Ei

These piezoresistive pressure transmitters with ATEX and IECEx certifications are approved for use in highly explosion risk areas of group II (gas and dust).

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.

- **Series 23SY-Ei** 0,1...1000 bar Fully welded (no internal seals)
- **Series 25Y-Ei** 0,5...1000 bar Flush, fully welded.

Series 23SY-Ei



Series 25Y-Ei

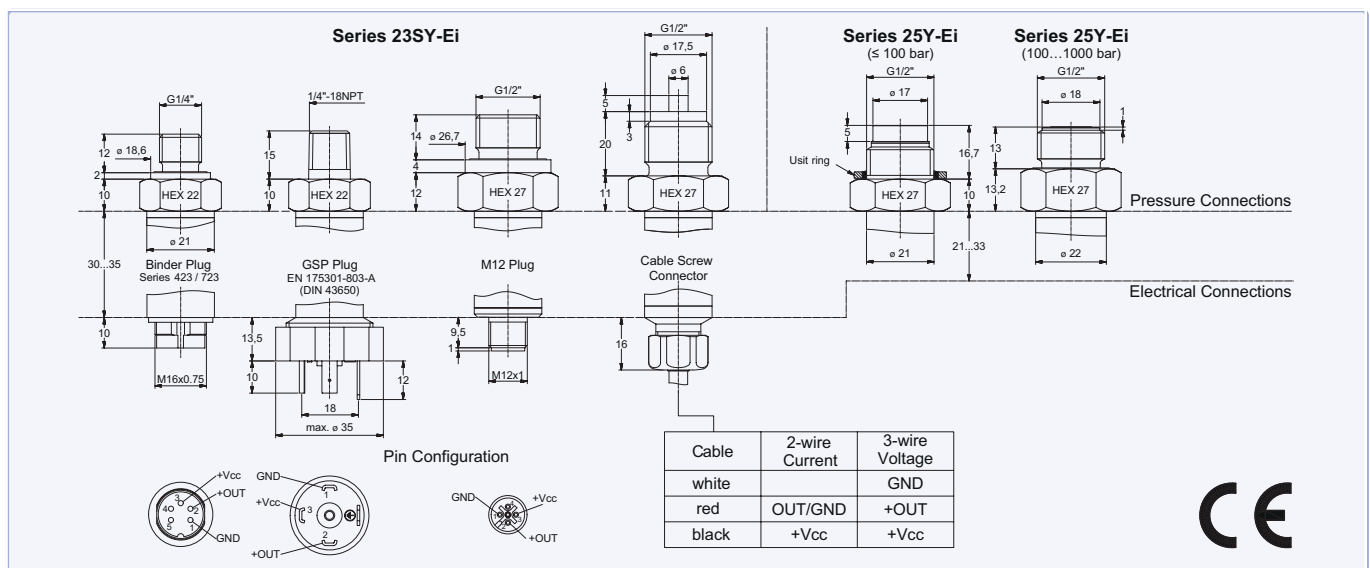


A Comprehensive Range

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

Ex-Classification:

Ex ia IIC T6–T4 Ga IBExU 10 ATEX 1124 X
 Ex ia IIIC T 130 °C Da
 IECEx IBE 14.0044 X



Specifications

Pressure Ranges (FS) in bar

PR-23SY-Ei	-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-23SY-Ei	-1		1 ±1	2	5	10	20	50	100	200	400	600	1000 ⁵⁾						
PAA-23SY-Ei		0,5	1	2	5	10	20	50	100	200	400	600	1000 ⁵⁾						
PR-25Y-Ei	-1 -0,5	0,5 ±0,5	1 ±1	2	5	10	20												
PA-25Y-Ei	-1		1 ±1	2	5	10	20	50	100	200	400	600	1000						
PAA-25Y-Ei		0,5	1	2	5	10	20	50	100	200	400	600	1000						
Overpressure	-1 -1 -1 -1 4 4 4 4	4 4 4	4 12	12	40	40	80	80	200	300	1100*	1100	1100						

PR: Gauge Pressure

PA: Absolute. Zero at 1000 mbar abs

PAA: Absolute. Zero at vacuum

*for 25Y: up to 600 bar

Pressure Range	Accuracy ¹⁾	Error Band @ 0...50 °C ^{2) 4)}		Error Band @ -10...80 °C ^{2) 4)}	
		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 fitted straight line) + Hysteresis + Repeatability

²⁾ Accuracy + Temperature Coefficient + Zero + Span Tolerance

³⁾ Pressure range 0,1 bar: Accuracy ±1 %FS Max; Signal output limited to 4...20 mA / 0...5 V / 0...10 V

⁴⁾ Only 3-wire Version: Without burden of the voltage output (R_s = 100 Ω). With burden R_s = 100 KΩ the error increases by 0,1 %FS.

⁵⁾ Measuring range 1000 bar only suited for static applications.

Storage Temperature		-40...100 °C
Stability	Range > 2 bar	0,1 %FS typ. 0,2 %FS max.
	Range ≤ 2 bar	2 mbar typ. 4 mbar max.

**Intrinsically safe in conjunction with certified intrinsically safe power circuits, with the following maximum connected loads:
U_i ≤ 30 V, I_i ≤ 200 mA, P_i depending on the Ambient Temperature T_a and Temperature classification, L_i = 0 mH, C_i = 2 nF**

Signal Output	Temperature classification	Ambient Temperature T _a	Power P _i
4...20 mA 0...10 V	T6	-40...65 °C	0,64 W
		-40...100 °C	0,64 W
	T4 and dust	-40...65 °C	1,1 W
		-40...40 °C	1,33 W
4...20 mA	T6	-40...50 °C	1,33 W

Type	2-wire	3-wire	3-wire
Signal Output	4...20 mA	0...10 V	0...5 V
Limitation Signal Output	3,2...22,3 mA	-1,2...11,2 V	-0,6...5,6 V
Supply	10...30 VDC	15...30 VDC	10...30 VDC
Load Resistance	< (U-10 V) / 0,025 A	> 100 kΩ	> 100 kΩ
Limiting Frequency	2 kHz	2 kHz	2 kHz
Power Consumption		max. 5 mA	max. 5 mA
Electrical Connection	- Plug: Binder-423/723 (5-pole), GSP (DIN 43650), M12 (4-pole), Souriau (MIL-C26482) - Cable		
Pressure Connection	Series 23SY-Ei: G1/4", 1/4"-18NPT, G1/2", G1/2" Mano Series 25Y-Ei: G1/2"		
Response Time (Supply ON)	(0...99 %) < 5 ms		
Insulation	> 10 MΩ @ 300 VDC		
EMV	EN 61000-6-1 to -6-4 / EN 61326-1 / EN 61326-2-3		
Dead Volume Change	< 0,1 mm ³		
Material in Media Contact	Stainless Steel AISI 316L (DIN 1.4404/1.4435); 25Y > 400 bar: Inconel 718 USIT or Viton® O-Ring (others on request),		
Protection	Plug: IP65...IP67 (depending on connection and with corresponding mating plug) Cable Screw Connection: IP68		
Weight	≈ 140 g (depending on version)		
Endurance	> 10 million, 0...100 %FS at 25 °C ⁵⁾		
Oil Filling	Silicone oil		
Options			
Temperature Range	Other temperature ranges on request		
Oil Filling	Fluorocarbon oil (O2-compatible), olive-oil		
Pressure Ranges	Intermediate ranges on request		
Pressure Connection, Electrical Connection	Others on request		