

KELLER

PRESSURE TRANSMITTER WITH PRESSURE PROOF HOUSING FOR HAZARDOUS APPLICATIONS

These piezoresistive pressure transmitters with pressure proof housing are approved for use in explosion risk areas of group II. They provide stable and accurate measurements of absolute and gauge pressures of liquid and gaseous media in the pressure range between 0,1 and 300 bar.

Flexibility

The modular structure of this product range allows highly flexible applications and solutions that are tailored to users' requirements. Numerous versions are available, for example with different pressure connections, materials and filling oils, or versions for use with oxygen and with special performance characteristics. In addition to the classical analog output signal (Series 23 Ed and 25 Ed), a digital solution based on the successful high-precision Series 30 X transmitters is also available (33 X Ed and 35 X Ed).

Analog transmitters, Series 23 Ed and 25 Ed

This series is based on the stable piezoresistive transducer with analog electronics. The zero point and sensitivity, and the temperature coefficients for the zero point and sensitivity, are compensated by resistors and/or potentiometers.

Digital transmitters Series 33 X Ed and 35 X Ed

This series features microcontroller-based electronic evaluation to ensure maximum accuracy. Each transmitter is gauged across the entire pressure and temperature range. This provides the basis for calculating a mathematical model that corrects all reproducible errors. The pressure value can be read via the interface and at the same time it is also available in analog form as a 4...20 mA or 0...10 V version.

Interface: RS485 half-duplex for 9600 and 115'200 baud for line lengths up to 1400 m and a maximum of 128 bus subscribers. Protocol: KELLER Bus and MODBUS RTU. The devices can be configured (scale analog output, switch units, change filter settings, zeroing, etc.) and measured values can be recorded with the CCS30 or PROG30 software, available free of charge.

Ex-Classification



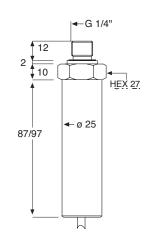
T4 for T $_a$ ≤100 °C, T5 for T $_a$ ≤95 °C, T6 for T $_a$ ≤80 °C

Series 23 Ed / 25 Ed Series 33 X Ed / 35 X Ed

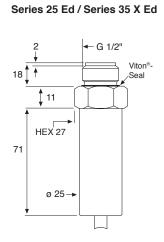




Series 23 Ed / Serie 33 X Ed



Pressure connection:



Subject to alterations 05/2011

KELLER AG für Druckmesstechnik
KELLER Ges. für Druckmesstechnik mbH

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Companies approved to ISO 9001 www.keller-druck.com



KELLER

SPECIFICATIONS

Standard Pressure Ranges (FS) and Overpressure in bar

PR-23/25 Ed, PR-33/35 X Ed PA(A)-23 Ed, PA(A)-33 X Ed PA-25 Ed. PA-35 X Ed	-1	1 1 1	3 3 3	10	30 30 30	100	200	300	All intermediate ranges for the analog output of Series 33/35 X Ed are realizable by spreading
Overpressure	-1	3	7	20	60	200	300	450	the standard ranges. Smallest range: 0,1 bar.

PAA: Absolute. Zero at vacuum PA: Sealed Gauge. Zero at 1000 mbar abs. PR: Vented Gauge. Zero at atmospheric pressure

Stability 0,1 %FS typ. (FS > 1 bar)1 mbar typ. (FS \leq 1 bar)

Series 23 Ed / 25 Ed

Accuracy @ RT (1) 0,2 %FS typ. 0,5 %FS max.

Compensated Temperature Range -10...80 °C Storage- / Operating Temperature (2) -30...100 °C

Temperature Coefficients... ...of Zero ...of Sensitivity 0,01 %FS/°C max. · FS > 1 bar 0,02 %/°C max. · FS 1 bar 0,02 %FS/°C max. 0,02 %/°C max. · FS 0,5 bar 0,03 %FS/°C max. 0,02 %/°C max. · FS 0,2 bar 0,05 %FS/°C max. 0,02 %/°C max.

Series 33 X Ed / 35 X Ed

analog <u>digital</u> Accuracy @ RT (3) 0,03 %FS typ.(4) 0,02 %FS typ. Error Band (10...40 °C) 0,1 %FS (4) 0,05 %FS Error band (-10...80 °C) 0,15 %FS (4) 0,1 %FS -30...100 °C Storage- / Operating Temperature (2)

2-Wire 3-Wire Digital (only 33/35 X Ed) Signal Output 4...20 mA 0...10 V RS 485

Supply (U) 8...32 Vcc 13...32 Vcc 8...32 Vcc / 3,5...12 Vcc

Load Resistance (R_o) (U-8 V) / 0,025 A > 5 k

Electrical Connection PUR-cable, length 2 m (with PE-sheath and reference tube for gauge). Others on request.

Volumetric Change $< 0.1 \text{ mm}^3 / \text{FS}$

Pressure Connection G 1/4", G 1/2", G 3/4", 1/2"-14 NPT, 1/4"-18 NPT

Material in Media Contact Stainless steel 1.4435 (316L), Viton®

IP50 (IP65/IP68 on request) Protection

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

PR/PA/PAA ≈ 200 g Weight Insulation $> 10 \text{ M}\Omega$ @ 50 V

> 10 million cycles 0...100 %FS at 25 °C Endurance

Optionen

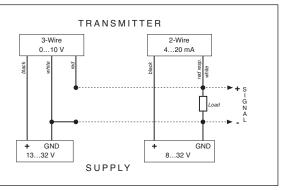
Pressure Connection On request

Pressure Ranges All pressure ranges between 0,1 and 300 bar

Material in Media Contact Hastelloy C-276 (C-22), gold-plated. Others on request. Fluorized oil (O₂-compatible), olive-oil, low temperature oil Oil Filling

ELECTRICAL CONNECTIONS

Series 23 Ed	/ 25 Ed		Series 33 X Ed / 35 X Ed			
2-Wire Transmitter	3-Wire Transmitter	Cable	2-Wire Transmitter	3-Wire Transmitter		
_	GND	white	OUT/GND	GND		
OUT/GND	+OUT	red	-	+OUT		
+Vcc	+Vcc	black	+Vcc	+Vcc		
		blue	RS 485A	RS 485A		
		yellow	RS 485B	RS 485B		



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⁽¹⁾ Linearity (best straight line through zero) + hysteresis + repeatability

⁽³⁾ Linearity (BFSL) + hysteresis + repeatability

 $[\]overline{\ ^{(2)}\ T4}\ \text{for}\ T_a \le 100\ ^{\circ}\text{C},\ T5\ \text{for}\ T_a \le 95\ ^{\circ}\text{C},\ T6\ \text{for}\ T_a \le 80\ ^{\circ}\text{C}$

⁽⁴⁾ Disturbance of the 4...20 mA signal occurs during communication through RS485.