





# KELLER

## SPECIFICATIONS

	Standard FS Pressure Ranges				
PR-41 X (relative) PD-41 X (differential)	10	20	50	100	200 mbar
Overpressure / Neg. overpressure	10 x FS / 1,5 x FS				
	2-Wire		3-Wire		
Supply (U)	8...28 VDC		13...28 VDC		
Analog Output	4...20 mA (scalable)		0...10 V (scalable)		
Load (Ω)	< (U-8V)/0,02A		> 5K		
Operating Temperature	-20...80 °C				
Compensated Range	10...50 °C				
Error Band (10...50°C)	0,1 %FS typ.		0,2 %FS max.		
Pressure Connection	G1/4" male, Viton® flat seal				
Electrical Connection	Binder Series 723 (5 pole)				
Material in Contact with Media	Stainless steel AISI 316L, Viton® O-ring, gold				
Media	Gas/liquids. PD-reference: non-aggressive, dry gases				
Protection / Weight	IP 40 / ca. 270 g				
Special Versions	IP 67, DIN 43650 plug, cable version. Pressure ranges neg./pos.: Example: -10...+10 mbar Other temperature ranges.				

All intermediate ranges for the analog output are realizable with no surcharge by spreading the standard ranges. Option: Adjustment directly to intermediate ranges (below 20 pieces against surcharge).

For higher pressure ranges and for "wet/wet"-differential applications, KELLER offers Series 33 X resp. Series 39 X.



Series PD-41 X

## Polynomial Compensation

This uses a mathematical model to derive the precise pressure value (P) from the signals measured by the pressure sensor (S) and the temperature sensor (T). The microprocessor in the transmitter calculates P using the following polynomial:

$$P(S,T) = A(T) \cdot S^0 + B(T) \cdot S^1 + C(T) \cdot S^2 + D(T) \cdot S^3$$

With the following coefficients A(T)...D(T) depending on the temperature:

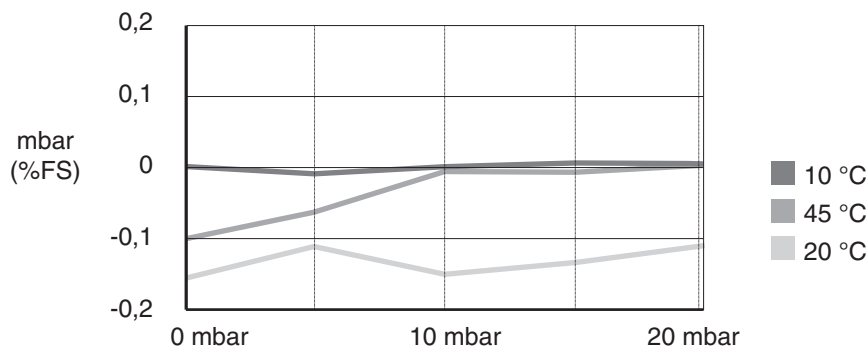
$$\begin{aligned} A(T) &= A_0 \cdot T^0 + A_1 \cdot T^1 + A_2 \cdot T^2 + A_3 \cdot T^3 \\ B(T) &= B_0 \cdot T^0 + B_1 \cdot T^1 + B_2 \cdot T^2 + B_3 \cdot T^3 \\ C(T) &= C_0 \cdot T^0 + C_1 \cdot T^1 + C_2 \cdot T^2 + C_3 \cdot T^3 \\ D(T) &= D_0 \cdot T^0 + D_1 \cdot T^1 + D_2 \cdot T^2 + D_3 \cdot T^3 \end{aligned}$$

The transmitter is factory-tested at various levels of pressure and temperature. The corresponding measured values of S, together with the exact pressure and temperature values, allow the coefficients A0...D3 to be calculated. These are written into the EEPROM of the microprocessor.

When the pressure transmitter is in service, the microprocessor measures the signals (S) and (T), calculates the coefficients according to the temperature and produces the exact pressure value by solving the P(S,T) equation.

Calculations and conversions are performed at least 400 times per second.

Typical Error Band of Series 41 X (delivered in color with each transmitter):



## ACCESSORIES SERIES 41 X

Each Series 41 X transmitter also integrates a digital interface (RS485 halfduplex) which the user can make use of. The transmitter is being connected via a converter RS232-RS485 (i.e. K-102, K-104 or K-107) to a PC or Laptop. Two programs are offered:

### PROG30: Instrument Settings

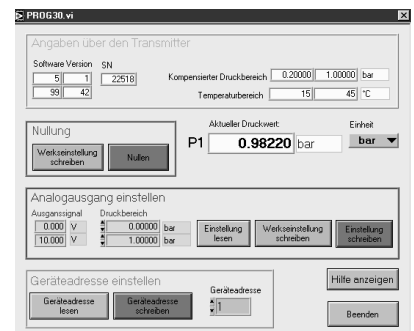
- Call up of information (pressure- and temperature range, version of software etc.)
- Indication of actual pressure value
- Selection of the units
- Setting of a new zero and gain for the transmitter
- Reprogramming of the analog output (i.e. different unit, other pressure range)
- Setting of the instrument address (for Bus-operation)
- Programming of the switch output
- Changing the output rate

### READ30: Data collection with graphs

- Fast read-out and viewing of the pressure signals in a graph
- Documentation of dynamic measurements
- Up to 16 transmitters on one serial connection (Bus-operation)

You can also tie up the transmitters into your own software. You have then a documentation, a DLL and numerous examples at your disposal.

## SOFTWARE PROG30



Subject to alterations

04/05

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