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Series 41X

Series 41X-Ei

### **Capacitive Pressure Transmitter** From 1 mbar Full Range\* / Resolution 1 *µ*bar

The Series 41X combines the ceramic measurement cell for low pressure ranges with the  $\mu$ P electronics of the digital Series 30 transmitter. The pressure values from the signals of the pressure and temperature sensors are determined by polynomial compensation (see reverse). The values can be displayed and stored on a PC via an RS485 interface and programming can also be carried out.

The transmitters are calibrated to the base range. The CCS30 software permits programming of the analog output signal in each section of the range within the base range (e.g. range 100 mbar. Output 4...20 mA for 20...60 mbar).

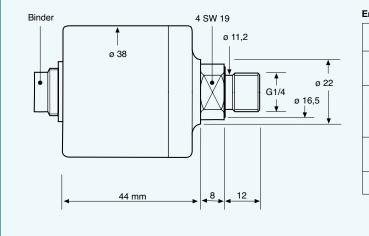
With the CCS30 software and the KELLER converter K-114, the calculated pressure can be displayed on a computer. The CCS30 software also allows the recording and graphic display of pressure signals. Up to 128 transmitters can be hooked together to a Bus-system.

This pressure transmitter is also available as an intrinsically safe version (Series 41X-Ei) and can be used as a partition wall device at the border of Zone 0 and Zone 1. Pressure transmitters in the 41X-Ei series may only be used in conjunction with proven intrinsically safe equipment.



\*by splitting the 30 mbar range





Output	Function	Binder 723	M12 A-coded	DIN 43650	MIL C-26482	Cable
2-Wire Current	OUT/GND	1	1	1	С	white
	+Vcc	3	3	3	А	black
3-Wire Voltage	GND	1	1	1	С	white
	OUT	2	2	2	В	red
	+Vcc	3	3	3	А	black
Digital	RS485A	4	4	-	D	blue
	RS485B	5	5	-	F	yellow
Transmitter Housing				Ŧ		Shield

use shielded cable

# CE

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Find your local KELLER contact keller-pressure.com

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#### Specifications

	Standard FS Pressure Ranges		
PR-41X (relative) PD-41X (diff.)	** Option: Adjustment directly to intermediate ranges (below 20 pieces against surcharge).		
Overpressure	300 1000 1500 mbar	For higher pressure ranges and for «wet/wet»-differential	
Neg. Overpressure	30 100 300 mbar	applications, KELLER offers Series 33X resp. Series 39X.	
	2-Wire 3-Wire	** Note that the error band will then increase proportionally	
Supply (U <sub>B</sub> ) 41X	828 VDC 1328 VDC		
Supply (U <sub>B</sub> ) 41X-Ei	1030 VDC 1530 VDC	1 111	
Analog Output (scaleable)	420 mA 010 V		
Load (kΩ)	<(U <sub>B</sub> -U <sub>Bmin</sub> ) / 20 mA ≥ 100	TYPE PD-41X/20mbar/88650 RANGE 020 mbar QUTPLT 010 V	
Error Band typ.*	± 0,1 %FS ± 0,2 %FS	0/17FUT 0.10 V SUPPLY +13.28 VC 10FUT +13.28 VC 2 VUT 5: R54868	
Error Band max.*	± 0,2 %FS ± 0,3 %FS	3. +Vcc 688 तेल स्था 767 7555 5875 के स्था 77 मार्थ गिलाओं	
* Within the compensated temperature range		PD-412	
Stability	$FS \ge 100 \text{ mbar:} \pm 0.1 \text{ \%}FS \qquad FS \le 100 \text{ mbar:} \pm 0.1 \text{ mbar}$	Dimensions ø 50 x 62 mm	
Operating Temperature	-2080 °C	Polynomial Compensation	
Compensated Range	1050 °C	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	
Pressure Connection	G1/4 male, Viton® flat seal	microprocessor in the transmitter calculates P using the following polynomial:	
Electrical Connection	DIN 43650*, Binder series 723*, M12, MIL-C 26482,	$P(S,T) = A(T)S^{0} + B(T)S^{1} + C(T)S^{2} + D(T)S^{3}$	
	Subconn BH MSS and MCBH MSS or cable	With the following coefficients A(T)D(T) depending on the temperature:	
	* Mating connector included		
Material in Contact with Media	Stainless Steel (AISI 316L), Nitrile O-Ring,		
	gold-coated ceramic membrane	$C(T) = C_0 T^0 + C_1 T^1 + C_2 T^2 + C_3 T^3$ $D(T) = D_0 T^0 + D_1 T^1 + D_2 T^2 + D_3 T^3$	
PD-Reference side	Non-aggressive dry gases	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 A0D3 to be calculated. These are written into the EEPROM of the	
Protection / Weight	IP40 / ca. 190 g		
EMC Conformity	EN 61000-6-1 to 6-4 / EN 61326-1 / EN 61326-2-3		
Special Versions	- IP67	microprocessor.	
	- Alternative plugs (see front page)	When the pressure transmitter is in service, the micropro- cessor measures the signals (S) and (T), calculates the coefficients according to the temperature and produces	
	- Cable version		
	- Pressure ranges neg./pos.: Example: -10+10 mbar	the exact pressure value by solving the P(S,T) equation.	
	- Intrinsically safe version for use in explosion exposed		
	areas (must only be used in combination with certified		



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 $A(T) \ldots D(T)$ depending on the temperature:

#### Interface

The X-line products have a digital interface (RS485 halfduplex), which supports the MODBUS RTU and KELLER Bus protocols. Details of the communication protocols can be found at www.keller-druck.com. To integrate the communication protocol into your own software, documentation, a Dynamic Link Library (DLL) and various program examples are available.

#### Accessories

The connection to a computer is established via an RS485-USB interface converter. To ensure smooth operation, we recommend the K-114 with the corresponding mating connector, robust driver module, fast RX/TX switching and connectable bias and terminating resistors.

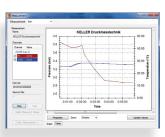
intrinsically safe equipment!)

#### Software

The licence-free software CCS30 is used to carry out configurations and record measured values.

Measurement collection

- **Configuration**
- Graphical live display
- Export function
- · Parallel recording in Bus operation
- · Call up of information (pressure and temperature
- Adjustable measurement and storage interval range, software version, serial number etc.)
  - · Readjustment of zero point and amplification
  - · Rescaling of analog output (unit, pressure range)
  - · Adjustment of low-pass filter
  - · Selection of instrument address and baud rate



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