

Capacitive pressure transmitter From 1 mbar* / resolution 1 µbar

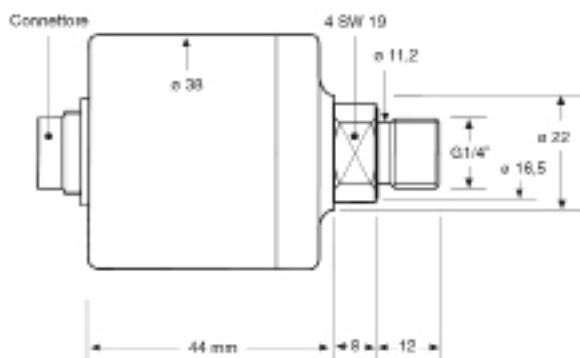
The Riels@Instruments RIB41X Series combines the ceramic measuring cell for low pressure fields with the µP electronics of the Series 30 digital transmitter. The pressure values from the pressure and temperature sensor signals are determined by polynomial compensation (see back). It is possible to view the values and store them on a PC via an RS485 interface; programming is also possible. The transmitters are calibrated on the basic measuring range. The PROG30 software allows you to program the analog output signal in each section of the field within the basic measurement range (eg. Range of 100 mbar; Output at 4÷20 mA for 20÷60 mbar). With the K-100 Series of Riels@Instruments RS converters it is possible to connect up to 128 transmitters together in a bus system and then read them via a PC or laptop. The READ30 software allows you to read the current pressure of each transmitter and to store or record "on line" the pressure activity of the various transmitters.

This pressure transmitter is also available in an intrinsically safe version (RIB41X Ei Series). It is used in areas subject to explosion, where categories 1 and 2 are required.

* by dividing the field by 10 mbar.



PD-41 X
Dimension ø 50 x 62 mm



CONNESSIONI ELETTRICHE

Uscita	Funzione	Connettore 723	DIN 43650	MIL C-264862	Lumberg M12	Cavo
4...20 mA	OUT/ GND	1	1	C	1	Bianco
2 Cavi	+Vcc	3	3	A	3	Nero
0...10 V	GND	1	1	C	1	Bianco
3 Cavi	OUT	2	2	B	2	Rosso
	+Vcc	3	3	A	3	Nero
Digitale	RS485A	4		D	4	Blu
	RS485B	5		F	5	Giallo



Specifications

	Standard FS Pressure ranges			
RIB41X (relative) RIB41X (differential)	30	100	300	mbar
Overpressure	300	1000	1500	mbar
Negative overpressure	30	100	300	mbar
Power supply (U) 41 X	8÷28 VDC		13÷28 VDC	
Power supply (U) 41 X Ei	10÷28 VDC		15÷28 VDC	
Analog output (scalable)	4÷20 mA		0÷10 V	
Load (kΩ)	< (U _s -U _{8min})/20 mA		≥ 100	
Stability	FS ≥ 100 mbar: ± 0,1 %FS		FS ≤ 100 mbar: ± 0,1 mbar	
Operating temperature	-20÷80 °C			
Compensated field	10÷50 °C			
Error range*	± 0,1 %FS standard		± 0,2 %FS max.	

* within the compensated temperature range

All intermediate ranges for the analogue output can be made without surcharge by staggering the standard ranges **.

Option: adjustment directly on the intermediate fields (with an increase under 20 pieces).

For higher pressure ranges and "wet / wet" differential applications, RIELS offers the RIB33X Series and RIB39X Series respectively.

** note that the error range will increase proportionally

Pressure connection port	G1/4 "male, Viton® flat gasket
Electrical connection	723 Series Connector (5-pin)
Material in contact with environmental elements	Stainless steel (AISI 316L), nitrile o-ring, gold-coated ceramic diaphragm
PD-reference side	Non aggressive dry gases
Protection/ Weight	IP 40 / ca. 190 g
Special versions	IP 67 - Alternative sockets - Cable version - Negative / positive pressure ranges: ex. -10 ÷ + 10 bar - Intrinsically safe version for use in areas subject to explosion

Polynomial compensation

A mathematical model is used to derive the exact value of the pressure (P) from the signals measured by the pressure sensor (S) and the temperature sensor (T). The microprocessor inside 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) which depend on the temperature:

$$A(T) = A_0 \cdot T^0 + A_1 \cdot T^1 + A_2 \cdot T^2 + A_3 \cdot T^3$$

$$B(T) = B_0 \cdot T^0 + B_1 \cdot T^1 + B_2 \cdot T^2 + B_3 \cdot T^3$$

$$C(T) = C_0 \cdot T^0 + C_1 \cdot T^1 + C_2 \cdot T^2 + C_3 \cdot T^3$$

$$D(T) = D_0 \cdot T^0 + D_1 \cdot T^1 + D_2 \cdot T^2 + D_3 \cdot T^3$$

The transmitter is factory tested at various pressure and temperature levels. The corresponding measured values of S, together with the exact pressure and temperature values, make it possible to calculate the coefficients A0... D3. These are written in the EEPROM memory of the microprocessor. When the pressure transmitter is in operation, the microprocessor measures the signals (S) and (T), calculates the coefficients based on the temperature and obtains the exact pressure value by solving the equation P (S, T).

Accessories for RIB41X Series

Each transmitter of the RIB41X Series also includes a digital interface (RS485 half-duplex) which the user can use. The transmitter is connected to a PC or laptop via an RS232-RS485 converter (eg K-102, K-104 or K-107). Two programs are offered:

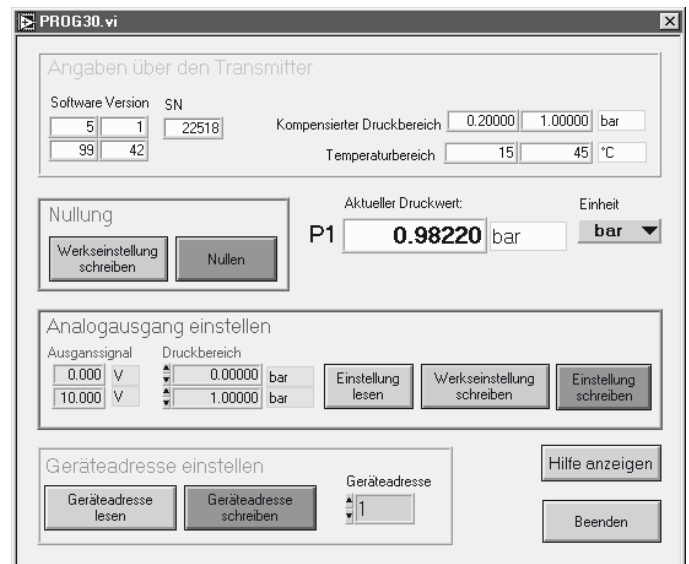
PROG30: Instrument Settings

- Call up information (pressure and temperature range, software version, etc.)
- Indication of the current pressure value
- Selection of measurement units
- Setting a new zero point and increment for the transmitter
- Reprogramming of the analog output (i.e. a different unit of measurement, another pressure range)
- Setting the instrument address (for Bus procedure)
- Switching output programming
- Changing the exit rate

READ30: Data collection with graphs

- Quick reading and display of pressure signals in a graph
- Documentation of dynamic measurements
- Up to 16 transmitters on a serial connection (Bus procedure)

You can also connect the transmitters in your personal software. You also have documentation, a DLL and numerous examples at your disposal.



Software PROG30