

# Pressure Transmitters

For Precision Measurement  
With Digital Output RS 232

## TRONIC LINE

Standard Series • Model D-10  
Flush Diaphragm Series • Model D-11

- Pressure ranges from 0 ... 250 mbar to 0 ... 1,000 bar
- Linearity  $\leq 0.1$  % (optional 0.05 %) of span
- No additional temperature error in the range 0 ... 50 °C
- Digital data processing
- Wetted parts and case of stainless steel
- Digital output RS 232
- Wiring with plug (9-pin SUB-D plug)
- Communication software Easy Com 2.0 for display, zero point adjustment and data logging for pressure and temperature
- Optional calibration software Easy Cal Light

### General features

These pressure transmitters with accuracies of 0.1 % (or 0.05%) have been designed to enable direct communication to a PC, which is especially required in the field of test, calibration and service technology. The pressure transmitter's power supply is taken directly from the RS 232-interface of the PC.

The digital data processing of the precision pressure transmitter ensures excellent values regarding linearity and repeatability. System-related temperature errors occurring usually in pressure measuring instruments are compensated by the temperature sensor integrated in the process connection and the digital data processing via microprocessor. This leads to a total temperature error of  $\leq 0.1$  % in the range of 0 ... 50 °C.

All wetted parts are made of stainless steel and completely welded to exclude possible conflict between the sealing material and the pressure medium. The durable case is also made of stainless steel and provides IP 67 degree of protection.

The newly developed communication software Easy Com 2.0, which is included in delivery, allows not only the display of pressure and temperature but also the storage of the measuring data for pressure and temperature (data logger function) as well as an easy adjustment of zero point and span. The D-1X pressure transmitters also communicate as working standard through the optional Easy Cal Light software. With it, simple calibration for internal test monitoring can be accomplished.

The models of series D-11 with their flush diaphragm are particularly suitable for the measurement of media that is highly viscous, crystallizing or contains particulates. Pressure transmitters with flush diaphragm are available for the pressure ranges of 0 ... 250 mbar to 0 ... 600 bar.



### Supplementary data sheet:

- Pressure Transmitters for precision measurement with analog signal outputs (see data sheet PE 81.32)

Typ P-1X

- Calibration Software for mechanical and electronic pressure measurement (see data sheet PE 84.92)

Easy Cal Light

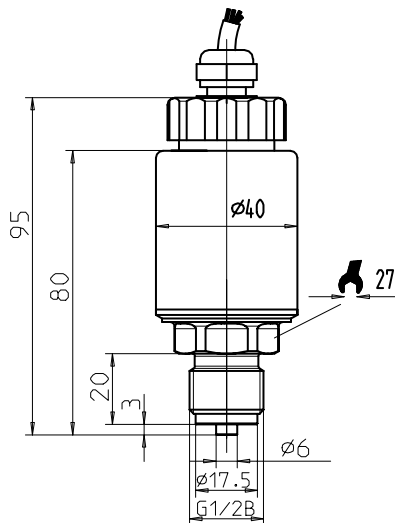
Specifications		Model D-10 and Model D-11																		
Pressure ranges	bar	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600	1000
Over pressure safety	bar	1.6	1.6	2.4	4	6.4	10	16	24	35	64	50	80	120	200	320	500	800	1200	1500
Burst pressure	bar	2	2	6	10	10	16	20	35	35	80	250	400	550	800	1000	1200	1700	2400	3000
		{absolute pressure: 0 ... 0.25 bar abs to 0 ... 16 bar abs}																		
		{special pressure range 800 ... 1200 mbar abs}, {other on request}																		
		{± pressure ranges: minimum span 400 mbar, e.g. -200 mbar ... +200 mbar}																		
Pressure connection		G ½ B per DIN 16 288 (G ¼ B, ½ NPT) {other connections on request}}																		
• Model D-10		G1 B flush diaphragm with o-ring (pressure ranges: 0 ... 0.25 to 0 ... 1.6 bar)																		
• Model D-11		G ½ B flush diaphragm with o-ring (pressure ranges: 0 ... 2.5 to 0 ... 600 bar)																		
		{weld-on socket for flush diaphragm units with connection G ½ B, G 1 B}																		
Materials																				
• wetted parts		stainless steel 1.4571, 2.4711 (≥ 25 bar) (other materials see WIKA chemical seal programm)																		
• o-ring		Only for flush diaphragm models: NBR {EPDM, Viton}																		
• case		stainless steel 1.4571																		
internal transmission fluid		Synthetic oil (only for pressure ranges up to 0 ... 16 bar or flush diaphragm units)																		
		{halocarbon oil for oxygen applications <sup>1)</sup> }																		
		{listed by FDA for food industry}																		
Power supply U <sub>b</sub>	DC V	via RS 232-interface																		
		When connecting the D-1X to a notebook/laptop computer, the minimum power supply of the RS 232 interface must be secured with an adapter (can be ordered as an option).																		
Output signal		RS 232 (8N1/9600 Baud)																		
		<b>3 adjustable modes of operation:</b>																		
		• Pressure and temperature value on request from host system																		
		• cyclic pressure output, time interval adjustable 10 ms ... 10 min																		
		• cyclic pressure and temperature output, time interval adjustable 10 ms ... 10 min																		
		Resolution pressure value: 50,000 digits, temperature value 0.5 K																		
Adjustability																				
• Zero point	%	-5 ... +10 {adjustment via software Easy Com 2.0}																		
• Span	%	-50 ... +5 {adjustment via software Easy Com 2.0}																		
internal measuring rate	Hz	100																		
warm-up time	min	< 10																		
Accuracy *	% of span	≤ 0.1 in the range 0 ... +50 °C {≤ 0.05 at 20 °C <sup>2)</sup> }																		
(including linearity, hysteresis and repeatability)																				
Hysteresis	% of span	≤ 0.04																		
Repeatability	% of span	≤ 0.03																		
1-year stability	% of span	≤ 0.1 (at reference conditions)																		
Permissible temperature of																				
• medium	°C	-20 ... +80 {other on request}										- 4 ... +176 °F								
• ambient	°C	-20 ... +80}																		
• storage	°C	-40 ... +85										-40 ... +185 °F								
Compensated temp. range	°C	-20 ... +80										+ 4 ... +176 °F								
Temperature coefficients in compensated temp range:																				
• mean TC of zero	% of span /10K	≤ 0.1 (the temperature related deviations in the range 0 ... +50 °C (32 ... 122 °F) are already covered by the accuracy above)																		
• mean TC of range	% of span /10K	≤ 0.1																		
α -conformity		Interference emission and immunity see EN 61 326; declaration of conformity on request																		
Shock resistance	g	< 100 according to IEC 770																		
Vibration resistance	g	< 5 according to IEC 770																		
Electrical connection		flying lead inclusive 9-pin SUB-D plug, cable length 1.5 m																		
Software		communication software Easy Com 2.0 (for WIN 95, WIN 2000, Windows NT 4.0)																		
		{calibration software Easy Cal Light}																		
Ingress protection acc to EN 60 529/IEC529		IP 67																		
Weight	kg	ca. 0.3																		
Dimensions		see drawings																		

Items in curved brackets { } are optional extras for additional price.

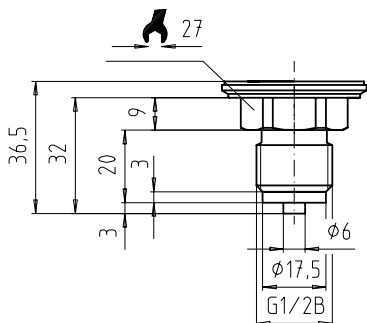
- 1) The oxygen version must not be operated under medium temperatures higher than 60 °C (140 °F)  
The oxygen version cannot be manufactured for negative pressure ranges and for absolute pressure ranges < 1 bar abs.
- 2) Not for ± pressure ranges
- \* Calibrated in vertical mounting position with the pressure connection facing down

Dimensions in mm

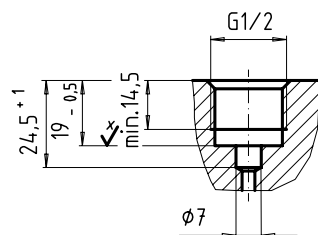
Case



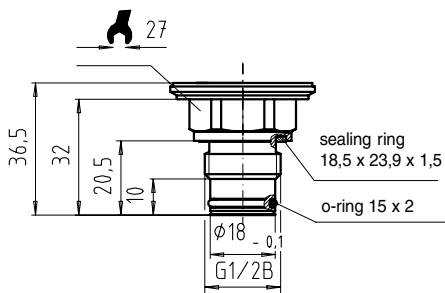
Pressure connection G 1/2 B



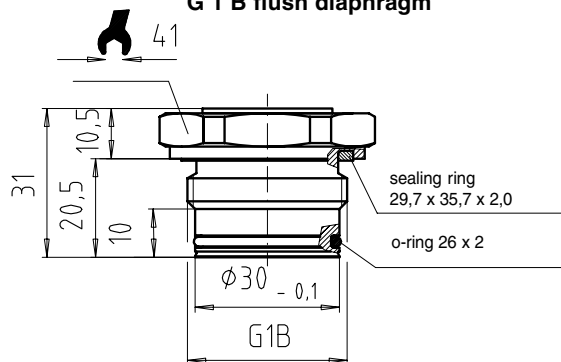
Socket for pressure connections



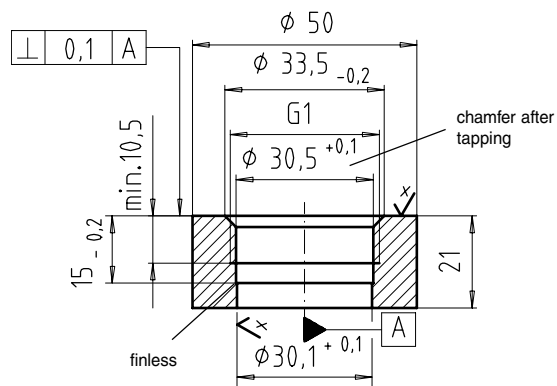
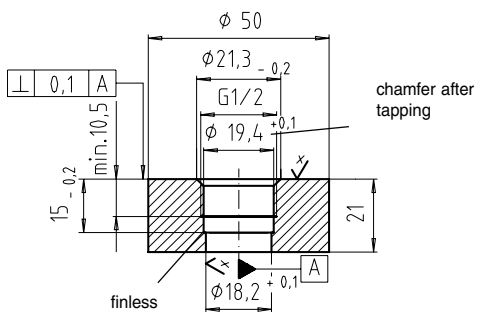
Pressure connection G 1/2 B flush diaphragm



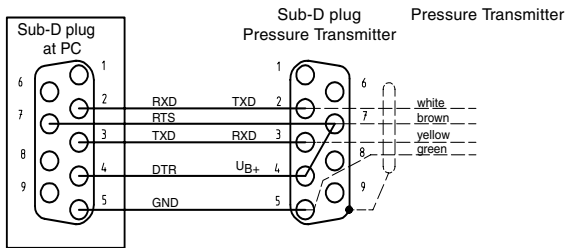
G 1 B flush diaphragm



Weld-on adaptor resp. socket for flush diaphragm pressure connection



## Wiring details



The pressure transmitter is supplied via the pins RTS and DTR of the PC interface.

The maximum permissible cable length between pressure transmitter and PC is 3 m.

## Communication software



### Functions:

- Pressure and temperature display (value / graphic)
- Data logging of the measuring data
- Adjustment zero point and span
- Memory of minimum and maximum values

## Calibration software (optional)



### Functions:

- Fully automatic calibration
- Certificate creation per DIN 10 204-3.1B
- Calibration steps generation per DIN EN 837-1
- Calibration data storage

Specifications and dimensions given in this document represent the state of engineering at the time of printing. Modifications may be carried out and materials specified may be replaced by others without prior notice.



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