Pressure Transmitters for Precision Measurement with Digital Output RS 232
Model D-10, standard version / Typ D-11, flush diaphragm

Applications

- Automation engineering
- Test bench construction
- Laboratories
- Maintenance shops

Special Features

- Accuracy ≤ 0.1 % (optional 0.05 %) of span
- Digital output RS 232 with 9-pin Sub-D connector
- Communication software EasyCom for Windows ® 95, 2000, NT, XP or Vista
- No additional temperature error in the range 0 ... 50 °C
- Pressure ranges from 0 ... 250 mbar to 0 ... 1,000 bar

Fig. left Pressure Transmitter D-10
Fig. right Pressure Transmitter D-11

Description

High Precision

These pressure transmitters with accuracy 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 electrical power of the pressure transmitter is taken directly from the RS 232-interface of the PC.

Digital signal processing

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. The result is a total temperature error below 0.1 % in the range of 0 ... 50 °C.

Software EasyCom

The communication software Easy Com, 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.

Flush version

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.

Data Sheet for related model:
Pressure Transmitter for Precision Measurement; Model P-1X; see Data Sheet PE 81.32

Specifications Model D-10 / D-11

Pressure ranges	bar	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16
Over pressure safety	bar	2	2	4	5	10	10	17	35	35	80
Burst pressure	bar	2.4	2.4	4.8	6	12	12	20.5	42	42	96
Pressure ranges	bar	25	40	60	100	160	250	400	600	1000 [1]	
Over pressure safety	bar	50	80	120	200	320	500	800	1200	1500	
Burst pressure	bar	96	400	550	800	1000	1200	1700 [2]	2400 [2]	3000	
	{Vacuum, gauge pressure, compound range, absolute pressure are available}										
	{compound ranges: minimum span 400 mbar, e.g. -200 mbar ... +200 mbar}										
	[1] Only Model D-10.										
	[2] For Model D-11: the value specified in the table applies only when sealing is realised with the sealing ring underneath the hex. Otherwise max. 1500 bar applies.										

Materials		
■ Wetted parts		(other materials see WIKA diaphragm seal program)
» Model D-10		Stainless steel (pressure ranges > 25 bar additional Elgiloy®)
» Model D-11		Stainless steel {Hastelloy}; O-ring: NBR {FPM/FKM or EPDM}
■ Case		Stainless steel
Internal transmission fluid [3]		Synthetic oil {Halocarbon oil for oxygen applications}
		{Listed by FDA for Food & Beverage}
	[3] Not for D-10 with pressure ranges > 25 bar.	
Power supply U_B		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 if necessary with an adapter, which can be ordered as an option (see page 4)
Signal output		RS 232 (8N1/9600 Baud) {USB via Seriell Converter}
		3 adjustable modes of operation
		■ Pressure and temperature value on request from host system
		■ Cyclic pressure output, time interval adjustable 10 ms [4] ... 10 min
		■ Cyclic pressure and temperature output, time interval adjustable 10 ms [4] …10 min
		Resolution pressure value: 50,000 digits, temperature value 0.5 K
	[4] Due to the Windows access times an interval of 10 ms is not feasible via the EasyCom software.	
Adjustability		
■ Zero point	%	-5 ... +20 (adjustment via software EasyCom)
■ Span	%	-5 ... +5 (adjustment via software EasyCom)
Internal measuring rate	Hz	100 [5]
	[5] 50 Hz with pressure ranges ≤ 1 bar or compound pressure ranges ≤ 3 bar span	
Warm-up time	min	< 10
Insulation voltage	VDC	500
Accuracy [6]	% of span	≤ 0.1 in the range 0 ... +50 °C / +32 ... 122 °F {< 0.05 at 20 °C / 68 °F} [7]
	[6] Including non-linearity, hysteresis, zero point and full scale error (corresponds to error of measurement per IEC 61298-2). Adjusted in vertical mounting position with lower pressure connection.	
	[7] Cannot be manufactured for: compound ranges and pressure ranges ≤ 0.4 bar.	
Non-linearity	% of span	≤ 0.04 (BFSL) according to IEC 61298-2
1-year stability	% of span	≤ 0.1 (at reference conditions)

Permissible temperature of			
■ Medium *)		-20 ... +80 °C {other on request}	-4 ... +176 °F {other on request}
■ Ambience		-20 ... +80 °C	-4 ... +176 °F
■ Storage		-40 ... +85 °C	-40 ... +185 °F
		-20 ... +80 °C	-4 ... +176 °F
Compensated temp. range		(the temperature related deviations in the range 0 ... +50 °C (+32 ... +122 °F)	
Temperature coefficients within		are already covered by the accuracy above)	
■ Mean TC of zero	% of span	≤ 0.1 / 10 K	
■ Mean TC of span	% of span	≤ 0.1 / 10 K	

CE-conformity		
■ Pressure equipment directive		97/23/EC
■ EMC directive		89/336/EEC emission (class B) and immunity according to EN 61 326
Shock resistance	g	< 100 according to IEC 60068-2-27 (mechanical shock)
Vibration resistance	g	< 5 according to IEC 60068-2-6 (vibration under resonance)

Specifications		Model D-10 / D-11
Wiring protection		
■ Reverse polarity protection		UB+ towards UB-
Software		Communication software EasyCom (for Windows® 95, 98, 2000, NT, XP or Vista)
Weight	kg	Approx. 0,3

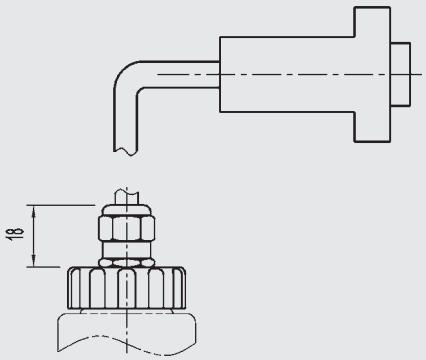
*) In an oxygen version model D-11 is not available. In an oxygen version model D-10 is only available with media temperatures between -20 … +60 °C/ -4 … +140 °F.
{ } Items in curved brackets are optional extras for additional price.

Dimensions in mm

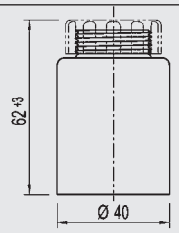
Ingress Protection IP per IEC 60529.

Electrical connection

9-pin Sub-D connector,
cable length 1.5 m
IP 67 (on the instrument side)

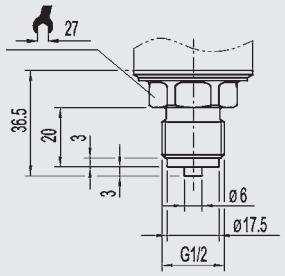


Case

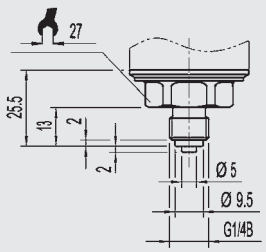


Pressure connections D-10

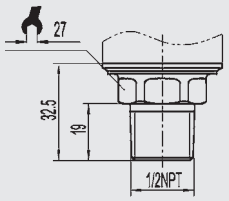
G 1/2
Order code: GD



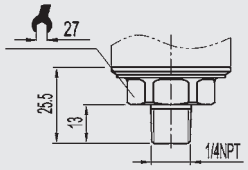
G 1/4
Order code: GB



1/ 2 NPT
per „Nominal size for US-standard tapered pipe thread NPT“
Order code: ND



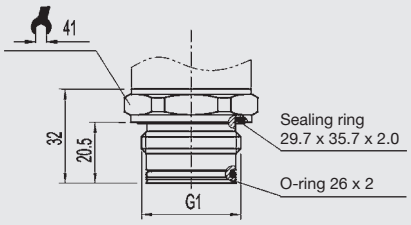
1/ 4 NPT
per „Nominal size for US-standard tapered pipe thread NPT“
Order code: NB



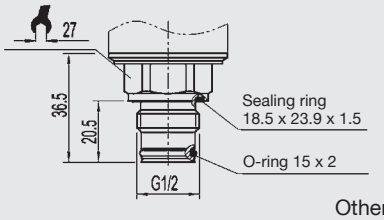
Others on request

Pressure connections D-11, flush diaphragm

G 1
0 ... 0.25 up to 0 ... 1.6 bar
Order code: 85



G 1/2
> 1.6 bar
Order code: 86



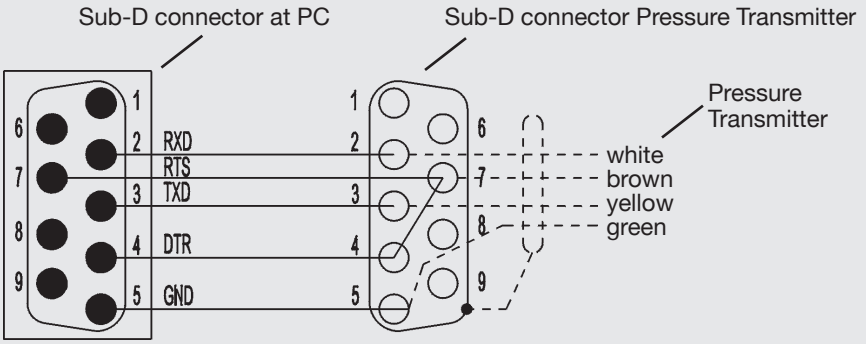
Others on request

For installation and safety instructions see the operating instructions for this product.
For tapped holes and welding sockets please see Technical Information IN 00.14 for download at www.wika.de -Service

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

Wiring detail

Sub-D connector



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.

Accessories	Order No.
Adapter for stabilising the RS 232 interface for the operation of a D-1X on a laptop/notebook	7429407
USB Seriell Converter, converts USB-signal into RS-232 signal	2470327

Software

Communication software
(is included in delivery)

Functions:

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

Further information

You can obtain further information (data sheets, instructions, etc.) via Internet address www.wika.de

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