Pressure sensor with digital output RS-232
For precision measurements
Model D-10, D-11

Applications

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

Special features

- Accuracy < 0.1 % (optionally 0.05 %) of span
- Digial output RS-232 with 9-pin Sub-D connector
- No additional temperature error in the range 0 ... 50 °C
- Measuring ranges from 0 ... 250 mbar to 0 ... 1,000 bar

Fig. left: **Pressure sensor model D-10**
Fig. right: **Pressure sensor model D-11, flush process connection**

Description

High precision

These pressure sensors, with measurement accuracies of 0.1 % (or 0.05 %), have been designed for allowing direct communication with the PC, in particular in the testing, calibration and service technologies. The power supply of the pressure sensor is taken directly from the RS-232 interface of the PC.

Digital signal processing

Through digital data processing, the pressure sensors achieve excellent values for non-linearity and non-repeatability. Due to the temperature transducer integrated into the process connection and to digital data processing by means of a microcontroller, system-related temperature errors, such as those usually encountered in pressure measuring instruments, are compensated. This guarantees an overall error below 0.1 % in the range 0 ... 50 °C.

EasyCom software

The EasyCom communication software, which is included in delivery, allows not only the display of pressure and temperature, but also the storage of the measured values for pressure and temperature (data logger function). Via the software, the user can also easily adjust zero point and span, if required.

Flush version

The D-11 models, with their flush diaphragm, are especially suited to measurement in highly viscous, contaminated or crystallising media.

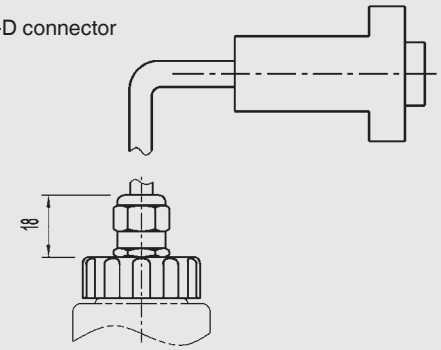
Specifications

Measuring 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	1,000 [1]	
Overload safety	Measuring ranges ≤ 1.6 bar: 5-fold Measuring ranges 2.5 ... 16 bar: 4-fold (measuring range 10 bar: 3-fold) Measuring ranges 25 ... 600 bar: 2-fold Measuring range 1,000 bar: 1.5-fold										
	{Vacuum, overpressure, +/- and absolute pressure are available} {± measuring ranges: Minimum span 400 mbar, e.g. -200 ... +200 mbar}										
Material	■ Wetted parts - Model D-10: Stainless steel (with measuring range > 25 bar additionally PH steel) - Model D-11: Stainless steel (option: Hastelloy®); O-ring: NBR (option: FPM/FKM or EPDM) ■ Case: Stainless steel For other materials, see WIKA diaphragm seals product range										
Internal transmission fluid	Synthetic oil Halocarbon oil for oxygen versions (option) Listed by FDA for food industry (option) No transmission fluid for model D-10 with measuring range > 25 bar										
Power supply U+	Via RS-232 interface When connecting the D-1x to a notebook/laptop, an optionally available adapter for voltage supply may be necessary. RS-232 (8N1/9600 baud) (option: USB via serial converter)										
Output signal	3 adjustable operating modes: ■ Pressure and temperature values on request by host system ■ Cyclic pressure output, time interval adjustable 10 ms ... 10 min ■ Cyclic pressure and temperature output, time interval adjustable 10 ms ... 10 min Due to the Windows access times, 10 ms cannot be achieved via the EasyCom software.										
Resolution	Pressure value: 50,000 digits Temperature value: 0.5 K										
Adjustability	Zero point: -5 ... +20 % (adjustment via EasyCom software) Span: -5 ... +5 % (adjustment via EasyCom software)										
Internal measuring rate	100 Hz 50 Hz with measuring ranges ≤ 1 bar or ± measuring ranges ≤ 3 bar span										
Warming-up period	< 10 min										
Insulation voltage	DC 500 V										
Accuracy	≤ 0.10 % of span in the range 0 ... 50 °C < 0.05 at 20 °C (option, not for: ± measuring ranges and measuring ranges ≤ 0.4 bar) Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2). Calibrated in vertical mounting position of process connection.										
Non-linearity	≤ 0.04 % of span (BFSL) per IEC 61298-2										
Long-term stability per year	≤ 0.1 % of span (at reference conditions)										
Permissible temperature ranges	Medium: -20 ... +80 °C {others on request} Ambient: -20 ... +80 °C Storage: -40 ... +85 °C Model D-11 is not available in an oxygen version. Model D-10 is only available in an oxygen version with medium temperatures between -20 … +60 °C.										
Compensated temperature range	-20 ... +80 °C										
Temperature coefficients in the compensated temperature range	The temperature errors in the range 0 ... 50 °C are already included in the accuracy. ■ Mean TC of zero: ≤ 0.1 / 10 K % of span ■ Mean TC of span: ≤ 0.1 / 10 K % of span										
Shock resistance	< 100 g per IEC 60068-2-27 (mechanical shock)										
Vibration resistance	< 5 g per IEC 60068-2-6 (vibration under resonance)										
Electrical safety	Reverse polarity protection UB+ to UB-										
Software	EasyCom communication software										
Weight	approx. 0.3 kg										

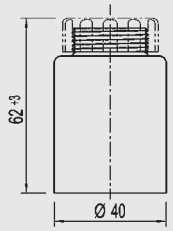
1) Applies only to model D-10.

Dimensions in mm

Electrical connection
Threaded connection with 1.5 m cable and 9-pin Sub-D connector
IP67 per IEC 60529 (on the instrument side)

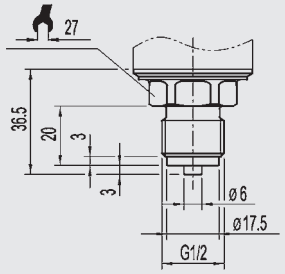


Case

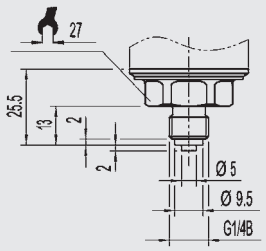


Process connections for model D-10

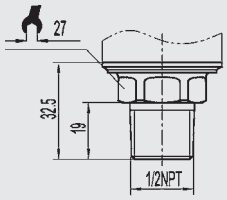
G 1/2
Order code: GD



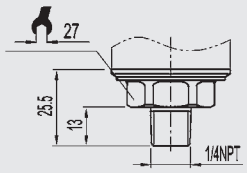
G 1/4
Order code: GB



1/ 2 NPT
per “Nominal dimensions for US standard tapered pipe thread NPT”
Order code: ND



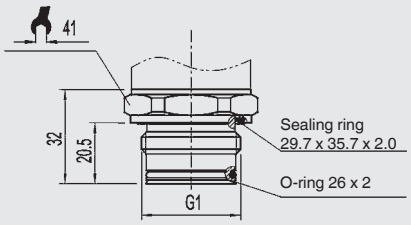
1/ 4 NPT
per “Nominal dimensions for US standard tapered pipe thread NPT”
Order code: NB



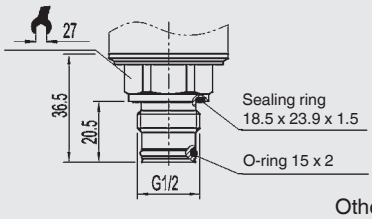
Others on request

Process connections for model D-11, flush

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



G 1/2
> 1.6 bar
Order code: 86

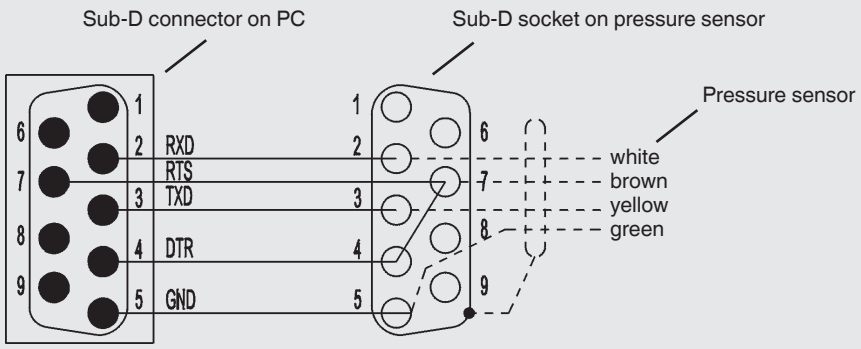


Others on request

For information on tapped holes and welding sockets, see Technical information IN 00.14 at www.wika.com

Electrical connection

Sub-D connector



The pressure sensor is supplied with power via the RTS and DTR pins of the PC interface.

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

Accessories

Description	Order no.
Adapter for stabilising the RS-232 interface for operation of the pressure sensor on a laptop/notebook	7429407
USB serial converter for converting a USB signal into an RS-232 signal	2470327

Communication software (included in delivery)

Functions

- Display of pressure and temperature (value/graphic)
- Storage of the measured values
- Adjustment of zero point/span

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.com
www.wika.com

03/2017 EN