

Pressure transmitter with CANopen Interface Model D-10-9, standard version Model D-11-9, flush diaphragm

WIKA Data Sheet PE 81.31



Applications

- Automation
- Test benches
- General industrial applications

Special Features

- Integrated CANopen Interface according to DS-301
- Device profile DS-404
- High accuracy up to 0.1 % with temperature drift incl.
- Intelligent sensor technology with calibration and diagnosis services
- Pressure ranges from 0 ... 250 mbar to 0 ... 1,000 bar



Fig. left Pressure transmitter D-10-9

Fig. right Pressure transmitter D-11-9

Description

Bus technology

The D-1X-9 is a precision transmitter with CAN interface. The integrated interface has been designed according to the CANopen specification DS-301 of the user organisation CiA. The device profile DS-404 which is used here, has been specially designed by the CiA for the use in measuring and control instruments. This guarantees the compatibility with the systems of other manufacturers.

All device parameters are accessible via the CANopen list object dictionary and can be configured with our EasyCom CANopen or any other CAN software available on the market. The module addresses can also be set via DIP switches directly at the transmitter (address 1-31).

WIKA Precision Sensor

The heart of the CANopen transmitter is a sensor design with integrated dynamic temperature compensation. Within the temperature range of 0 to +50 °C (+32 to +122 °F) it has an accuracy up to 0.1 % without any additional temperature error.

Due to the completely welded, in-house manufactured thin-film and piezo sensors there is absolutely no need for extra sealing material.

The WIK-A-made sensors are already well known for their high resistance against load changes, pressure pikes and good repeatability.

Safety

Specially adapted protective EMC procedures together with an integrated galvanic separation of power supply and bus signal are a guarantee for a reliable data transmission even at transmission rates up to 1 Mbaud.

The main features of the D-1X-9 are access to the calibration data, temperature data as well as a counter for over pressure and over temperature. As a consequence, the calibration history can be easily followed and a remote diagnosis via a supervisory control unit can be carried out. The electrical connection is a locking plug M 12 x 1 (5-pins). This guarantees an ingress protection of IP 65 and an easy and reliable bus interface.

Specifications

Model D-10-9 / D-11-9

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	800	800	1000	1200	1700 ²⁾	2400 ²⁾	3000	
{Vacuum, gauge pressure, compound range, absolute pressure are available}											
1) Only Model D-10-9.											
2) For Model D-11-9: 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-10-9		Stainless steel (pressure ranges > 25 bar additional Elgiloy [®])									
» Model D-11-9		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-10-9 with pressure ranges > 25 bar.											
Power supply UB	UB in VDC	10 < UB ≤ 30									
Signal output		CANopen Protokoll gemäß CiA DS-301 V. 4.02, Geräteprofil DS-404 V. 1.2									
Power consumption	W	≤ 0.7									
Communication services		LSS (CiA DSP 305, Version 1.1.1) Services									
		Configuration of device address and baud rate									
		Sync/Async, Node/Lifeguarding									
Diagnosis data		Emergency Message, if pressure is 5% below minimum of measuring range									
		or pressure is 5% beyond maximum of measuring range									
		or temperature at sensor is higher than 80 °C (176 °F)									
Termination		Internal termination can be activated via integrated DIP-switch									
Internal measuring rate	Hz	≤ 100									
Warm-up time	min	< 10									
Insulation voltage	VDC	500									
Accuracy ⁴⁾	% of span	≤ 0.2 {0.10} in the range 0 ... +50 °C									
⁴⁾ 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.											
Non-linearity	% of span	≤ 0.04 (BFSL) according to IEC 61298-2									
1-year stability	% of span	≤ 0.10 (at reference conditions)									
Permissible temperature of											
■ Medium ^{5) *}		-20 ... +80 °C		-4 ... +176 °F							
■ Ambience ⁵⁾		-20 ... +80 °C		-4 ... +176 °F							
■ Storage ⁵⁾		-40 ... +85 °C		-40 ... +185 °F							
⁵⁾ Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3											
Compensated temp. range	°C	-20 ... +80 °C		-4 ... +176 °F							
Temperature coefficients within compensated temp range		(the temperature related deviations in the range 0 ... +50 °C (32 ... 122 °F) are already included in the accuracy)									
■ Mean TC of zero	% of span	≤ 0.20 / 10 K {≤ 0.10 / 10 K}									
■ Mean TC of range	% of span	≤ 0.20 / 10 K {≤ 0.10 / 10 K}									
CE-conformity											
■ Pressure equipment directive		97/23/EC									
■ EMC directive		89/336/EEC emission (class B) and immunity according to EN 61326									
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)									
Wiring protection											
■ Reverse polarity protection		UB+ towards UB-									
Weight	kg	Approx. 0.4									

^{*)} In an oxygen version model D-11-9 is not available. In an oxygen version model D-10-9 is only available with media temperatures between -20 ... +60 °C / -4 ... +140 °F.
{ } Items in curved brackets are optional extras for additional price.

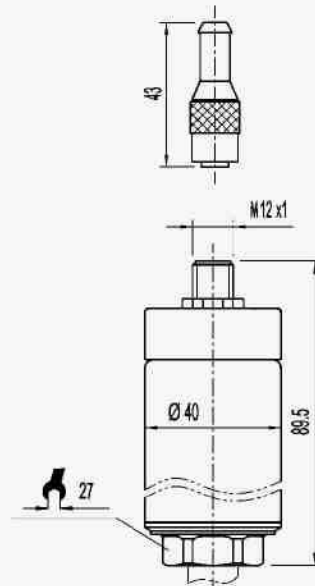
Dimensions in mm

Ingress Protection IP according to IEC 60529. The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.

Electrical connection

M 12x1
Circular connector
5-pin
IP 65
Order code: M5

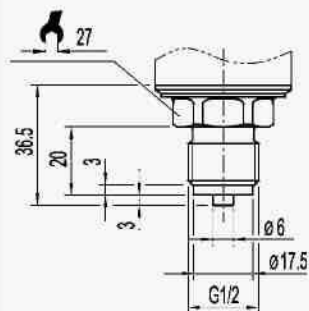
*)



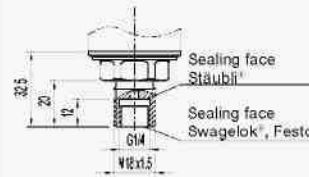
Other electrical connections
or IP 67 on request

Pressure connections D-10-9

G 1/2
EN 837
Order code: GD

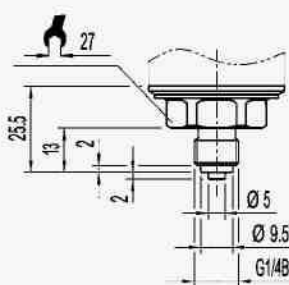


M 18x1.5
Order code: M6

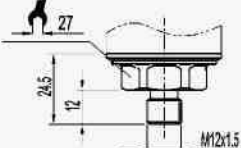


For quick disconnect coupler
Swagelok®, Stäubli®, Festo

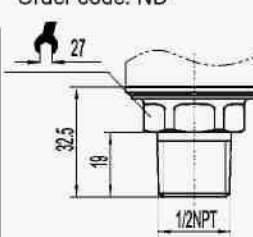
G 1/4
EN 837
Order code: GB



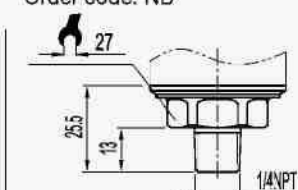
M 12x1.5
Order code: MK



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



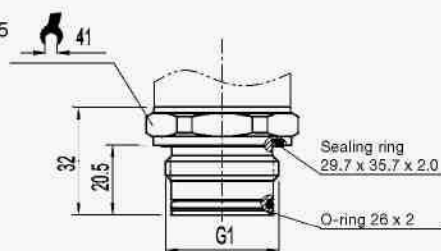
1/4 NPT
per „Nominal size for US
standard tapered pipe
thread NPT“
Order code: NB



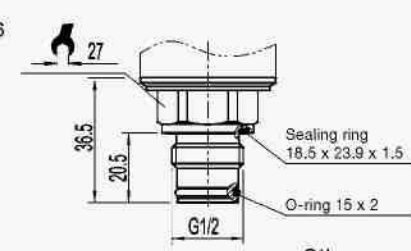
Others on request

Pressure connections D-11-9, flush diaphragm

G 1B
Order code: 85



G 1/2 B
Order code: 86



Others on request

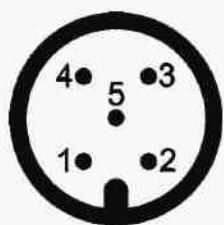
For installation and safety instructions see the operating instructions for this product.


For tapped holes and welding sockets please see Technical Information IN 00.14 for download at www.wika.de - Service

*) Connectors are not included in delivery.

Wiring details

PIN assignment of connections acc. CiA-DR 303-1



- 1 – Screen 
- 2 – UB+ (CAN V+)
- 3 – UB- (CAN GND)
- 4 – Bus-Signal CAN-High
- 5 – Bus-Signal CAN-Low

Accessories

	Order No.
Y-Plug (M12x1 female – male/female) CAN	2344526
Terminator Resistor (120 Ω , M12x1 Stecker) CAN	2308274
Bus cable 0.5 m (M12x1 male/female) CAN	2308240
Bus cable 2 m (M12x1 male/female) CAN	2308258
Software EasyCom CANopen, incl. PCAN-USB-adapter, cable set and power supply for the configuration of CANopen pressure transmitters. For use with Windows [®] 98/ME/2000/XP/Vista	7483167

Communication software



Further information

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

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

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