

# Pressure transmitter with CANopen Interface

## Accuracy 0.3 %, 0.5 % or 1 %

### Model D-20-9, standard version / D-21-9, flush diaphragm

WIKA Data Sheet PE 81.39

# CANopen

## Applications

- Hydraulics / Pneumatics
- Automation engineering
- General industrial applications

## Special Features

- CANopen Interface per DS-301
- Device profile DS-404
- Pressure ranges: 0 ... 250 mbar up to 0 ... 1000 bar
- Compact size
- Design with integrated Y-connector

## Description

### High performance

CANopen is receiving more acceptance in the mechanical engineering for standard applications too. WIKA accommodates this tendency by offering the D-2X-9, extending WIKA's range of products with an efficient, yet cost-effective pressure transmitter with CANopen interface.

This series of pressure transmitters has been carefully designed to cover the majority of industrial applications with instruments readily available from stock. Compact design and robust construction make these instruments suitable for all applications in machine construction, process control, laboratory or quality and materials testing equipment.

All wetted parts are made of stainless steel and are hermetically welded. Therefore there is no need for additional sealing material, which could possibly react with the pressure medium.



Fig. left D-20-9

Fig. center D-20-9 with integrated Y-connector

Fig. right D-21-9 with DIP-switch

### Bustechnology

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 other CANopen-systems according to CiA specification.

A galvanic isolation of the output signal can be offered as an optional extra.

The D-2X-9 supports, among others, LSS, Node Guarding, Heartbeat, synchronous and asynchronous data transmission.

The Baud rate can be adjusted from 20 K Baud up to 1 M Baud. Configuration via a DIP switch is offered as an optional extra.

For easy configuration the tool EasyCom CANopen is available.

# Specifications

# Model D-20-9 / D-21-9

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 <sup>1)</sup>	
Over pressure safety	bar	50	80	120	200	320	500	800	1200	1500	
Burst pressure	bar	96	400	550	800	1000	1200	1700 <sup>2)</sup>	2400 <sup>2)</sup>	3000	
{Vacuum, gauge pressure, compound range, absolute pressure are available}											
<sup>1)</sup> Only Model D-20-9.											
<sup>2)</sup> For Model D-21-9: 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)										
» Typ D-20-9 <sup>*)</sup>	Stainless steel										
» Typ D-21-9	Stainless steel {Hastelloy}; O-ring: NBR {FPM/FKM or EPDM}										
■ Case	Stainless steel										
Internal transmission fluid <sup>3)</sup>	Synthetic oil {Halocarbon oil for oxygen applications}										
	{Listed by FDA for Food & Beverage}										
<sup>3)</sup> Not for D-20-9 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 input	W	< 0.5 {with galvanic isolation < 0.7}									
Communication services	LSS (CiA DSP 305, Version 1.1.1) Services										
	Configuration of device address and baud rate										
	Sync/Async, Node/Lifeguarding, Heartbeat										
Filter	Individually programmable filter, to eliminate e. g. resonance frequencies										
Adjustability zero/span	%	+/- 10 by entries into object directory									
Response time (10 ... 90 %)	ms	1.5 (Baud rate ≥ 125 K)									
Internal measuring rate	Hz	1000 (adjustable to approx. 4 Hz)									
Insulation voltage	VDC	500									
Accuracy	% of span	≤ 0.5 {0.25 or 0.15} <sup>4)</sup> (BFSL)									
	% of span	≤ 1 <sup>5)</sup> {0.5 or 0.3} <sup>4) 5)</sup>									
<sup>4)</sup> Accuracy 0.3 % <sup>5)</sup> / 0.15 % (BFSL) is not available in combination with DIP-switch.											
<sup>5)</sup> 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	≤ 0.2 (BFSL) according to IEC 61298-2									
Non-repeatability	% of span	≤ 0.1									
1-year stability	% of span	≤ 0.2 (at reference conditions)									
Permissible temperature of											
■ Medium <sup>6) *)</sup>	°C	-30 ... +100 {-40 ... +125}									
■ Ambience <sup>6)</sup>	°C	-20 ... +80									
■ Storage <sup>6)</sup>	°C	-40 ... +100									
<sup>6)</sup> Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3											
Compensated temp. range	°C	0 ... +80									
Temperature coefficients within											
Compensated temp range											
■ Mean TC of zero	% of span	≤ 0.2 / 10 K									
■ Mean TC of range	% of span	≤ 0.2 / 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	500 according to IEC 60068-2-27 (mechanical shock)									
Vibration resistance	g	20 <sup>7)</sup> according to IEC 60068-2-6 (vibration under resonance)									
<sup>7)</sup> Only with option DIP switch, otherwise 10 g											
Wiring protection											
■ Reverse polarity protection	UB+ towards UB-										
Gewicht	kg	Approx. 0.2 (approx. 0.3 with option integrated Y-connector)									

<sup>\*)</sup> In an oxygen version model D-21-9 is not available. In an oxygen version model D-20-9 is only available with media temperatures between -20 ... +60 °C / -4 ... +140 °F and using stainless steel or Elgiloy<sup>®</sup> wetted parts.

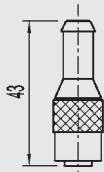
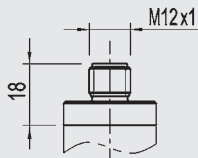
{ } Items in curved brackets are optional extras for additional price.

## Dimensions in mm

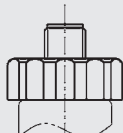
Ingress Protection IP per IEC 60529. The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.

### Electrical connections

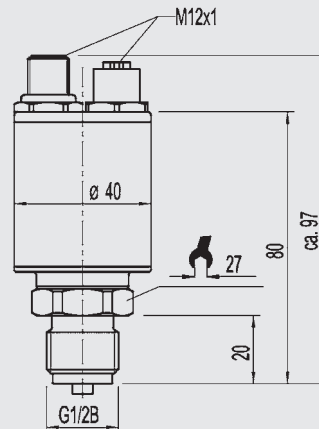
M 12x1  
Circular connector  
5-pin  
IP 67  
Order code: M5  
\*)



M 12x1  
Circular connector  
5-pin  
IP 67  
Order code: M5  
\*)

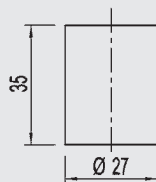


Two circular connectors M 12x1  
5-pin  
IP 67  
male and female  
(with integrated Y-connector)  
Order code: 2M

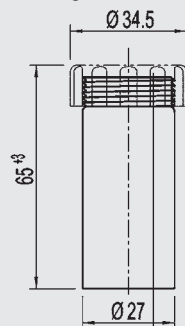


### Case

Case with welded cover



Case with option  
DIP-switch / galvanic isolation

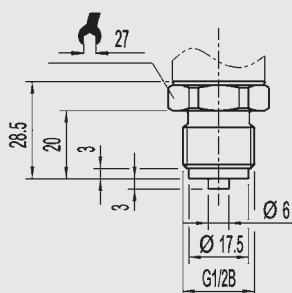


The version illustrated here can be combined with all pressure connections below.

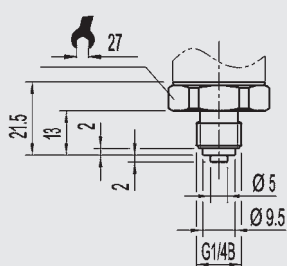
Others on request

### Pressure connections D-20-9

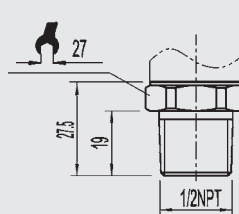
G 1/2  
EN 837  
Order code: GD



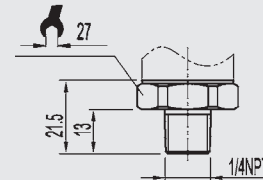
G 1/4  
EN 837  
Order code: GB



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



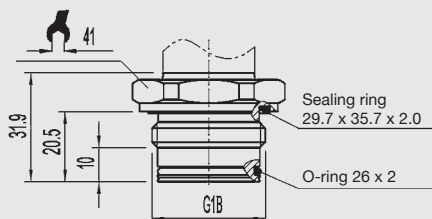
1/4 NPT  
per „Nominal size for US  
standard tapered pipe  
thread NPT“  
Order code: NB



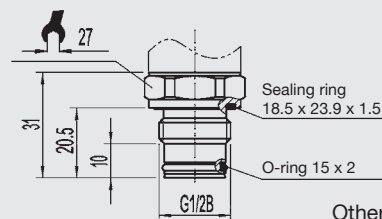
Others on request

### Pressure connections D-21-9, flush diaphragm

G 1  
0 ... 0.1 up to 0 ... 1.6 bar  
Order code: 85



G 1/2  
from 1.6 bar  
Order code: 86



Others on request



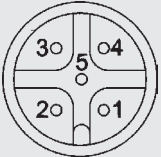
For installation and safety instructions see the operating instructions for this product.

For tapped holes and welding sockets please see Technical Information IN 00.14 for download at [www.wika.de](http://www.wika.de) -Service

\*) Connectors are not included in delivery  
{ } Items in curved brackets are optional extras for additional price.

## Wiring details

### PIN assignment of connections according to CiA-DR 303-1

Circular connector M 12x1, 5-pin, male IP 67 Order code: M5		1 – Screen ⊥ 2 – UB+ (CAN V+) 3 – UB- (CAN GND) 4 – Bus-Signal CAN-High 5 – Bus-Signal CAN-Low
<b>With integrated Y-connector</b>  Circular connector M 12x1, 5-pin, male          Circular connector M 12x1, 5-pin, female          IP 67 Order code: 2M	          	1 – Screen ⊥ 2 – UB+ (CAN V+) 3 – UB- (CAN GND) 4 – Bus-Signal CAN-High 5 – Bus-Signal CAN-Low          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 (M12x1, male) 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, instructions, etc.) via Internet address [www.wika.de](http://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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