Pressure transmitter with CANopen Interface
Accuracy 0.3 %, 0.5 % or 1 %
Model D-20-9, standard version / D-21-9, flush diaphragm

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.

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 for Model D-20-9 / D-21-9

<table>
<thead>
<tr>
<th>Specification</th>
<th>D-20-9</th>
<th>D-21-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure ranges (bar)</td>
<td>0.25-16</td>
<td>0.25-16</td>
</tr>
<tr>
<td>Over pressure safety (bar)</td>
<td>2-100</td>
<td>2-100</td>
</tr>
<tr>
<td>Burst pressure (bar)</td>
<td>2.4-96</td>
<td>2.4-96</td>
</tr>
<tr>
<td>Pressure ranges (bar)</td>
<td>25-1000</td>
<td>40-2400</td>
</tr>
<tr>
<td>Over pressure safety (bar)</td>
<td>50-1200</td>
<td>80-1500</td>
</tr>
<tr>
<td>Burst pressure (bar)</td>
<td>96-3000</td>
<td>1200-3000</td>
</tr>
</tbody>
</table>

(Vacuum, gauge pressure, compound range, absolute pressure are available)

1) Only Model D-20-9.
2) 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**
  - Typ D-20-9 **(*)**: Stainless steel
  - Typ D-21-9: Stainless steel (Hastelloy); O-ring: NBR (FPM/FKM or EPDM)
- **Case**: Stainless steel
- **Internal transmission fluid** **(*)**: Synthetic oil (Halocarbon oil for oxygen applications)
  - Listed by FDA for Food & Beverage
  - Not for D-20-9 with pressure ranges > 25 bar.

**Power Supply**

- **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) **(*)** (BFSL)
  - ≤ 1 % (0.5 or 0.3) **(*)**
  - **(*)**: Accuracy 0.3 % / 0.15 % (BFSL) is not available in combination with DIP-switch.
  - **(*)**: 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**: ≤ 0.1 (BFSL) according to IEC 61298-2
- **Non-repeatability % of span**: ≤ 0.2
- **1-year stability % of span**: ≤ 0.2 (at reference conditions)
- **Compensated temp. range °C**: 0° to +80°
- **Temperature coefficients within**
  - 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 **(*)** according to IEC 60068-2-6 (vibration under resonance)
  - **(*)**: 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)

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1) 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® wetted parts.
2) 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**

**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

**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

**Connectors are not included in delivery**

(" Items in curved brackets are optional extras for additional price.

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

WIKA Data Sheet PE 81.39 ∙ 01/2008
Wiring details
PIN assignment of connections according to CiA-DR 303-1

<table>
<thead>
<tr>
<th>Circular connector</th>
<th>Order-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 12x1, 5-pin, male</td>
<td>2344526</td>
</tr>
<tr>
<td>IP 67</td>
<td></td>
</tr>
<tr>
<td>Order code: M5</td>
<td></td>
</tr>
</tbody>
</table>

With integrated Y-connector

<table>
<thead>
<tr>
<th>Circular connector</th>
<th>Order-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 12x1, 5-pin, male</td>
<td>2308274</td>
</tr>
<tr>
<td>IP 67</td>
<td></td>
</tr>
<tr>
<td>Order code: M5</td>
<td></td>
</tr>
</tbody>
</table>

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<tr>
<th>Circular connector</th>
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</tr>
</thead>
<tbody>
<tr>
<td>M 12x1, 5-pin, female</td>
<td>2308240</td>
</tr>
<tr>
<td>IP 67</td>
<td></td>
</tr>
<tr>
<td>Order code: 2M</td>
<td></td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Order-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y-Plug (M12x1, female – male/female) CAN</td>
<td>2344526</td>
</tr>
<tr>
<td>Terminator Resistor (M12x1, male) CAN</td>
<td>2308274</td>
</tr>
<tr>
<td>Bus cable 0.5 m (M12x1, male/female) CAN</td>
<td>2308240</td>
</tr>
<tr>
<td>Bus cable 2 m (M12x1, male/female) CAN</td>
<td>2308258</td>
</tr>
<tr>
<td>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.</td>
<td>7483167</td>
</tr>
</tbody>
</table>

Communication software

Further information
You can obtain further information (data sheets, instructions, 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.