Pressure Transmitter with Profibus® DP-Interface  
Model D-10-7, standard version  
Model D-11-7, flush diaphragm

Applications

- Automation  
- Test benches  
- General industrial applications

Special Features

- Profibus® DP Interface (EN 50 1730)  
- High accuracy up to 0.1 % temperature drift included  
- Intelligent sensor with calibration- and diagnostic services  
- Baud rate up to 12 MBaud  
- Pressure ranges: 0 ... 250 mbar up to 0 ... 1000 bar

Description

Bus technology

Profibus® DP (Decentralized Peripherals) stands for easy, quick, cyclical and determined process data exchange between a bus master and the assigned slave instruments. This process is based on the well-tried RS485 transmission technology.

A Profibus® DP network is available in the background of every Profibus® PA system after the segment coupler. Based on its quick and cost-effective transmission technology, the Profibus® DP is the best choice for applications in areas which are not intrinsically safe (not Ex).

WIKA Precision Sensor

The heart of the Profibus®-DP transmitter is a sensor design with integrated dynamic temperature compensation. Within the temperature range of 0 ... +50 °C (+32 ... +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 materials.

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

Safety

Adequate EMC-procedures in combination with the integrated galvanic separation equipment guarantee a high grade of data security even at transmission rates up to 12 Mbaud. Several diagnosis routines as well as the determination of the media temperature can be carried out via Profibus® DP services in compliance with EN 50 170.

Circular connector M 12x1 per IEC 60 947-5-2 for the data transmission and power supply up to IP 65 guarantee a simple and secure connection to the bus.
### Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Model D-10-7 / D-11-7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pressure ranges bar</strong></td>
<td>0.25 0.4 0.6 1 1.6 2.5 4 6 10 16</td>
</tr>
<tr>
<td><strong>Over pressure safety bar</strong></td>
<td>2 2 4 5 10 10 17 35 35 80</td>
</tr>
<tr>
<td><strong>Burst pressure bar</strong></td>
<td>2.4 2.4 4.8 6 12 12 20.5 42 42 96</td>
</tr>
<tr>
<td><strong>Pressure ranges bar</strong></td>
<td>25 40 60 100 160 250 400 600 800 1000</td>
</tr>
<tr>
<td><strong>Over pressure safety bar</strong></td>
<td>50 80 120 200 320 500 800 1200 1500</td>
</tr>
<tr>
<td><strong>Burst pressure bar</strong></td>
<td>96 400 800 800 1000 1200 1700 2400 3000</td>
</tr>
</tbody>
</table>

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

1) Only Model D-10-7.

2) For model D-11-7: 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**
  - Model D-10-7: Stainless steel (pressure ranges > 25 bar additional Elgiloy®)
  - Model D-11-7: Stainless steel; 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

3) Not for D-10-7 with pressure ranges > 25 bar.

### Power supply UB

- UB in VDC: 10 < UB ≤ 30

### Signal output

- Profibus® DP protocol in compliance with EN 50 170 / DIN 19 245

### Power input

- W: 1.7

### Sensor services

- 2-byte error coding for error of sensor or failure of electronics, Min./Max.-value upper deviation Temperature + Pressure

### 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 ≤ 0.25 (0.10) in the range 0 ... +50 °C / +32 ... 122 °F

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 (under reference conditions)

### Permissible temperature of

- **Medium 5)*)**: °C -20 ... +80
- **Ambience 5)**: °C -20 ... +80
- **Storage 5)**: °C -40 ... +85

5) Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3

### Compensated temperature range

- °C -20 ... +80

### Temperature coefficients in compensated temperature 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/EG
- **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)

### Wiring protection

- **Reverse polarity protection**
  - UB+ towards UB-

### Weight

- kg Approx. 0.4

Detailed information about interface services as well as about input and output data are given in the manual.

*) In an oxygen version model D-11-7 is not available. In an oxygen version model D-10-7 is only available with media temperatures between -20 ... +60 °C / -4 ... +140 °F.

(1) 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
IP 65
Order code: 8X

**DIP switch configuration**

![DIP switch configuration diagram]

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>on</td>
<td>off</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PROFIBUS-address
res.
Terminating resistor
2° 2′ 2'' 2%' 2° 2′ 2'' 2%' 2° 2′ 2'' 2%' 2° 2′ 2'' 2%

Other electrical connections
bzw. IP 67 on request

**Pressure connections D-10-7**

G 1/2 B
EN 837-G 1/2B
Order code: GD

G 1/4 B
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

M 12x1.5
Order code: MK

M 18x1.5
Order code: M6

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

For tapped holes and welding sockets, please see Technical Information at www.wika.com

*) Connectors are not included in delivery.

**Pressure connections D-11-7, flush diaphragm**

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

G 1/2 B
0 ... 2.5 up to 0 ... 600 bar
Order code: 86

Sealing ring
29.7 x 35.7 x 2.0
O-ring 26 x 2

Sealing ring
18.5 x 23.9 x 1.5
O-ring 15 x 2

Others on request.

For quick disconnect coupler
Swagelok, Stäubli, Festo

Dichtfläche
Stäubli

Dichtfläche
Swagelok, Festo
Wiring details

**PIN configuration according to PNO recommendation**

<table>
<thead>
<tr>
<th>Distribution voltage</th>
<th>Connection Profibus® DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – UB+</td>
<td>1 – n.c.</td>
</tr>
<tr>
<td>2 – n.c.</td>
<td>2 – Rx/Dx-Tx-N / A-Line</td>
</tr>
<tr>
<td>3 – UB-</td>
<td>3 – n.c.</td>
</tr>
<tr>
<td>4 – n.c.</td>
<td>4 – Rx/Dx-Tx-P / B-Line</td>
</tr>
<tr>
<td>5 – n.c.</td>
<td>5 – Screen</td>
</tr>
</tbody>
</table>

**Device profile D-10-7**

**Description**

<table>
<thead>
<tr>
<th>#Profibus_DP</th>
<th>MaxTsdr_93.75 = 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>; Unit-Definition-List:</td>
<td>MaxTsdr_187.5 = 60</td>
</tr>
<tr>
<td>GSD_Revision</td>
<td>MaxTsdr_500 = 100</td>
</tr>
<tr>
<td>Vendor_Name</td>
<td>„WIKA“ MaxTsdr_1.5M = 150</td>
</tr>
<tr>
<td>Model_Name</td>
<td>„D-1*-7“ MaxTsdr_3M = 250</td>
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<tr>
<td>Revision</td>
<td>„Rev 0.2“ MaxTsdr_6M = 450</td>
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<tr>
<td>Ident_Number</td>
<td>0x04A5 MaxTsdr_12M = 800</td>
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<td>Station_Type</td>
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<tr>
<td>FMS_supp</td>
<td>1 Bitmap_Device = „wika04a5“</td>
</tr>
<tr>
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<tr>
<td>9.6_supp</td>
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<tr>
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<tr>
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<td>1 Min_Slave_Intervall = 1</td>
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<tr>
<td>1.5M_supp</td>
<td>1 Modular_Station = 0</td>
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<tr>
<td>3M_supp</td>
<td>1 Max_User_Prm_Data_Len = 0</td>
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<tr>
<td>6M_supp</td>
<td>1 Fail_Safe = 0</td>
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<tr>
<td>12M_supp</td>
<td>1 Slave_Family = 0</td>
</tr>
<tr>
<td>MaxTsdr_9.6</td>
<td>60 Max_Diag_Data_Len = 16</td>
</tr>
<tr>
<td>MaxTsdr_19.2</td>
<td>60 Module = „8 Byte In, 3 Byte Out“ 0x17, 0x22</td>
</tr>
</tbody>
</table>

Further information

You can obtain further information (datasheets, instructions, etc.) via Internet address www.wika.com