Series 2600T Pressure Transmitters

Engineered solutions for all applications

With remote seals with capillary tube

Base accuracy
— ± 0.04 %

Messspannengrenzen
— 1 ... 10,000 kPa; 4 in H2O up to 1,450 psi

Proven sensor technology together with state-of-the-art digital technology

Comprehensive selection of sensors
— Optimized performance and stability

Flexible configuration options
— On device using control buttons in combination with LCD display, handheld terminal, or PC user interface

Various communication protocols available
— Enables integration into HART®, PROFIBUS PA, and FOUNDATION fieldbus platforms
— Upgrade options thanks to interchangeable electronics with automatic configuration

Adherence to Pressure Equipment Directive (PED) category III
 Contents

1 General description .............................................................................................................................................3

2 Functional specifications ...................................................................................................................................3

3 Operating limits ................................................................................................................................................4
  3.1 Temperature limits in °C (°F). ..........................................................................................................................4
  3.2 Pressure limits ................................................................................................................................................4

4 Environmental limits ..............................................................................................................................................5

5 Potentially explosive atmospheres .....................................................................................................................6

6 Electrical data and options ................................................................................................................................9
  6.1 HART digital communication and 4 ... 20 mA output current .........................................................................9
  6.2 PROFIBUS PA output ..................................................................................................................................10
  6.3 FOUNDATION Fieldbus output ....................................................................................................................10

7 Measuring accuracy ..........................................................................................................................................11

8 Operating influences .........................................................................................................................................12

9 Technical specification .....................................................................................................................................13

10 Configuration .....................................................................................................................................................14
  10.1 Transmitter with HART communication and 4 ... 20 mA output current .......................................................14
  10.2 Transmitter with PROFIBUS PA communication ........................................................................................14
  10.3 Transmitter with FOUNDATION Fieldbus communication ...........................................................................14

11 Mounting dimensions (not design data) .........................................................................................................15
  11.1 Transmitter with barrel housing (without remote seal) .................................................................................15
  11.2 Transmitter with DIN housing (without remote seal) ....................................................................................16
  11.3 Mounting options with bracket ......................................................................................................................17

12 Electrical connections ......................................................................................................................................18
  12.1 Standard terminal strip ................................................................................................................................18
  12.2 Fieldbus plug connector ...............................................................................................................................19
  12.3 Harting Han 8D (8U) plug connector .............................................................................................................19

13 Ordering information .........................................................................................................................................20

14 Standard scope of delivery (changes may be made by using additional ordering code) ..........................23
1 General description

This data sheet describes transmitters fitted with either one or two remote seals. The remote seals are connected to the transmitter sensor via a capillary tube.

Model 265DR can be used for measuring differential pressure. For this purpose, you can either use two identical remote seals of the same type and size or only one (on the plus or minus side). If only one remote seal is used, a standard 1/4-18 NPT (flange) or 1/2-14 NPT (adapter flange) threaded connection is available for the other side of the measuring equipment.

The following table indicates the standard remote seal types which may be combined with the 265DR transmitter.

<table>
<thead>
<tr>
<th>Model</th>
<th>Remote seal type</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>S265W</td>
<td>Wafer remote seal, flush diaphragm</td>
<td>2 in/DN 50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 in/DN 80</td>
</tr>
<tr>
<td>S265F</td>
<td>Flange remote seal, flush diaphragm</td>
<td>2 in/DN 50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 in/DN 80</td>
</tr>
</tbody>
</table>

2 Functional specifications

Measuring range and span limits

<table>
<thead>
<tr>
<th>Sensor code</th>
<th>Upper range limit (URL)</th>
<th>Lower range limit (LRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>6 kPa</td>
<td>6 kPa</td>
</tr>
<tr>
<td></td>
<td>60 mbar</td>
<td>60 mbar</td>
</tr>
<tr>
<td></td>
<td>24 in H₂O</td>
<td>24 in H₂O</td>
</tr>
<tr>
<td>F</td>
<td>40 kPa</td>
<td>10 kPa</td>
</tr>
<tr>
<td></td>
<td>400 mbar</td>
<td>400 mbar</td>
</tr>
<tr>
<td></td>
<td>160 in H₂O</td>
<td>160 in H₂O</td>
</tr>
<tr>
<td>L</td>
<td>250 kPa</td>
<td>10 kPa</td>
</tr>
<tr>
<td></td>
<td>2500 mbar</td>
<td>1000 in H₂O</td>
</tr>
<tr>
<td>N</td>
<td>2000 kPa</td>
<td>20 bar</td>
</tr>
<tr>
<td></td>
<td>20 bar</td>
<td>20 bar</td>
</tr>
<tr>
<td></td>
<td>290 psi</td>
<td>290 psi</td>
</tr>
<tr>
<td>R</td>
<td>10000 kPa</td>
<td>333 kPa</td>
</tr>
<tr>
<td></td>
<td>100 bar</td>
<td>100 bar</td>
</tr>
<tr>
<td></td>
<td>1450 psi</td>
<td>1450 psi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Remote seal type</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>S265W</td>
<td>Wafer remote seal, flush diaphragm</td>
<td>2 in/DN 50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 in/DN 80</td>
</tr>
<tr>
<td>S265F</td>
<td>Flange remote seal, flush diaphragm</td>
<td>2 in/DN 50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 in/DN 80</td>
</tr>
</tbody>
</table>

Span limits

Maximum span = URL = Upper range limit
With differential pressure models, the span can be adjusted within the span limits right up to the ± upper range limit.

Example:
-400 ... 400 mbar

To optimize the performance characteristics, it is recommended that you select the transmitter sensor with the lowest turndown (TD) ratio.

Recommendation for square root function:
At least 10 % of upper range limit (URL)

Zero suppression and elevation

The zero position and span can be set to any value within the range limits listed in the table if:
- Set span ≥ minimum span

Damping

Adjustable time constant: 0 ... 60 s
This is in addition to the sensor response time.

Warm-up time

According to the technical data, with minimum damping the transmitter will be ready for operation in a maximum of 2.5 s.

Insulation resistance

>100 MΩ at 500 V DC (between terminals and ground)
3 Operating limits

3.1 Temperature limits in °C (°F)

### Environment

<table>
<thead>
<tr>
<th></th>
<th>Ambient temperature range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-40 ... 85 °C (-40 ... 185 °F)</td>
</tr>
<tr>
<td>LCD display</td>
<td>-20 ... 70 °C (-4 ... 158 °F)</td>
</tr>
<tr>
<td>Viton seals</td>
<td>-20 ... 85 °C (-4 ... 185 °F)</td>
</tr>
<tr>
<td>PTFE seals</td>
<td>-20 ... 85 °C (-4 ... 185 °F)</td>
</tr>
</tbody>
</table>

---

**Important**

For applications in potentially explosive atmospheres, the temperature range specified on the relevant certificate/approval must be observed.

### Storage

<table>
<thead>
<tr>
<th></th>
<th>Storage temperature range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage temperature</td>
<td>-50 ... 85 °C (-58 ... 185 °F)</td>
</tr>
<tr>
<td>Storage temperature for white oil filling</td>
<td>-6 ... 85 °C (21 ... 185 °F)</td>
</tr>
<tr>
<td>LCD display</td>
<td>-40 ... 85 °C (-40 ... 185 °F)</td>
</tr>
</tbody>
</table>

Relative humidity: Up to 75 %

---

### Process

ID letter(s), density and process temperature usage restrictions for the various filling liquids in the capillary tube/remote seal:

<table>
<thead>
<tr>
<th>Filling liquid</th>
<th>ID</th>
<th>Density at 20 °C in kg/m³</th>
<th>Process temperature range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>IB</td>
<td>924</td>
<td>-30 ... 250 °C (-22 ... 482 °F)</td>
</tr>
<tr>
<td>Carbon fluoride</td>
<td>L</td>
<td>1860</td>
<td>-30 ... 150 °C (-22 ... 302 °F)</td>
</tr>
<tr>
<td>High-temperature oil</td>
<td>SH</td>
<td>1070</td>
<td>-10 ... 375 °C (14 ... 707 °F)</td>
</tr>
<tr>
<td>White oil</td>
<td>WB</td>
<td>849</td>
<td>-8 ... 200 °C (21 ... 392 °F)</td>
</tr>
<tr>
<td>Vacuum-tight</td>
<td>IC-V</td>
<td>1055</td>
<td>-30 ... 200 °C (-22 ... 392 °F)</td>
</tr>
</tbody>
</table>

### 3.2 Pressure limits

#### Minimum pressure

<table>
<thead>
<tr>
<th>Filling liquids</th>
<th>ID</th>
<th>20 °C (68 °F)</th>
<th>100 °C (212 °F)</th>
<th>150 °C (302 °F)</th>
<th>200 °C (392 °F)</th>
<th>250 °C (482 °F)</th>
<th>375 °C (707 °F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>IB</td>
<td>&gt; 50</td>
<td>&gt; 50</td>
<td>&gt; 50</td>
<td>&gt; 75</td>
<td>&gt; 100</td>
<td>-</td>
</tr>
<tr>
<td>Carbon fluoride</td>
<td>L</td>
<td>&gt; 100</td>
<td>&gt; 100</td>
<td>&gt; 100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>High temperature oil</td>
<td>SH</td>
<td>&gt; 50</td>
<td>&gt; 50</td>
<td>&gt; 50</td>
<td>&gt; 75</td>
<td>&gt; 100</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>White oil</td>
<td>WB</td>
<td>&gt; 50</td>
<td>&gt; 100</td>
<td>&gt; 100</td>
<td>&gt; 100</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Silicone oil for vacuum-tight design</td>
<td>IC-V</td>
<td>&gt; 0.5</td>
<td>&gt; 2.5</td>
<td>&gt; 3.8</td>
<td>&gt; 5.0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

---

**Important**

Data relating to maximum working pressure for the relevant remote seal can be found in the remote seal data sheet.

---

**Overpressure limits (without damage to the transmitter)**

In accordance with the static pressure range of the transmitter or flange pressure level of the remote seal (refer to the remote seal data sheet), depending on which of these values is the smaller.

---

**Pressure test**

The 265DR transmitter can withstand a pressure test applied simultaneously from both sides of up to 1.5 times the static pressure range of the transmitter, or up to 1.5 times the flange pressure level, depending upon which value is lower.
4 Environmental limits

Electromagnetic compatibility (EMC)
Conforms to the requirements and tests for EMC Directive 89/336/EC, as well as to EN 61000-6-3 concerning emitted interference and EN 61000-6-2 concerning interference immunity.
Meets NAMUR recommendations.

Low Voltage Directive
Complies with 73/23/EC.

Pressure Equipment Directive (PED)
Instruments with a maximum operating pressure of 25 MPa, 250 bar, 3,625 psi, or 41 MPa, 410 bar, 5,945 psi, comply with Directive 97/23/EC Category III, module H.

Humidity
Relative humidity: Up to 100 %
Condensation, icing: Permissible

Vibration resistance
Acceleration up to 2 g at frequencies up to 1,000 Hz (according to IEC 60068-2-6).

Shock resistance (acc. to IEC 60068-2-27)
Acceleration: 50 g
Duration: 11 ms

Protection type (humid and dusty atmospheres)
The transmitter is dust and sand-tight, and is protected against immersion effects as defined by the following standards:
- IEC EN 60529 (1989) with IP 67 (with IP 68 on request)
- NEMA 4X
- JIS C0920
Protection type with plug connection: IP 65
### 5 Potentially explosive atmospheres

**Transmitter with "Intrinsically safe EEx ia" type of explosion protection in accordance with Directive 94/9/EC (ATEX)**

Transmitter with 4 ... 20 mA output signal and HART communication:

- Designation: \[ II \ 1/2 \ GD \ T \ 50 \ ^\circ C \ EEx \ ia \ IIC \ T6 \]
- Designation: \[ II \ 1/2 \ GD \ T \ 95 \ ^\circ C \ EEx \ ia \ IIC \ T4 \]

Power supply and signal circuit with "Intrinsically safe, EEx ib IIB/IIC" or "Intrinsically safe, EEx ia IIB/IIC" type of explosion protection, for connection to supply units with the following maximum values:

- II 1/2 GD T 50 °C EEx ia or ib IIC T6
- II 1/2 GD T 95 °C EEx ia or ib IIC T4

**Temperature class T4:**
- \( U_i = 30 \, V \)
- \( I_i = 200 \, mA \)
- \( P_i = 0.8 \, W \) for T4 where \( Ta = -40 \ldots 85 \, ^\circ C \)
- \( P_i = 1.0 \, W \) for T4 where \( Ta = -40 \ldots 70 \, ^\circ C \)

**For temperature class T6:**
- \( P_i = 0.7 \, W \) for T6 where \( Ta = -40 \ldots 40 \, ^\circ C \)

**Effective internal capacitance:** \( C_i = 10 \, nF \)

**Effective internal inductance:** \( L_i = 0 \)

**Fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus):**

- Designation: FISCO field device
  - \[ II \ 1/2G \ EEx \ ia \ IIC \ T6 \ or \ T4 \]
  - \[ II \ 1/2D \ EEx \ iaD \ 20 \ T50 \ ^\circ C \ or \ T95 \ ^\circ C \]

Power supply and signal circuit with "Intrinsically safe" type of explosion protection, only for connection to supply units certified according to the FISCO concept and with the following maximum values:

- \( U_i = 17.5 \, V \)
- \( I_i = 500 \, mA \)
- \( P_i = 8.75 \, W \)

or connection to supply units or barriers with linear characteristics.

**Maximum values:**
- \( U_i = 24 \, V \)
- \( I_i = 250 \, mA \)
- \( P_i = 1.2 \, W \)

**Effective internal inductance:** \( L_i = 10 \, \mu H \),

**Effective internal capacitance:** \( C_i = 5 \, nF \)

---

### Category 3 transmitter for use in “Zone 2” as defined by Directive 94/9/EC (ATEX)

Transmitter with 4 ... 20 mA output signal and HART communication:

- Designation: \[ II \ 3 \ GD \ T \ 50 \ ^\circ C \ EEx \ nL \ IIC \ T6 \]
- Designation: \[ II \ 3 \ GD \ T \ 95 \ ^\circ C \ EEx \ nL \ IIC \ T4 \]

**Operating conditions:**

**Ambient temperature range:**
- Temperature class T4: \( Ta = -40 \ldots 85 \, ^\circ C \)
- Temperature class T5 and T6: \( Ta = -40 \ldots 40 \, ^\circ C \)

**Transmitter with "Flameproof EEx d" type of explosion protection in accordance with Directive 94/9/EC (ATEX)**

Transmitter with 4 ... 20 mA output signal, HART communication, and fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus)

- Designation: \[ II \ 1/2 \ G \ EEx \ d \ IIC \ T6 \]

**Operating conditions:**

**Ambient temperature range:** \(-40 \ldots 75 \, ^\circ C \)**

---

### Permissible ambient temperature range depending on temperature class:

<table>
<thead>
<tr>
<th>Temperature class</th>
<th>Lower limit of ambient temperature</th>
<th>Upper limit of ambient temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4</td>
<td>-40 °C (40 °F)</td>
<td>85 °C (185 °F)</td>
</tr>
<tr>
<td>T5, T6</td>
<td>-40 °C (40 °F)</td>
<td>40 °C (104 °F)</td>
</tr>
</tbody>
</table>
Series 2600T Pressure Transmitters 265DR
For differential pressure with remote seals with capillary tube

Transmitter with "Intrinsically safe EEx ia" type of explosion protection in accordance with Directive 94/9/EC (ATEX), or "Flameproof EEx d" type of explosion protection in accordance with Directive 94/9/EC (ATEX), or "Limited energy EEx nL" type of explosion protection in accordance with Directive 94/9/EC (ATEX) (alternative certification)

Transmitter with 4 ... 20 mA output signal and HART communication:

Identification: II 1/2 GD T50 °C EEx ia IIC T6
II 1/2 GD T95 °C EEx ia IIC T4;
(refer to "EEx ia" for additional data)

or

Identification: II 1/2 GD T85 °C EEx d IIC T6

Ambient temperature range: -40 ... 75 °C

or

Identification: II 3 GD T50 °C EEx nL IIC T6
II 3 GD T95 °C EEx nL IIC T4
(refer to "EEx nL" for additional data)

Factory Mutual (FM)

Transmitter with 4 ... 20 mA output signal and HART communication:
Intrinsically safe protection

Class I, Division 1; Groups A, B, C, D;
Class I, Zone 0; Group IIC; AEx ia IIC

Degree of protection: NEMA type 4X (indoor or outdoor installation)

Permissible ambient temperature range depending on temperature class:

<table>
<thead>
<tr>
<th>Ambient temperature</th>
<th>Temperature class</th>
<th>Imax</th>
<th>Pi</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40 ... 85 °C (-40 ... 185 °F)</td>
<td>T4</td>
<td>200 mA</td>
<td>0.8 W</td>
</tr>
<tr>
<td>-40 ... 70 °C (-40 ... 158 °F)</td>
<td>T5</td>
<td>25 mA</td>
<td>0.75 W</td>
</tr>
<tr>
<td>-40 ... 40 °C (-40 ... 104 °F)</td>
<td>T6</td>
<td>5 mA</td>
<td>0.5 W</td>
</tr>
</tbody>
</table>

Fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus):

Intrinsically safe protection:

Class I, II, and III; Division 1;
Groups A, B, C, D, E, F, G;
Class I, Zone 0; AEx ia Group IIC T6, T4;
Non-incendive Class I, II, and III; Division 2;
Groups A, B, C, D, F, G

Transmitter with 4 ... 20 mA output signal, HART communication, and fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus):

Explosion-proof protection:

Class I, Division 1, Groups A, B, C, D;
Class II/III, Division 1, Groups E, F, G

Degree of protection: NEMA type 4X (indoor or outdoor installation)

Canadian Standards Association (CSA)

Transmitter with 4 ... 20 mA output signal, HART communication, and fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus)

Explosion-proof protection:

Class I, Division 1, Groups B, C, D;
Class II, Division 1, Groups E, F, G

Degree of protection: NEMA type 4X (indoor or outdoor installation)

Standards Association of Australia (SAA)

Transmitter with "Intrinsically safe EEx ia" and "Non-sparking EEx n" types of protection

Transmitter with 4 ... 20 mA output signal and HART communication:

Identification:
Ex ia IIC T4 (Pi ≤ 0.8 W, Ta = 85 °C)/T6 (Pi ≤ 0.7 W, Ta = 40 °C)
Ex n IIC T4 (Ta = 85 °C)/T6 (Ta = 40 °C)

IP 66

Intrinsically safe installation input parameters:
Ui = 30 V
Ii = 200 mA
Pi = 0.8 W for T4 where Ta = +85 °C or
Pi = 0.7 W for T6 where Ta = +40 °C

Effective internal capacitance: Ci = 52 nF
Effective internal inductance: Li = 0 mH

EEx n installation input parameters:
Ui = 30 V
**Transmitter with “Flameproof Ex d” type of explosion protection**

Transmitter with 4 ... 20 mA output signal, HART communication, and fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus, Modbus):

Identification:
- Zone 1: Ex d IIC T6 (Tamb +75 °C) IP66 / IP67
- Zone A21: Ex tD A21 T85 (Tamb +75 °C) IP66 / IP67

**NEPSI (China)**

Intrinsically safe protection

Transmitter with 4 ... 20 mA output signal and HART communication:

Identification: Ex ia IIC T4/T6

Permissible ambient temperature range depending on temperature class:

<table>
<thead>
<tr>
<th>Temperature class</th>
<th>Ambient temperature</th>
<th>Pi</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4</td>
<td>-40 … 85 °C (-40 ... 185 °F)</td>
<td>0.8</td>
</tr>
<tr>
<td>T4</td>
<td>-40 … 70 °C (-40 ... 158 °F)</td>
<td>1.0</td>
</tr>
<tr>
<td>T6</td>
<td>-40 … 40 °C (-40 ... 104 °F)</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Supply and signal circuit for connection to supply units with the following maximum values:

<table>
<thead>
<tr>
<th>Ex mark</th>
<th>Supply unit Characteristic</th>
<th>U_{imax} (V)</th>
<th>I_{imax} (mA)</th>
<th>P_{imax} (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex ia IIC T4 … T6</td>
<td>Rectangular or trapezoidal</td>
<td>17.5</td>
<td>360</td>
<td>2.52</td>
</tr>
<tr>
<td>Ex ia IIB T4 … T6</td>
<td>Rectangular or trapezoidal</td>
<td>17.5</td>
<td>380</td>
<td>5.32</td>
</tr>
<tr>
<td>Ex ia IIC T4 … T6</td>
<td>Linear</td>
<td>24</td>
<td>250</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**Explosion-proof protection**

Transmitter with 4 ... 20 mA output signal, HART communication, and fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus)

Identification: Ex d IIC T6

Operating conditions

Ambient temperature range: -40 … 75 °C (-40 … 167 °F)

**Overfill protection**

Model 265DR as part of overfill protection on containers used for storing flammable or non-flammable liquids that are hazardous to water

<table>
<thead>
<tr>
<th>Flammable liquids</th>
<th>Only in conjunction with Ex ia approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total pressure</td>
<td>Up to 4 MPa, 40 bar, 580 psi</td>
</tr>
<tr>
<td>Sensor code</td>
<td>C, F, or L</td>
</tr>
<tr>
<td>Filling liquid</td>
<td>Silicone oil</td>
</tr>
<tr>
<td>Process temperature limits on remote seal</td>
<td>-30 °C ≤ 250 °C (-22 °C ≤ 482 °F)</td>
</tr>
<tr>
<td>Approval</td>
<td>Z-65.11-271</td>
</tr>
</tbody>
</table>
6 Electrical data and options

6.1 HART digital communication and 4 ... 20 mA output current

Power supply
The transmitter operates at voltages between 10.5 and 45 V DC with no load, and is protected against reverse polarity connection (additional load enables operation above 45 V DC).

With a backlit LCD display, the minimum voltage is 14 V DC.

In the case of the EEx ia version and other intrinsically safe, approved versions, the supply voltage must not exceed 30 V DC.

Ripple
Maximum permissible supply voltage ripple during communication:
According to HART FSK “Physical Layer” specification rev. 8.1.

Load limitations
Total loop resistance with 4 ... 20 mA and HART:

\[ R(\Omega) = \frac{\text{Voltage supply} - \text{Minimum operating voltage (VDC)}}{22.5 \text{ mA}} \]

Important
A minimum resistance of 250 Ω is required for HART communication.

LCD display (optional)
19-segment alphanumeric display (two lines, six characters) with additional bar chart display; option of backlighting for customized display of:
• Output current in percent
• Output current in mA
• Freely selectable process variable

Diagnostic messages, alarms, measuring range upper limit violations, and changes to the configuration are also displayed.

Output signal
4 … 20 mA two-wire output; linear output signal or square root output signal.
Additionally:
- Characteristic with exponents 3/2 or 5/2
- Horizontal cylindrical container
- Spherical vessel
- Freely programmable characteristic with 20 reference points

HART® communication provides digital process variables (% or mA) superimposed on the 4 … 20 mA signal (protocol in accordance with Bell 202 FSK standard).

Output current limits (according to NAMUR standard)
Overload condition:
− Lower limit: 3.8 mA (can be configured up to 3.5 mA)
− Upper limit: 20.5 mA (can be configured up to 22.5 mA)

Alarm current
Minimum alarm current: Can be configured from 3.5 ... 4 mA; default setting: 3.6 mA
Max. alarm current: Can be configured from 20 ... 22.5 mA; default setting: 21 mA
Default setting: Maximum alarm current

SIL: Functional safety (optional)
According to IEC 61 508/61 511
Device with certificate of conformity for use in safety-related applications, up to and including SIL 2.
6.2 PROFIBUS PA output

Device type
Pressure transmitter conforming to Profile 3.0, Class A and B; ID number 04C2 HEX

Power supply
The transmitter is operated at 10.2 ... 32 V DC (no polarity). The supply voltage must not exceed 17.5 V DC when used in EEx ia zones. Intrinsically safe installation in accordance with FISCO model.

Current consumption
Operating (quiescent): 11.7 mA
Fault current limiting: Maximum 17.3 mA

Output signal
Physical layer in accordance with IEC 1158-2/EN 61158-2; transmission using Manchester II modulation at 31.25 kbit/sec.

Output interface
PROFIBUS PA communication according to PROFIBUS DP 50170 Part 2 / DIN 19245 Parts 1-3

Output cycle time
40 ms

Function blocks
2 standard analog input function blocks
1 transducer block
1 physical block

LCD display (optional)
19-segment alphanumeric display (two lines, six characters) with additional bar chart display; option of backlighting. Customized display:
Output value in percent or OUT (analog input)
Diagnostic messages, alarms, measuring range upper limit violations, and changes to the configuration are also displayed.

Transmitter interference mode
Permanent self-diagnosis; potential errors indicated in diagnostic parameters and in the status of process values.

6.3 FOUNDATION Fieldbus output

Power supply
The transmitter is operated at 10.2 ... 32 V DC (no polarity). The supply voltage must not exceed 17.5 V DC when used in EEx ia zones. Intrinsically safe installation in accordance with FISCO model.

Current consumption
Operating (quiescent): 11.7 mA
Fault current limiting: Maximum 17.3 mA

Output signal
Physical layer in accordance with IEC 1158-2/EN 61158-2; transmission using Manchester II modulation at 31.25 kbit/sec.

Function blocks/execution time
2 standard analog input function blocks/maximum 25 ms
1 standard PID function block

Additional blocks
1 manufacturer-specific pressure with calibration transducer block
1 enhanced resource block

Number of link objects
10

Number of VCRs
16

Output interface
FOUNDATION fieldbus digital communication protocol in accordance with standard H1; complies with specification V. 1.5.
FF registration no.: IT023600

LCD display (optional)
19-segment alphanumeric display (two lines, six characters) with additional bar chart display; option of backlighting. Customized display:
Output value in percent or OUT (analog input)
Diagnostic messages, alarms, measuring range upper limit violations, and changes to the configuration are also displayed.

Transmitter interference mode
Permanent self-diagnosis; potential errors indicated in diagnostic parameters and in the status of process values.
7 Measuring accuracy

Reference conditions according to IEC 60770

- Ambient temperature $T_U = \text{constant}$, in range: 18 ... 30 °C (64 ... 86 °F)
- Relative humidity = constant, in range: 30 ... 80 %
- Atmospheric pressure $P_U = \text{constant}$, in range: 950 ... 1,060 mbar
- Position of measuring cell (isolating diaphragm areas): Vertical ± 1°
- Span based on zero position
- Isolating diaphragm material: Hastelloy C276™
- Filling liquid: Silicone oil
- Supply voltage: 24 V DC
- Load with HART: 250 Ω
- Transmitter not grounded
- Characteristic setting: Linear, 4 ... 20 mA

Unless otherwise specified:
- The reference conditions apply for the following performance characteristics.
- Errors are given as a percentage of the span value.

The accuracy of the measurement in relation to the upper range limit (URL) is affected by the turndown (TD); i.e., the ratio of the upper range limit (URL) to the set span (URL/span).

Important
Select the transmitter sensor with the smallest possible turndown. This optimizes the accuracy of the measurement.

The limit values and response times are dependent upon the type of remote seal and measuring point. Refer also to the remote seal data sheet.

Devices with two remote seals
When using devices with two remote seals, the arrangement should be as symmetrical as possible (nominal size, capillary tube length, diaphragm material).

Measuring error (for terminal based conformity)
Percentage of set span, consisting of non-linearity, hysteresis, and non-reproducibility.

In the case of fieldbus devices, span refers to the analog input function block output scale range.

<table>
<thead>
<tr>
<th>Turndown</th>
<th>Measuring error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1 to 10:1</td>
<td>± 0.04 %</td>
</tr>
<tr>
<td>&gt;10:1</td>
<td>± (0.04 + 0.005 x TD - 0.05) %</td>
</tr>
</tbody>
</table>

Measuring error for absolute pressure sensor

<table>
<thead>
<tr>
<th>Measuring error</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 kPa, 800 mbar, 321 in H₂O</td>
</tr>
</tbody>
</table>
8 Operating influences

Thermal change in ambient temperature on the zero signal and span (turndown up to 15:1), in relation to the set span

Differential pressure sensor:

<table>
<thead>
<tr>
<th>Range</th>
<th>Maximum effect on zero signal and span</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10 ... 60 °C</td>
<td>± (0.06 % x TD + 0.05 %)</td>
</tr>
<tr>
<td>(14 ... 140 °F)</td>
<td></td>
</tr>
<tr>
<td>-40 ... -10 °C</td>
<td>± (0.025 % / 10 K x TD + 0.03 % / 10 K)</td>
</tr>
<tr>
<td>(-40 ... 14 °F)</td>
<td></td>
</tr>
<tr>
<td>60 ... 80 °C</td>
<td></td>
</tr>
<tr>
<td>(140 ... 176 °F)</td>
<td></td>
</tr>
</tbody>
</table>

Absolute pressure sensor

For the entire temperature range of 120 K

- Zero signal
  For sensors C, F, L, N, R:
  40 kPa, 400 mbar, 160 in H₂O
  (absolute pressure sensor 41 MPa, 410 bar, 5,945 psi)

- Span
  For sensors C, F, L, N, R:
  0.3 kPa, 3 bar, 43.5 psi
  (absolute pressure sensor 41 MPa, 410 bar, 5,945 psi)

The entire temperature may be defined as the combined effect of the above factors on the transmitter plus the remote seal influences, depending on the operating temperature.

Important
Detailed information about additional influences on remote seals can be found in the remote seal data sheet.

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Sensor C, F, L, N</th>
<th>Sensor R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero signal</td>
<td>Up to 100 bar:</td>
<td>Up to 100 bar:</td>
</tr>
<tr>
<td></td>
<td>0.05 % URL</td>
<td>0.1 % URL</td>
</tr>
<tr>
<td></td>
<td>&gt; 100 bar: 0.05 %</td>
<td>&gt; 100 bar: 0.1 %</td>
</tr>
<tr>
<td></td>
<td>URL / 100 bar</td>
<td>URL / 100 bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Span</td>
<td>Up to 100 bar:</td>
<td>Up to 100 bar:</td>
</tr>
<tr>
<td></td>
<td>0.05 % span</td>
<td>0.1 % span</td>
</tr>
<tr>
<td></td>
<td>&gt; 100 bar: 0.05 %</td>
<td>&gt; 100 bar: 0.1 %</td>
</tr>
<tr>
<td></td>
<td>span / 100 bar</td>
<td>span / 100 bar</td>
</tr>
</tbody>
</table>

Static pressure (zero signal errors may be calibrated out at operating pressure)

Power supply

Within the specified limits for the voltage/load, the total effect is less than 0.001 % of the upper range limit per volt.

Load

Within the specified load/voltage limits, the total effect is negligible.

Electromagnetic fields

Total effect: Less than 0.05 % of span between 80 and 1,000 MHz and at field strengths of up to 10 V/m, when tested with unshielded cables, and either with or without a display.

Installation position

Important
Capillary tube influences due to differing installation heights are not included in the following information.

Rotations in the plane of the diaphragm have a negligible effect. A tilt from the vertical causes a zero position shift of the upper range limit, which can be corrected using an appropriate zero position adjustment. This has no effect on the span.

Zero position shift: \( \sin \theta \times 0.35 \text{ kPa} \) (3.5 mbar, 1.4 in H₂O)
9 Technical specification

Important
Please refer to the ordering information to check the availability of different versions of the relevant model.

Materials

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolating diaphragms 1)</td>
<td>Hastelloy C276™; Stainless steel (316L/1.4435); Monel 400™; Tantalum</td>
</tr>
<tr>
<td>Process flange, adapter, plugs and drain/vent valve 1)</td>
<td>Hastelloy C276™; Stainless steel (316L/1.4404); Monel 400™</td>
</tr>
<tr>
<td>Blind flange (remote seal side)</td>
<td>Stainless steel (304/1.4301)</td>
</tr>
<tr>
<td>Sensor filling liquid</td>
<td>Silicone oil, inert filling (carbon fluoride)</td>
</tr>
<tr>
<td>Sensor housing</td>
<td>Stainless steel (316L/1.4404)</td>
</tr>
<tr>
<td>Mounting bracket</td>
<td>Stainless steel (304/1.4301)</td>
</tr>
<tr>
<td>Seals 1)</td>
<td>Viton™ (FPM) color: Green; Buna (NBR): Color: Black; EPDM color: Black; PTFE color: White</td>
</tr>
<tr>
<td>Screws and nuts</td>
<td>Stainless steel Class A4-70 screws and nuts to ISO 3506, in compliance with NACE MR0175 Class II</td>
</tr>
<tr>
<td>Electronics housing and cover</td>
<td>Barrel design:</td>
</tr>
<tr>
<td></td>
<td>• Aluminum alloy with low copper content (&lt; 0.1 %), baked epoxy finish</td>
</tr>
<tr>
<td></td>
<td>• Stainless steel (316L/1.4404) DIN design:</td>
</tr>
<tr>
<td></td>
<td>• Aluminum alloy with low copper content (&lt; 0.1 %), baked epoxy finish</td>
</tr>
<tr>
<td>O-ring cover</td>
<td>Viton™</td>
</tr>
<tr>
<td>Local zero position and span adjustments</td>
<td>Fiber glass-reinforced polycarbonate plastic (removable), no adjustment options for stainless steel housings</td>
</tr>
<tr>
<td>Name plate</td>
<td>Stainless steel (304/1.4301) or plastic data plate attached to the electronics housing</td>
</tr>
</tbody>
</table>

Optional accessories

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting bracket</td>
<td>For vertical and horizontal 60 mm (2&quot;) pipes or wall mounting</td>
</tr>
<tr>
<td>LCD display</td>
<td>Plug-in and rotatable design</td>
</tr>
<tr>
<td>Additional tag plate, e. g. for marking measuring points</td>
<td>Tag with wire (both stainless steel attached to the transmitter, with a maximum of 30 characters including spaces.</td>
</tr>
<tr>
<td>Lightning protection</td>
<td>Up to 4 kV</td>
</tr>
<tr>
<td></td>
<td>• Voltage pulses: 1.2 µs rise time; 50 µs delay time at half value</td>
</tr>
<tr>
<td></td>
<td>• Current pulses: 8 µs rise time; 20 µs delay time at half value</td>
</tr>
<tr>
<td></td>
<td>Not available for devices with ATEX-EEx nL or PROFIBUS PA / FOUNDATION fieldbus featuring ATEX-EEx i or FM intrinsically safe designs.</td>
</tr>
</tbody>
</table>

Certificates (test, design, characteristics, material traceability)

Process connections
The types of process connection for remote seals are detailed in the remote seal data sheet. Flange on the minus side: 1/4-18 NPT on the process axis (7/16-20 UNF threading or DIN 19213 connection with M10 threading) or via a 1/2-14 NPT adapter on the process axis.

Electrical connections
Two 1/2 – 14 NPT or M20 x 1.5 threaded bores for cable glands directly on housing, or plug connector.

Plug connector versions
• HART: Straight or angled Harting Han 8D (8U) connector and one mating plug.
• FOUNDATION fieldbus / PROFIBUS PA: 7/8" plug/M12 x 1

Terminals
HART version: Four terminals for signal/external display, for wire cross sections of up to 2.5 mm² (14 AWG), and four connection points for testing and communication purposes.

Fieldbus versions: Two signal terminals (bus connection) for wire cross sections of up to 2.5 mm² (14 AWG)

Grounding
Internal and external ground terminals for wire cross sections of up to 4 mm² (12 AWG) are provided.

Installation position
The transmitter can be installed in any position. The electronics housing may be rotated 360°. A stop is provided to prevent overtravel.

Weight (without options and remote seals)
Approximately 3.5 kg (7.72 lb), add 1.5 kg (3.31 lb) for stainless steel housing
Packaging adds 0.65 kg (1.43 lb)

Packaging
Carton
10 Configuration

10.1 Transmitter with HART communication and 4 ... 20 mA output current

Standard configuration
Transmitters are calibrated at the factory to the customer's specified measuring range. The calibrated range and measuring point number are provided on the name plate. If this data has not been specified, the transmitter will be delivered with the following configuration:

- **4 mA**: Zero position
- **20 mA**: Upper range limit (URL)
- **Output**: Linear
- **Damping**: 0.125 sec.
- **Transmitter failure mode**: 21 mA
- **Optional LCD display**: 0 ... 100 % linear

Any or all of the configurable parameters listed above - including the upper and lower range limit values - can easily be changed using a portable HART handheld communicator or a PC running the configuration software SMART VISION with DTM for 2600T. Data regarding flange type and material, O-ring materials, and type of filling liquid is stored in the device.

10.2 Transmitter with PROFIBUS PA communication

Transmitters are calibrated at the factory to the customer's specified measuring range. The calibrated range and measuring point number are provided on the name plate. If this data has not been specified, the transmitter will be delivered with the following configuration:

- **Measuring profile**: Pressure
- **Engineering unit**: mbar/bar
- **Output scale 0 %**: Lower range limit (LRL)
- **Output scale 100 %**: Upper range limit (URL)
- **Output**: Linear
- **Upper alarm limit**: Upper range limit (URL)
- **Upper warning limit**: Upper range limit (URL)
- **Lower warning limit**: Lower range limit (LRL)
- **Lower alarm limit**: Lower range limit (LRL)
- **Hysteresis limit value**: 0.5 % of output scale
- **PV filter**: 0.125 sec.
- **Address**: Not required

Any or all of the configurable parameters listed above - including the upper and lower range limit values - can be changed using any FOUNDATION Fieldbus-compatible configuration tool. Data regarding flange type and material, O-ring materials, and type of filling liquid is stored in the device.

10.3 Transmitter with FOUNDATION Fieldbus communication

Transmitters are calibrated at the factory to the customer's specified measuring range. The calibrated range and measuring point number are provided on the name plate. If this data has not been specified, the transmitter will be delivered with the following configuration:

- **Measuring profile**: Pressure
- **Engineering unit**: mbar/bar
- **Output scale 0 %**: Lower range limit (LRL)
- **Output scale 100 %**: Upper range limit (URL)
- **Output**: Linear
- **Upper alarm limit**: Upper range limit (URL)
- **Upper warning limit**: Upper range limit (URL)
- **Lower warning limit**: Lower range limit (LRL)
- **Lower alarm limit**: Lower range limit (LRL)
- **Hysteresis limit value**: 0.5 % of output scale
- **PV filter**: 0.125 sec.
- **Address**: Not required

Any or all of the configurable parameters listed above - including the upper and lower range limit values - can easily be changed using a PC running the configuration software SMART VISION with DTM for 2600T. Data regarding flange type and material, O-ring materials, and type of filling liquid is stored in the device.
11 Mounting dimensions (not design data)
11.1 Transmitter with barrel housing (without remote seal)

Fig. 1: Dimensions in mm (inches), deviations in the drawing are possible

1 Terminal side
2 Housing stop-screw
3 Sensor plate
4 Process connection (conforms to IEC 61518)
5 With LCD display (optional)
6 Space for removing the cover required
7 Additional tag plate, e. g. for marking measuring points (optional)
8 Drain/vent valve (optional)
9 Thread for fixing screws
   (see "Process connections" data)
10 Electrical connection
11 Name plate
12 Housing cover
13 Plate with key legend, etc.
14 Captive fixing screw for keyboard cover
15 Space for rotating the keyboard cover required
16 Upper or lower threaded bore (optional); 1/4-18 NPT for drain/vent valve
11.2 Transmitter with DIN housing (without remote seal)

Fig. 2: Dimensions in mm (inches), deviations in the drawing are possible

1 Space for rotating the keyboard cover required
2 Additional tag plate, e. g. for marking measuring points (optional)
3 Electrical connection
4 Sensor plate
5 Process connection (conforms to IEC 61518)
6 Thread for fixing screws
   (see "Process connections" data)
7 Name plate
8 Housing cover
9 Terminal side
10 Electrical connection (blind plug)
11 Space for removing the cover required
12 Housing stop-screw
13 Captive fixing screw for keyboard cover
14 Plate with key legend, etc.
15 With LCD display
11.3 Mounting options with bracket

Fig. 3: Dimensions in mm (inches), deviations in the drawing are possible

Fig. 4: Deviations in the drawing are possible

1 Vertical pipe mounting
2 Horizontal pipe mounting
3 Vertical pipe mounting and transmitter above the mounting bracket
4 Horizontal pipe mounting and transmitter above the mounting bracket
12 Electrical connections

12.1 Standard terminal strip

Fig. 5
1 Cable entry
2 Test terminals for 4 ... 20 mA (not with fieldbus transmitters)
3 Ground/equipotential bonding terminal
4 Output signal / power supply
5 Screw terminals for leads with cross section of 0.5 ... 2.5 mm² (AWG 20 ... AWG 14)
### 12.2 Fieldbus plug connector

<table>
<thead>
<tr>
<th>Pin number</th>
<th>FOUNDATION fieldbus</th>
<th>PROFIBUS PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FF-</td>
<td>PA+</td>
</tr>
<tr>
<td>2</td>
<td>FF+</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>Shield</td>
<td>PA-</td>
</tr>
<tr>
<td>4</td>
<td>Ground</td>
<td>Shield</td>
</tr>
</tbody>
</table>

Mating plug (socket) not supplied

### 12.3 Harting Han 8D (8U) plug connector

1. Barrel housing
2. DIN housing
3. Harting Han 8D (8U) socket insert for mating plug supplied (view of sockets)

Fig. 6

Fig. 7
## 13 Ordering information

<table>
<thead>
<tr>
<th>Main Catalog No.</th>
<th>Additional Catalog No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>265DR</td>
<td>XX</td>
</tr>
</tbody>
</table>

### 265DR Differential Pressure Transmitter, with Remote Seal with Capillary Tube, Base Accuracy 0.04%

<table>
<thead>
<tr>
<th>Sensor - Span Limits</th>
<th>265DR</th>
<th>XX</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### Static Pressure

- 18 MPa / 160 bar / 2320 psi: **C**
- 25 MPa / 250 bar / 3625 psi: **Z**
- 41 MPa / 410 bar / 5945 psi: **T**

### Diaphragm Material / Fill Fluid

- **AISI 316L SST (1.4435) / Silicone Oil, NACE**: **S**
- **Hastelloy C-276 / Silicone Oil, NACE**: **K**
- **Monel 400 / Silicone Oil, NACE**: **M**
- **Monel 400 Gold-plated / Silicone Oil, NACE**: **V**
- **Tantalum / Silicone Oil, NACE**: **T**
- **AISI 316L SST (1.4435) / Inert Fluid, NACE**: **1) A**
- **Hastelloy C-276 / Inert Fluid, NACE**: **1) F**
- **Monel 400 / Inert Fluid, NACE**: **1) C**
- **Monel 400 Gold-plated / Inert Fluid, NACE**: **1) Y**
- **Tantalum / Inert Fluid, NACE**: **1) D**
- **With Two Remote Seals / Silicone Oil**: **R**
- **With Two Remote Seals / Inert Fluid**: **2) 2**

### Process Connection Material / Process Connection

- **AISI 316L SST (1.4404 / 1.4408) / 1/4-18 NPT-f direct, NACE**: **A**
- **AISI 316L SST (1.4404 / 1.4408) / 1/2-14 NPT-f through Adapter, NACE**: **B**
- **AISI 316L SST (1.4404 / 1.4408) / 1/4-18 NPT-f direct (DIN 19213), NACE**: **C**
- **Hastelloy C-276 / 1/4-18 NPT-f direct, NACE**: **D**
- **Hastelloy C-276 / 1/2-14 NPT-f through Adapter, NACE**: **E**
- **Monel 400 / 1/4-18 NPT-f direct, NACE**: **G**
- **Monel 400 / 1/2-14 NPT-f through Adapter, NACE**: **H**
- **AISI 316L SST (1.4404 / 1.4408) / With Two Remote Seals**: **R**

### Bolts / Gaskets

- **AISI 316L SST / Viton, NACE**: **1) 3**
- **AISI 316L SST / PTFE, NACE (max. 25 MPa)**: **4**
- **AISI 316L SST / EPDM, NACE**: **5**
- **AISI 316L SST / Perbunan**: **6**
- **AISI 316L SST / Graphit**: **7**
- **AISI 316L SST / With Two Remote Seals**: **R**

1) Suitable for Oxygen Applications

Continued on next page
### Series 2600T Pressure Transmitters 265DR
For differential pressure with remote seals with capillary tube

<table>
<thead>
<tr>
<th>Variant digit No.</th>
<th>1 - 5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Additional Catalog No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>265DR Differential Pressure Transmitter, with Remote Seal with Capillary Tube, Base Accuracy 0.04%</strong></td>
<td>265DR</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Electronic Housing Material / Electrical Connection**

<table>
<thead>
<tr>
<th>Variant digit No.</th>
<th>1 - 5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Additional Catalog No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Alloy (Barrel Type) / 1/2-14 NPT</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium Alloy (Barrel Type) / M20 x 1.5</td>
<td>2) B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium Alloy (Barrel Type) / Harting Han Connector</td>
<td>3) E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium Alloy (Barrel Type) / Fieldbus Connector</td>
<td>4) G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AISI 316L SST (Barrel Type) / 1/2-14 NPT</td>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AISI 316L SST (Barrel Type) / M20 x 1.5</td>
<td>2) T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium Alloy (DIN Type) / M20 x 1.5</td>
<td>2) J</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium Alloy (DIN Type) / Harting Han Connector</td>
<td>3) K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium Alloy (DIN Type) / Fieldbus Connector</td>
<td>4) W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Output**

<table>
<thead>
<tr>
<th>Variant digit No.</th>
<th>1 - 5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Additional Catalog No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART Digital Communication and 4 ... 20 mA</td>
<td>5) H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROFIBUS PA</td>
<td>5) P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROFIBUS PA</td>
<td>6) 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOUNDATION Fieldbus</td>
<td>5) F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOUNDATION Fieldbus</td>
<td>6) 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Vent Valve Material / Position**

<table>
<thead>
<tr>
<th>Variant digit No.</th>
<th>1 - 5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Additional Catalog No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AISI 316L SST (1.4404) / On Process Axis, NACE</td>
<td>V1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AISI 316L SST (1.4404) / On Flange Side Top, NACE</td>
<td>V2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AISI 316L SST (1.4404) / On Flange Side Bottom, NACE</td>
<td>V3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hastelloy C-276 / On Process Axis, NACE</td>
<td>V4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hastelloy C-276 / On Flange Side Top, NACE</td>
<td>V5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hastelloy C-276 / On Flange Side Bottom, NACE</td>
<td>V6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monel 400 / On Process Axis, NACE</td>
<td>V7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monel 400 / On Flange Side Top, NACE</td>
<td>V8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monel 400 / On Flange Side Bottom, NACE</td>
<td>V9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Explosion Protection Certification**

<table>
<thead>
<tr>
<th>Variant digit No.</th>
<th>1 - 5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Additional Catalog No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX Group II Category 1/2 GD - Intrinsic Safety EEx ia</td>
<td>E1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEX Group II Category 1/2 G - Flameproof EEx d</td>
<td>E2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEX Group II Category 3 GD - Type of Protection N EEx nL Energy Limited</td>
<td>E3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEX II 1/2 GD EEx ia + ATEX II 1/2 GD EEx d + ATEX EEx nL</td>
<td>EW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory Mutual (FM) - Intrinsically Safe</td>
<td>EA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory Mutual (FM) - Explosion Proof</td>
<td>7) EB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Standard Association (CSA) - Explosion Proof</td>
<td>EE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Standard Association (CSA) - Explosion Proof (Canada &amp; USA)</td>
<td>EM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEPSI Ex ia II C T4/T6</td>
<td>EY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEPSI Ex d II C T6</td>
<td>EZ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOST (Russia) EEx ia</td>
<td>W1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOST (Russia) EEx d</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOST (Kazakhstan) EEx ia</td>
<td>W3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOST (Kazakhstan) EEx d</td>
<td>W4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOST (Ukraine) EEx ia</td>
<td>WA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOST (Ukraine) EEx d</td>
<td>WB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAA Ex d IIC T6 and Ex td A21 IP 66 T85 °C</td>
<td>X1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAA Ex ia IIC T4/T6 and Ex n IIC T4/T6</td>
<td>8) X2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2) Not available with FM, CSA
3) Not available with EExnL, EExd, FM, CSA
4) Not available with EEx nL, EEx d, FM-/ CSA-/ NEPSI-Explosion Proof
5) No Additional Options
6) Options requested (to be ordered by Additional Ordering Code)
7) Only with Electrical Connection 1/2-14 NPT and Stainless Steel Tag Plate
8) Only with Output HART / 4 ... 20 mA, not with SIL2

Continued on next page
### Integrated Digital Display (LCD)
- With Integrated LCD Display
- With Integrated LCD Display (Backlit)

### Mounting Bracket Shape / Material
- For Pipe Mounting / AISI 304 SST (1.4301)
- For Wall Mounting / AISI 304 SST (1.4301)

### Surge Protector
- Surge / Transient Protector

### Operating Manual
- German
- Spanish
- French
- Swedish
- Russian

### Label and Tag Language / Material
- German / Stainless Steel
- German and English / Plastic

### Additional Tag Plate
- Stainless Steel

### Connector
- Fieldbus 7/8 in. (without Mating Plug, recommended for FOUNDATION Fieldbus)
- Fieldbus M12 x 1 (without Mating Plug, recommended for PROFIBUS PA)
- Harting Han 8D (8U) - Straight Entry
- Harting Han 8D (8U) - Angle Entry

### Output Characteristic
- Square Root Characteristic

### Material: 2.1 Compliance
- Certificate of Compliance with the Order EN 10204-2.1 of Process Wetted Parts

### Material: 3.1 Inspection
- Inspection Certificate EN 10204-3.1 of the pressure-bearing and process wetted parts with analysis certificates as material verification

### Material: 2.2 Test Report
- Test Report EN 10204-2.2 of the Pressure Bearing and Process Wetted Parts

### Certificates: 3.1 Calibration
- Inspection Certificate EN 10204-3.1 of Calibration

### Certificates: 3.1 Cleanliness Stage
- Inspection Certificate EN 10204-3.1 of the Cleanliness Stage

### Certificates: 3.1 Helium Leakage Test
- Inspection Certificate EN 10204-3.1 of Helium Leakage Test of the Sensor Module

### Certificates: 3.1 Pressure Test
- Inspection Certificate EN 10204-3.1 of the Pressure Test

---

9) Not with ATEX-EEx nL (Code E3), not with PROFIBUS PA / FOUNDATION Fieldbus (Code 2, 3) with Intrinsic Safety EEx ia (Code E1,EY), not with FM Intrinsically Safe (Code EA) and SAA (Code X2)

10) Not available with DIN Electronic Housing Code J, K, W

11) Not available with Factory Mutual - Explosion Proof

12) Minor Parts with Factory Certificate acc. to EN 10204

Continued on next page
Certificates: 2.1 Instrument Design
Certificate of Compliance with the Order EN 10204-2.1 of Instrument Design

Certificates: Overfill Protection
Overfill Protection

Certificates: SIL2
SIL2 - Declaration of Conformity

Certificates: GOST
GOST (Russia) without explosion protection
GOST (Kazakhstan) without explosion protection
GOST (Ukraine) without explosion protection

13) Not available with Sensor Code N,R

14 Standard scope of delivery (changes may be made by using additional ordering code)

- Adapters supplied loose
- Plug for the connection flange with one-side remote seal connection, no drain/vent valve
- For general-purpose applications (no Ex applications)
- No display, no mounting bracket, no lightning protection
- English-language operating instructions and labels
- Name plate material: Barrel electronics housing code A, B, E, G, S, T – stainless steel
DIN electronics housing code J, K, W – plastic
- Configuration with kPa and °C units
- No test, inspection, or material certificates

Unless otherwise specified prior to manufacture, the customer shall be responsible for the selection of suitable parts that make contact with the medium and appropriate filling liquids in order to ensure compatibility with the relevant process medium.