Series 2600T Pressure Transmitters

Engineered solutions for all applications

Maximum overload capability up to 41 MPa, 5945 psi

Base accuracy
— ± 0.04 %

Span limits
— 2.0 ... 2000 kPa abs; 15 mmHG to 290 psia

High-performance transmitter and small measuring ranges

Reliable sensing system coupled with very latest digital technologies
— Large turndown ratio up to 20:1

Comprehensive sensor choice
— Optimized performance and stability

5-year stability

Flexible configuration facilities
— provided locally via local keys combined with LCD indicator or via hand held terminal or PC configuration platform

Multiple communications protocol availability
— Provides integration into HART®, PROFIBUS PA and FOUNDATION Fieldbus platforms
— Upgrade options through interchangeable electronics with automatic configuration

Full compliance with PED category III
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1 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>
<th>Min. span</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>40 kPa</td>
<td>0 abs</td>
<td>2 kPa</td>
</tr>
<tr>
<td></td>
<td>400 mbar</td>
<td>20 mbar</td>
<td>15 mmHg</td>
</tr>
<tr>
<td></td>
<td>300 mmHg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>250 kPa</td>
<td>0 abs</td>
<td>12.5 kPa</td>
</tr>
<tr>
<td></td>
<td>2500 mbar</td>
<td>125 mbar</td>
<td>93.76 mmHg</td>
</tr>
<tr>
<td></td>
<td>1875 mmHg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>2000 kPa</td>
<td>0 abs</td>
<td>100 kPa</td>
</tr>
<tr>
<td></td>
<td>20 bar</td>
<td>1 bar</td>
<td>14.5 psi</td>
</tr>
<tr>
<td></td>
<td>290 psi</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Span limits
Maximum span = URL = upper range limit
Linear / programmable characteristic Sample settings:
0 … 400 mbar abs. In order to optimize performance characteristics, it is recommended to select the transmitter sensor providing the lowest turndown ratio.

Zero suppression
Zero and span can be set to any value within the range limits listed in the table, if the following applies:
- Calibrated span ≥ minimum span

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

Turn on time
Ready for operation acc. to technical data in ≤ 2.5 s after switching on the transmitter with minimal damping.

Insulation resistance
> 100 MΩ at 1000 V DC (between terminals and ground)

2 Operating limits

2.1 Temperature limits in °C (°F)

Ambient (operating temperature)

<table>
<thead>
<tr>
<th></th>
<th>Ambient or operating 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 gasket</td>
<td>-20 ... 85 °C (-4 ... 185 °F)</td>
</tr>
<tr>
<td>PTFE gasket</td>
<td>-20 ... 85 °C (-4 ... 185 °F)</td>
</tr>
</tbody>
</table>

Important
For potentially explosive atmosphere applications, comply with the temperature range specified on the relevant certificate/approval.

Process

<table>
<thead>
<tr>
<th></th>
<th>Process temperature range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>-40 ... 120 °C (-40 ... 248 °F) For operating pressures ≥ 10 kPa abs, 100 mbar abs, 1.45 psia</td>
</tr>
<tr>
<td>Viton gaskets</td>
<td>-20 ... 120 °C (-4 ... 248 °F)</td>
</tr>
<tr>
<td>PTFE gaskets</td>
<td>-20 ... 85 °C (-4 ... 185 °F)</td>
</tr>
</tbody>
</table>

1) ≤ 85 °C (185 °F) for operating pressures below 10 kPa, 100 mbar abs, 1.45 psia

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>LCD display</td>
<td>-40 ... 85 °C (-40 ... 185 °F)</td>
</tr>
</tbody>
</table>

2.2 Pressure limits

Overpressure limits / static pressure range

Upper limit:
16 MPa, 160 bar, 2320 psi or 25 MPa, 250 bar, 3625 psi or 41 MPa, 410 bar, 5945 psi for sensor code F to N

Test pressure
For pressure testing purposes, the transmitter can withstand a pressure test applied up to the nominal pressure (static pressure range).
3 Environmental limits

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

Meets NAMUR recommendations.

Low voltage directive:
Meets 73/23/EC

Pressure equipment directive (PED)
Instruments with maximum working pressure 25 MPa, 250 bar, 3625 psi or 41 MPa, 410 bar, 5945 psi comply with 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 1000 Hz (according to IEC 60068-2-6).

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

Protection class (wet and dust-laden atmospheres)
The transmitter is dust and sand-tight and protected against immersion effects as defined by the following standards:
- IEC EN60529 (1989) with IP 67 (upon request with IP 68)
- NEMA 4X
- JIS C0920

Protection type with plugged connection: IP 65 protection class

4 Hazardous atmospheres

Transmitter of protection class "Intrinsically safe EEx ia" acc. to Directive 94/9/EC (ATEX)

Transmitter with 4 ... 20 mA output signal and HART communication:
Marking:
- II 1/2 GD T 50 °C EEx ia IIC T6
- II 1/2 GD T 95 °C EEx ia IIC T4

Power supply and signal circuit with protection type Intrinsically Safe EEx ia IIB/IIC or EEx ia IIB/IIC for connection to supply units with 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:
Uᵢ = 30 V
Iᵢ = 200 mA
Pᵢ = 0.8 W for T4 where Ta = -40 ... 85 °C
Pᵢ = 1.0 W for T4 where Ta = -40 ... 70 °C

For temperature class T6:
Pᵢ = 0.7 W for T6 where Ta = -40 ... 40 °C

Effective internal capacitance: Cᵢ ≤ 10 nF
Effective internal inductance: Lᵢ = 0

Fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus):
Marking:
- II 1/2 GD T 50 °C EEx ia IIC T6
- II 1/2 GD T 95 °C EEx ia IIC T4

Power supply and signal circuit with protection type Intrinsically Safe EEx ia IIB/IIC or EEx ia IIB/IIC for connection to supply units with 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

Operating conditions:
Supply and signal circuit
(terminal signal ±):
- U ≤ 45 V
- I ≤ 22.5 mA

Ambient temperature range:
Temperature class T4:
Ta = -40 ... 85 °C
Temperature class T5 and T6:
Ta = -40 ... 40 °C
Series 2600T Pressure Transmitters 265VS
For absolute pressure, maximum overload capability up to 41 MPa, 5945 psi

Transmitter of protection class "flameproof enclosure EEx d" acc. to Directive 94/9/EC (ATEX)

Transmitter with 4 ... 20 mA output signal and HART communication and Fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus)
Marking: II 1/2 G EEx d IIC T6

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

Transmitter of protection class "Intrinsically safe EEx ia" according to Directive 94/9/EC (ATEX), or

Transmitter of protection class "Limited energy equipment EEx nL" acc. to Directive 94/9/EC (ATEX) (alternate certification)

Marking:

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

Marking:
II 1/2 GD T85 °C EEx d IIC T6
Ambient temperature range:
-40 ... 75 °C

or

Marking:
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: 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

Degree of protection: NEMA type 4X (interior or exterior)

Standards Association of Australia (SAA)

Transmitters of protection type "Intrinsically safe Ex ia" and "Non-sparking devices" Ex n

Intrinsically safe installation input parameters:

\[ U_{i} = 30 \text{ V} \]
\[ I_{i} = 200 \text{ mA} \]
\[ P_{i} = 0.8 \text{ W for T4 where } T_{a} = +85 \text{ °C or} \]
\[ P_{i} = 0.7 \text{ W for T6 where } T_{a} = +40 \text{ °C} \]

Effective internal capacitance: \( C_{i} = 52 \text{ nF} \)
Effective internal inductance: \( L_{i} = 0 \text{ mH} \)

Ex n installation input parameters:

\[ U_{i} = 30 \text{ V} \]
Series 2600T Pressure Transmitters 265VS
For absolute pressure, maximum overload capability up to 41 MPa, 5945 psi

Transmitter with protection class “flameproof enclosure Ex d”

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

Marking:
Zone 1: Ex d IIIC T6 (Tamb +75 °C) IP66/IP67
Zone A21: Ex td A21 T85 (Tamb +75 °C) IP66/IP67

NEPSI (China)
Intrinsically Safe

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

Marking: Ex ia II CT4/T6

Maximum permissible ambient temperatures depending on the temperature class:

<table>
<thead>
<tr>
<th>Temperature class</th>
<th>Ambient temperature</th>
<th>P_i</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>U_{i\text{max}} = 30 V, I_{i\text{max}} = 200 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature class</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>T6</td>
</tr>
<tr>
<td>T4</td>
</tr>
<tr>
<td>T4</td>
</tr>
</tbody>
</table>

Fieldbus transmitter (PROFIBUS PA / FOUNDATION Fieldbus)

Marking: Ex ia II B/IIIC T4 ... T6

Maximum permissible ambient temperatures depending on the temperature class:

<table>
<thead>
<tr>
<th>Temperature class</th>
<th>Ambient temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4</td>
<td>-40 ... 85 °C (-40 ... 185 °F)</td>
</tr>
<tr>
<td>T5</td>
<td>-40 ... 50 °C (-40 ... 122 °F)</td>
</tr>
<tr>
<td>T6</td>
<td>-40 ... 40 °C (-40 ... 104 °F)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Ex marking</th>
<th>Characteristics Power supply</th>
<th>U_{i\text{max}} (V)</th>
<th>I_{i\text{max}} (mA)</th>
<th>P_{i\text{max}} (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex ia II CT4 ... T6</td>
<td>Rectangular or trapezoidal</td>
<td>17.5</td>
<td>360</td>
<td>2.52</td>
</tr>
<tr>
<td>Ex ia II BT4 ... T6</td>
<td>Rectangular or trapezoidal</td>
<td>17.5</td>
<td>380</td>
<td>5.32</td>
</tr>
<tr>
<td>Ex ia II CT4 ... T6</td>
<td>linear</td>
<td>24</td>
<td>250</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Explosion proof

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

Marking: Ex d II CT6

Operating conditions
Ambient temperature range: -40 °C ... 75 °C
5 Electrical characteristics and options

5.1 HART digital communication and 4 ... 20 mA output

Power supply
The transmitter operates from 10.5 ... 45 V DC with no load and is protected against reverse polarity connection (additional load allows operations over 45 V DC).
Minimum voltage is 14 V DC with backlit LCD display.
For EEx ia and other intrinsically safe approval power supply must not exceed 30 V DC.

Ripple
Maximum permissible voltage ripple of power supply during communication: Complies with HART FSK “Physical Layer” specification rev. 8.1.

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

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

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

LCD display (optional)
19-segment alphanumeric display (2-line, 6-character) with additional bar chart display, optionally with back illumination for customized display of:
- Output current in percent
- Output current in mA
- Freely-selectable process variable
Diagnostic messages, alarms, measuring range infringements and changes to the configuration are also displayed.

Output signal
Two-wire output 4 ... 20 mA, linear output signal.
In addition, a horizontal cylindrical container, a spherical vessel or a freely programmable characteristic curve with 20 reference points can be selected.
HART® communication provides digital process variables (% , mA or engineering units) superimposed on the 4 ... 20 mA signal (protocol according to Bell 202 FSK standard).

Output current limits (according to NAMUR standard)
Overload condition:
- Lower limit: 3,8 mA (configurable up to 3,5 mA)
- Upper limit: 20.5 mA (configurable up to 22,5 mA)

Alarm current

| Minimum alarm current:          | Configurable from 3,5 ... 4 mA, Default: 3,6 mA |
| Max. alarm current:             | Configurable from 20 ... 22,5 mA, Default: 21 mA |
| Default:                        | Max. alarm current |

SIL: Functional safety (optional)
according to IEC 61508/61511
Device with certificate of conformity for use in safety-relevant applications, including SIL 2.
5.2  PROFIBUS PA output

Device
Pressure transmitter in conformance with Profile 3.0, Class A and B;  
ID number 04C2 HEX

Power supply
The transmitter operates with 10.2 ... 32 V DC (no polarity).  
The power supply must not exceed 17.5 V DC when used in EEex ia  
zones.  
Intrinsic safety installation according to FISCO model.

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

Output signal
Physical layer in compliance with IEC 1158-2/EN 61158-2 with  
transmission to Manchester II modulation, at 31.25 kbit/sec.

Output interface
PROFIBUS PA communication according to Profibus DP50170 Part 2  
/ DIN 19245 Part 1-3

Output cycle time
40 ms

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

LCD display (optional)
19-segment alphanumeric display (2-line, 6-character) with additional  
bar chart display, optionally with back illumination.  
Customized display:  
Output value in percent or OUT (analog input)  
Diagnostic messages, alarms, measuring range infringements and  
changes to the configuration are also displayed.

Transmitter failure mode
Permanent self-diagnostic; possible errors indicated in diagnostic  
parameters and in the status of process values.

5.3  FOUNDATION Fieldbus output

Power supply
The transmitter operates with 10.2 ... 32 V DC (no polarity).  
The power supply must not exceed 17.5 V DC when used in EEex ia  
zones.  
Intrinsic safety installation according to FISCO model.

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

Output signal
Physical layer in compliance with IEC 1158-2/EN 61158-2 with  
transmission to Manchester II modulation, at 31.25 kbit/sec.

Function blocks/execution time
1 standard analog input function block / max. 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 acc. to  
standard H1, compliant with specification V. 1.5.  
FF registration no.: IT023600

LCD display (optional)
19-segment alphanumeric display (2-line, 6-character) with additional  
bar chart display, optionally with back illumination.  
Customized display:  
Output value in percent or OUT (analog input)  
Diagnostic messages, alarms, measuring range infringements and  
changes to the configuration are also displayed.

Transmitter failure mode
Permanent self-diagnostic; possible errors indicated in diagnostic  
parameters and in the status of process values.
6 Measuring accuracy

Reference conditions acc. to IEC 60770

- Ambient temperature $T_U = \text{constant}$, in the range: $18 \ldots 30 \, ^\circ\text{C} (64 \ldots 86 \, ^\circ\text{F})$
- Moisture r.F = constant, in the range: $30 \ldots 80 \, \%$
- Atmospheric pressure $P_U = \text{constant}$, in the range: $860 \ldots 1060 \, \text{mbar}$
- Position of measuring cell (isolating diaphragm areas): vertical $\pm 1^\circ$
- Measuring span based on zero position
- Isolating diaphragm material: Hastelloy C276$^\text{TM}$
- Fill fluid: Silicone oil
- Supply voltage: 24 V DC
- Load with HART: 250 $\Omega$
- Transmitter not grounded
- Characteristic setting: linear, 4 \ldots 20 mA

Note

Unless otherwise specified, errors are quoted as $\%$ of span.

The accuracy related to the Upper Range Limits (URL) is affected by the actual turndown (TD) as a ratio between Upper Range Limit (URL) and calibrated span (URL/span). Select the transmitter sensor with the smallest possible turndown. This optimizes the accuracy of the measurement.

7 Operating influences

Thermal change of ambient temperature to zero signal and measuring span (turndown to 15:1)

<table>
<thead>
<tr>
<th>Range</th>
<th>Effect on</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10 \ldots 60 , ^\circ\text{C} (14 \ldots 140 , ^\circ\text{F})</td>
<td>0.1 % x TD + 0.1 %</td>
</tr>
<tr>
<td>-40 \ldots -10 , ^\circ\text{C} (-40 \ldots 14 , ^\circ\text{F}) and 60 \ldots 80 , ^\circ\text{C} (140 \ldots 176 , ^\circ\text{F})</td>
<td>Zero position 0.05 % x TD / 10 K, span 0.05 % / 10 K</td>
</tr>
</tbody>
</table>

Power supply

Within the specified limits for the voltage/load the total influence is less than 0.001\% of URL per volt.

Load

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

Electromagnetic fields

Total effect: less than 0.05 \% of span from 80 \ldots 1000 \, MHz and for field strengths up to 10 \, V/m when tested with unshielded conduit, with or without meter.

Common-mode interference

No effect from 250 V$_{\text{eff}}$ (50 Hz) or 50 V DC.

Dynamic behavior (according to IEC 61298-1)

Devices with standard configuration and turndown up to 30:1, plus linear output characteristics.

<table>
<thead>
<tr>
<th>Dead time</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 ms</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time constant (63 %)</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 ms (sensors F to N)</td>
<td></td>
</tr>
</tbody>
</table>

Accuracy rating (terminal based)

Percentage of calibrated measuring span, consisting of non-linearity, hysteresis and non-repeatability. For Fieldbus versions SPAN refers to analog input function block outsacle range.

<table>
<thead>
<tr>
<th>Turndown</th>
<th>Measurement error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1 to 10:1</td>
<td>$\pm 0.04 %$</td>
</tr>
<tr>
<td>$&gt;10:1$</td>
<td>$(0.04 + 0.005 \times \frac{\text{URL}}{\text{Span}} - 0.05) %$</td>
</tr>
</tbody>
</table>

Mounting position

Rotations in the plane of the diaphragm have negligible effect.

A tilt from vertical causes a zero shift of sin a x 0.35 (3.5 mbar, 1.4 in H$_2$O) of URL which can be corrected with the zero adjustment. No effect on the span.

Long-term stability

$\pm (0.05 \times \text{TD}) \% / \text{year}$

$\pm (0.15 \times \text{TD}) \% / 5 \text{ years}$

Vibration effect

$\pm (0.10 \times \text{TD}) \%$ acc. to IEC 61298-3.

Total performance

In range -10 \ldots 60 \, ^\circ\text{C} (14 \ldots 140 \, ^\circ\text{F}):

$\pm 0.2 \%$ of the configured measuring span (TD 1:1)

The total performance includes the accuracy rating (non-linearity including hysteresis and non-repeatability) as well as the thermal change of ambient temperature on zero signal and measuring accuracy.

$$E_{\text{perf}} = \sqrt{(E_{\Delta T1} + E_{\Delta T2})^2 + E_{\text{lin}}^2}$$

$E_{\text{perf}}$ = total performance

$E_{\Delta T1}$ = effect of the ambient temperature on the URL

$E_{\Delta T2}$ = effect of the ambient temperature on the measuring span

$E_{\text{lin}}$ = accuracy rating (terminal based)
8 Technical Specification

Important
Refer to the order information sheets for the availability of different versions of the respective model.

8.1 Materials

Isolating diagram
Hastelloy C276™

Process flange, adapter, plugs and drain/vent valves
Stainless steel (1.4404)

Sensor fill fluid
Silicone oil

Mounting bracket
Stainless steel

Gaskets
Viton™ (FPM) - Color: green
Buna (NBR) - Color: black
EPDM - Color: black
PTFE - Color: white

Sensor housing
Stainless steel

Electronics housing and cover
Barrel version
- Aluminum alloy with low copper content, baked epoxy finish
- Stainless steel (316L/1.4404)
DIN version
- Aluminum alloy with low copper content, baked epoxy finish

O-ring cover
Viton™

Local zero and span adjustments
Fiberglass-reinforced polycarbonate plastic (removable), no local control keys for stainless steel housings.

Type plate
Stainless steel (316) or plastic data plate attached to the electronics housing.

™ Hastelloy is a Cabot Corporation trademark
™ Monel is an International Nickel Co. trademark
™ Viton is a DuPont de Nemours trademark

1) Wetted transmitter parts
8.2 Calibration
Standard:
At max. span, zero-based range, ambient temperature and pressure.
Optional:
At specified range and ambient conditions.

8.3 Optional extras
Mounting bracket
For vertical and horizontal 60 mm (2 in) pipes or wall mounting.

LCD display
Plug-in and rotatable

Supplemental customer tag
Tag with wire (both stainless steel) attached to the transmitter, with a maximum of 30 characters including spaces.

Surge protection
Up to 4 kV:
- Voltage 1.2 μs rise time/ 50 μs delay-time to half value.
- Current 8 μs rise time/ 20 μs delay-time to half value.

Optional extras:
Not available for devices with ATEX-EEx nL or PROFIBUS PA/FOUNDATION Fieldbus in intrinsically safe design:
ATEX-EEx i or NEPSI / FM / SAA intrinsically safe.

Preparation for hydrogen application

Certificates (test, model, calibration, material traceability)

8.4 Process connections
Flanges
¼-18 NPT on the process axis with 7/16-20 UNF fixing threads

Adapter
¼-14 NPT on process axis

8.5 Electrical connections
Two ½ -14 NPT or M20 x 1.5 threaded conduit entries for cable glands, direct on housing, or plug connector:
- HART: straight or angle Harting Han 8D (8U) connector and one mating plug
- FOUNDATION Fieldbus/PROFIBUS PA: plug 7/8 in / M12 x 1

Terminals
HART version:
four terminals for signal/external display, for wiring up to 2.5 mm² (14 AWG) and four connection points for test and communication purposes.
Fieldbus versions:
two signal terminals (bus connector) for wiring up to 2.5 mm² (14 AWG)

Grounding
Internal and external 4 mm² (12 AWG) ground termination points are provided.

8.6 Mounting position
The transmitter can be mounted in any position.
The electronics housing may be rotated 360°. A positive stop prevents over-travel.

8.7 Weight (without options)
Approximately 3.5 kg, add 1.5 kg for stainless steel housing
Packaging adds 650 g

8.8 Packaging
Carton approx. 230 x 250 x 270 mm
## 9 Configuration

### 9.1 Transmitter with HART communication and 4 ... 20 mA output current:

<table>
<thead>
<tr>
<th>Standard configuration</th>
<th>Transmitter failure mode</th>
<th>Optional LCD display</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21 mA</td>
<td>0 ... 100 % linear</td>
</tr>
</tbody>
</table>

Any or all the above configurable parameters, including lower range value and upper range value can be easily changed by a PC, running the configuration software SMART VISION with DTM for 2600T. Data regarding flange type and material, O-rings and filling liquid is stored in the device.

### 9.2 Transmitter with PROFIBUS PA communication

<table>
<thead>
<tr>
<th>Lower warning limit</th>
<th>Lower range limit (LRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower alarm limit</td>
<td>Lower range limit (LRL)</td>
</tr>
<tr>
<td>Limit hysteresis</td>
<td>0.5% of output scale</td>
</tr>
<tr>
<td>PV filter</td>
<td>0.125 sec</td>
</tr>
<tr>
<td>Address</td>
<td>126</td>
</tr>
</tbody>
</table>

Any or all the above configurable parameters, including lower range value and upper range value can be easily changed by a PC, running the configuration software SMART VISION with DTM for 2600T. Data regarding flange type and material, O-rings and filling liquid is stored in the device.

### 9.3 Transmitter with FOUNDATION Fieldbus communication

<table>
<thead>
<tr>
<th>Lower warning limit</th>
<th>Lower range limit (LRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower alarm limit</td>
<td>Lower range limit (LRL)</td>
</tr>
<tr>
<td>Limit hysteresis</td>
<td>0.5% of output scale</td>
</tr>
<tr>
<td>PV filter</td>
<td>0.125 sec</td>
</tr>
<tr>
<td>Address</td>
<td>not required</td>
</tr>
</tbody>
</table>

Any or all the above configurable parameters, including lower range value and upper range value can be easily changed by any FOUNDATION Fieldbus compatible configurator. Data regarding flange type and material, O-rings and filling liquid is stored in the device.

---

# 9.1 Transmitter with HART communication and 4 ... 20 mA output current:

<table>
<thead>
<tr>
<th>Standard configuration</th>
<th>Transmitter failure mode</th>
<th>Optional LCD display</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21 mA</td>
<td>0 ... 100 % linear</td>
</tr>
</tbody>
</table>

Any or all the above configurable parameters, including lower range value and upper range value can be easily changed by a PC, running the configuration software SMART VISION with DTM for 2600T. Data regarding flange type and material, O-rings and filling liquid is stored in the device.

---

**Notes:**

- For absolute pressure, maximum overload capability up to 41 MPa, 5945 psi.
- Transmitters are factory calibrated to the customer's specified range. Calibrated range and tag number are stamped on the type plate. If this data has not been specified, the transmitter will be delivered configured as follows:

<table>
<thead>
<tr>
<th>4 mA</th>
<th>Zero position</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mA</td>
<td>Upper range limit (URL)</td>
</tr>
<tr>
<td>Output</td>
<td>linear</td>
</tr>
<tr>
<td>Damping</td>
<td>0.125 sec</td>
</tr>
</tbody>
</table>
10 Mounting Dimensions (not design data)

10.1 Transmitter with barrel housing

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

1 Plate with key legend, etc.
2 Captive screw for keyboard cover
3 Type plate
4 Housing cover, terminal side
5 Electrical connection
6 Transducer plate
7 Housing stop-screw
8 With LCD display
9 Clearance for cover removal required
10 Additional tag plate, e.g., for indicating measuring points (optional)
11 Drain/vent valve (optional)
12 Process connection
13 Threads for fixing screws (see process flange data)
14 Space must be available to rotate the keyboard cover
10.2 Transmitter with DIN housing

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

1 Electrical connection (with plug)  
2 Terminal side  
3 Clearance for cover removal required  
4 Housing cover  
5 Threads for fixing screw (see process flange data)  
6 Process connection  
7 + side  
8 Transducer plate  
9 Space must be available to rotate the keyboard cover  
10 Electrical connection  
11 Additional tag plate, e.g., for indicating measuring points (optional)  
12 Captive screw for keyboard cover  
13 With LCD display  
14 Plate with key legend, etc.
10.3 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
11 Electrical connections

11.1 Standard terminal strip

1 Cable entry
2 Test terminals for 4 ... 20 mA (not with Fieldbus transmitters)
3 Ground / potential equalizing terminal
4 Output signal/power supply
5 Screw terminals for wires with 0.5 ... 2.5 mm² cross-section

11.2 Fieldbus plug connector

<table>
<thead>
<tr>
<th>PIN (male) identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

Mating plug (socket) not supplied
11.3 Harting Han 8D (8U) connector

Fig. 7

1  Barrel housing
2  DIN housing
3  Harting Han 8D (8U) pin identification (socket view)
## 12 Ordering information

### 12.1 Ordering information for model 265VS

<table>
<thead>
<tr>
<th>Absolute Pressure Transmitter</th>
<th>Variant digit No.</th>
<th>Catalog No.</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>265VS</td>
<td>1 - 12</td>
<td>265VS-</td>
<td></td>
</tr>
</tbody>
</table>

### Sensor - Span limits

- 2 ... 40 kPa 20 ... 400 mbar 15 ... 300 mmHg F
- 12.5 ... 250 kPa 125 ... 2500 mbar 95 ... 1875 mmHg L
- 100 ... 2000 kPa 1 ... 20 bar 15 ... 290 psi N

### Static pressure

<table>
<thead>
<tr>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 MPa</td>
</tr>
<tr>
<td>25 MPa</td>
</tr>
<tr>
<td>41 MPa</td>
</tr>
</tbody>
</table>

### Diaphragm material / Fill fluid (wetted parts)

<table>
<thead>
<tr>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hastello C276 Silicone oil</td>
</tr>
</tbody>
</table>

### Process connection material / Process connection (wetted)

<table>
<thead>
<tr>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>AISI 316L ss / 1.4404 / 1.4408 (horizontal)</td>
</tr>
</tbody>
</table>

### Bolts / Gaskets (wetted)

<table>
<thead>
<tr>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>AISI 316L ss</td>
</tr>
</tbody>
</table>

### Electronic housing material / Electrical connection

<table>
<thead>
<tr>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium alloy (Barrel version)</td>
</tr>
<tr>
<td>Aluminium alloy (Barrel version)</td>
</tr>
<tr>
<td>Aluminium alloy (Barrel version)</td>
</tr>
<tr>
<td>Aluminium alloy (Barrel version)</td>
</tr>
</tbody>
</table>

### Output Additional options

<table>
<thead>
<tr>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART digital communication and 4 ... 20 mA</td>
</tr>
<tr>
<td>PROFIBUS PA</td>
</tr>
<tr>
<td>FOUNDATION Fieldbus</td>
</tr>
</tbody>
</table>

### Notes

1) Suitable for oxygen applications
2) Select connector type with additional ordering code
3) Not available with Electronic housing material / Electrical connection code G, W
4) Not available with Electronic housing material / Electrical connection code E, K
8) Not available with EEx nL, EEx d, FM- / CSA- / NEPSI-Explosion Proof
### 12.2 Additional ordering information for model 265VS

<table>
<thead>
<tr>
<th>265VS</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vent valve material / Position</strong> (wetted parts)</td>
<td></td>
</tr>
<tr>
<td>AISI 316L ss / 1.4404 On process axis</td>
<td>V1</td>
</tr>
<tr>
<td>AISI 316L ss / 1.4404 On flanges side top</td>
<td>V2</td>
</tr>
<tr>
<td>AISI 316L ss / 1.4404 On flanges side bottom</td>
<td>V3</td>
</tr>
<tr>
<td><strong>Explosion protection</strong></td>
<td></td>
</tr>
<tr>
<td>ATEX Group II Category 1/2 GD - Intrinsic Safety EEx ia</td>
<td>E1</td>
</tr>
<tr>
<td>ATEX Group II Category 1/2 G - Flameproof EEx d</td>
<td>E2</td>
</tr>
<tr>
<td>ATEX Group II Category 3 GD - Type of protection N EEx nL energy limited</td>
<td>E3</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>
</tr>
<tr>
<td>Factory Mutual (FM) - Intrinsically Safe</td>
<td>EA</td>
</tr>
<tr>
<td>Factory Mutual (FM) - Explosion Proof</td>
<td>EB</td>
</tr>
<tr>
<td>(only with electrical connection 1/2-14 NPT and Stainless steel Tag plate)</td>
<td></td>
</tr>
<tr>
<td>Canadian Standard Association - Intrinsically Safe</td>
<td>ED</td>
</tr>
<tr>
<td>Canadian Standard Association - Explosion Proof</td>
<td>EE</td>
</tr>
<tr>
<td>Canadian Standard Association - Explosion Proof (Canada &amp; USA)</td>
<td>EM</td>
</tr>
<tr>
<td>NEPSI Ex ia II C T4/T6</td>
<td>X1</td>
</tr>
<tr>
<td>NEPSI Ex d II C T6</td>
<td></td>
</tr>
<tr>
<td>SAA Ex d IIC T6 and Ex td A21 IP66 T85°C</td>
<td>X1</td>
</tr>
<tr>
<td>SAA Ex ia IIC T4/T6 and Ex n IIC T4/T6 (only with output HART / 4 ... 20 mA, not with SIL2)</td>
<td>X2</td>
</tr>
<tr>
<td><strong>Integrated digital display (LCD)</strong></td>
<td></td>
</tr>
<tr>
<td>With integrated LCD display</td>
<td>L1</td>
</tr>
<tr>
<td>With integrated LCD display (backlit)</td>
<td>L2</td>
</tr>
<tr>
<td><strong>Mounting bracket shape / Material</strong></td>
<td></td>
</tr>
<tr>
<td>For pipe mounting AISI 304 ss / 1.4301</td>
<td>B2</td>
</tr>
<tr>
<td>For wall mounting AISI 304 ss / 1.4301</td>
<td>B4</td>
</tr>
<tr>
<td><strong>Surge protector</strong></td>
<td></td>
</tr>
<tr>
<td>Surge / Transient protector 5)</td>
<td>S1</td>
</tr>
<tr>
<td><strong>Operating manual</strong></td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>M1</td>
</tr>
<tr>
<td>Spanish</td>
<td>M3</td>
</tr>
<tr>
<td>Swedish</td>
<td>M7</td>
</tr>
<tr>
<td>Russian</td>
<td>MB</td>
</tr>
</tbody>
</table>

5) Not available with ATEX-EEEx nL (code E3), not available with PROFIBUS PA/FOUNDATION Fieldbus (code 2, 3) and Intrinsic Safety EEx ia (Code E1, EY), not available with FM Intrinsically Safe (code EA) and SAA (code X2)
### 12.3 Additional ordering information for model 265VS (cont.)

<table>
<thead>
<tr>
<th>265VS</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Label and Tag Language</strong></td>
<td></td>
</tr>
<tr>
<td>German (stainless steel) (not with DIN Electronic Housing code J, K, W)</td>
<td>T1</td>
</tr>
<tr>
<td>German and English (plastic) (not with Factory Mutual - Explosion Proof)</td>
<td>TA</td>
</tr>
<tr>
<td><strong>Additional tag plate</strong></td>
<td></td>
</tr>
<tr>
<td>Stainless steel</td>
<td>I1</td>
</tr>
<tr>
<td><strong>Applications</strong></td>
<td></td>
</tr>
<tr>
<td>Hydrogen application (H₂) (fluid film)</td>
<td>P2</td>
</tr>
<tr>
<td><strong>Certificates</strong></td>
<td></td>
</tr>
<tr>
<td>Inspection certificate EN 10204-3.1 of calibration</td>
<td>C1</td>
</tr>
<tr>
<td>Inspection certificate EN 10204-3.1 of the cleanliness stage</td>
<td>C3</td>
</tr>
<tr>
<td>Inspection certificate EN 10204-3.1 of helium leakage test of the sensor module</td>
<td>C4</td>
</tr>
<tr>
<td>Inspection certificate EN 10204-3.1 of the pressure test</td>
<td>C5</td>
</tr>
<tr>
<td>Certificate EN 10204-2.1 of compliance with the order of instrument design</td>
<td>C6</td>
</tr>
<tr>
<td>SIL 2 - Declaration of conformity</td>
<td>CL</td>
</tr>
<tr>
<td><strong>Material traceability</strong></td>
<td></td>
</tr>
<tr>
<td>Confirmation of compliance with the order EN 10204-2.1 of process wetted parts</td>
<td>H1</td>
</tr>
<tr>
<td>Inspection certificate EN 10204-3.1 for pressure-bearing process wetted parts</td>
<td>H3</td>
</tr>
<tr>
<td>with analysis certificates as material verification</td>
<td></td>
</tr>
<tr>
<td>(minor parts with Factory Certificate acc. to EN 10204)</td>
<td></td>
</tr>
<tr>
<td>Test report EN 10204-2.2 of the pressure bearing and process wetted parts</td>
<td>H4</td>
</tr>
<tr>
<td><strong>Connectors</strong></td>
<td></td>
</tr>
<tr>
<td>Fieldbus 7/8 in (without mating plug, recommended for FOUNDATION Fieldbus)</td>
<td>4) 6)</td>
</tr>
<tr>
<td>(without mating plug, recommended for PROFIBUS PA)</td>
<td>U1</td>
</tr>
<tr>
<td>Fieldbus M12 x 1</td>
<td>4) 6)</td>
</tr>
<tr>
<td>Harting Han 8D (8U) - straight entry</td>
<td>3) 6)</td>
</tr>
<tr>
<td>Harting Han 8D (8U) - angle entry</td>
<td>3) 7)</td>
</tr>
<tr>
<td><strong>Hastelloy</strong> is a trademark of Cabot Corporation</td>
<td></td>
</tr>
<tr>
<td><strong>Monel</strong> is a trademark of International Nickel Corporation</td>
<td></td>
</tr>
<tr>
<td><strong>Viton</strong> is a trademark of DuPont Dow Elastomers</td>
<td></td>
</tr>
</tbody>
</table>

3) Not available with Electronic housing material / Electrical connection code G, W
4) Not available with Electronic housing material / Electrical connection code E, K
6) Not available with Electronic housing material / Electrical connection code T, S, A, B, J, E
7) Not available with Electronic housing material / Electrical connection code T, S, A, B, J, K
13 Standard delivery scope (changes possible with additional ordering code)

- Adapters supplied singly
- Plugs for process axis (no drain/vent valves)
- General purpose (no Ex application)
- No meter / display, no mounting bracket, no surge protection
- English-language operating manual and labels
- Type 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

If not otherwise specified prior to manufacture, the customer shall be responsible for the selection of suitable wetted parts and appropriate fill fluid to assure compatibility with the relevant process medium.
Contact us

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Fax: +49 551 905-555

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