Pressure Transmitter with display and programmable switching outputs
Type 540

The μP-regulated, programmable pressure transmitter type 540 has a robust industry design. The parameters are easily adjustable with two function keys in the configuration menu which disposes of up to two programmable switching points.

All systems are equipped with a diagnostic function. The large 4 digit LED display assures a good accuracy of reading. The pressure transmitter type 540 is based upon the Huba Control developed thick film technology where the pressure measuring cell is fully welded.

Pressure range
0 ... 60 – 600 bar

+ Compact, rugged construction
+ High over pressure
+ Clearly readable display
+ Sensitive operation keys
+ Diagnostic function
+ with analogue signal available
+ by up to 2 programmable switching outputs
**Pressure and flow**

### Technical overview

#### Pressure range
Relative: 0 ... 60 – 600 bar

#### Operating conditions
- **Medium:** Liquids and gases
- **Temperature:**
  - Medium / Ambient: 20 ... +80 °C
  - Storage: 40 ... +80 °C
- **Overload:** 3 x fs (max. 1500 bar)
- **Rupture pressure:** 6 x fs (max. 2500 bar)

#### Materials
- **Case:** Polyarylamid 50% GF black
- **Materials in contact with medium:**
  - Sensor: Stainless steel
  - Pressure connection: Stainless steel 1.4404 / AISI 316L

#### Electrical overview
- **Output:**
  - 0 ... 10 V
  - 4 ... 20 mA
- **Power supply:**
  - 17 ... 33 VDC
- **Load:**
  - 0 ... 10 V: > 10 kOhm
  - 4 ... 20 mA: < 500 Ohm
- **Current consumption:** max. 50 mA
- **Polarity reversal protection:** Short circuit proof and protected against polarity reversal. Each connection is protected against crossover up to max. supply voltage.

#### Dynamic response
- **Response time:** < 5 ms
- **Load cycle:** < 100 Hz

#### Displays (notable by 180°)
- 7 Segment LED, 4 digits for the indication of pressure measuring values and parameter values.
- Point LED for state indication of switching points.
- Point LED for indication of programmed measuring unit.

#### Programming
- All settings can be made in unpressurised state or during the operation. Ex works with standard setting.

#### Analogue output:
- Characteristic line adjustable of 75 ... 125% FS

#### Digital output:
- Measuring range:
  - rising pressure: 8 ... 100% fs
  - falling pressure: 5 ... 97% fs
- P or N-switching, open-close contact, rise delay time eligible, also delay time 0 - 50 s, Switch off delay time 0 - 50 s, Response time 5 ... 500 ms.

#### Diagnostic function
- Version with diagnostic input (shunt-cal): feedback with 50% fs signal 12 mA or 5 V.

#### Electrical connection
- **Protection standard:** Protection class III
- **Connector threads:** M12x1 IP 65 and IP 67 acc. IEC 60529

#### Pressure connection
- **Inside thread:**
  - G ¼ with O-Ring sealing FPM
  - 7/16 - 20 UNF sealed at front SAE J1926-1, ISO 11926-1
- **Outside thread:**
  - G ¼ sealed at back DIN 3852-E with profile seal ring FPM
  - 7/16 - 20 NPT sealed cone 45°

#### Installation arrangement
- Unrestricted
- (Electrical connection not recommended down)

#### Tests / Admissions
- **Electromagnetic compatibility:** CE conformity acc. EN 61326-2-3
- **Shock acc. IEC IEC 68-2-27:** 100 g, 11 ms half sine wave, all 6 directions, free fall from 1 m on concrete (6x)
- **Vibration acc. IEC 68-2-6:** 20 g, 15 ... 2000 Hz, 15 ... 25 Hz with amplitude ± 0.5 mm, 1 Octave/min, all 3 directions, 50 constant load
- **Drinking water approval:** NSF/ANSI 61, 372 acc. MH60087
- **EAC**

### Weight
- ~ 120 g

#### Packaging
- Single packaging in cardboard

### Accuracy

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Test conditions: 25 °C, 45% RH, power supply 24 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic line</td>
<td>% fs</td>
<td>± 1.0</td>
</tr>
<tr>
<td>Thermal characteristic</td>
<td>% fs/10K</td>
<td>± 0.5</td>
</tr>
<tr>
<td>Long-term stability acc. IEC EN 60770-1</td>
<td>% fs</td>
<td>± 0.3</td>
</tr>
</tbody>
</table>

*Typical; (incl. zero point, full scale, linearity, hysteresis and repeatability) 0 ... -15 ... 85 °C*
## Order code selection table

### Pressure range (adjustment in bar)

| Pressure range | bar | psi | kPa | MPa | <br>0...60 | 0...100 | 0...1450 | 0...1900 | 0...2350 | 0...2800 | 0...3250 | 0...3700 | 0...4150 | 0...4600 | 0...5050 | 0...5500 | 0...6000 | 0...6450 | 0...6900 | 0...7350 | 0...7800 | 0...8250 | 0...8700 | 0...9150 | 0...9600 | 0...10050 | 0...10500 | 0...11050 | 0...11600 | 0...12150 | 0...12700 | 0...13250 | 0...13800 | 0...14350 | 0...14900 | 0...15450 | 0...16000 | 0...16550 | 0...17100 | 0...17650 | 0...18200 | 0...18750 | 0...19300 | 0...19850 | 0...20400 | 0...20950 | 0...21500 | 0...22050 | 0...22600 | 0...23150 | 0...23700 | 0...24250 | 0...24800 | 0...25350 | 0...25900 | 0...26450 | 0...27000 | 0...27550 | 0...28100 | 0...28650 | 0...29200 | 0...29750 | 0...30300 | 0...30850 | 0...31400 | 0...31950 | 0...32500 | 0...33050 | 0...33600 | 0...34150 | 0...34700 | 0...35250 | 0...35800 | 0...36350 | 0...36900 | 0...37450 | 0...38000 | 0...38550 | 0...39100 | 0...39650 | 0...40200 | 0...40750 | 0...41300 | 0...41850 | 0...42400 | 0...42950 | 0...43500 | 0...44050 | 0...44600 | 0...45150 | 0...45700 | 0...46250 | 0...46800 | 0...47350 | 0...47900 | 0...48450 | 0...49000 | 0...49550 | 0...50100 | 0...50650 | 0...51200 | 0...51750 | 0...52300 | 0...52850 | 0...53400 | 0...53950 | 0...54500 | 0...55050 | 0...55600 | 0...56150 | 0...56700 | 0...57250 | 0...57800 | 0...58350 | 0...58900 | 0...59450 | 0...60000 | 0...60550 | 0...61100 | 0...61650 | 0...62200 | 0...62750 | 0...63300 | 0...63850 | 0...64400 | 0...64950 | 0...65500 | 0...66050 | 0...66600 | 0...67150 | 0...67700 | 0...68250 | 0...68800 | 0...69350 | 0...69900 | 0...70450 | 0...71000 | 0...71550 | 0...72100 | 0...72650 | 0...73200 | 0...73750 | 0...74300 | 0...74850 | 0...75400 | 0...75950 | 0...76500 | 0...77050 | 0...77600 | 0...78150 | 0...78700 | 0...79250 | 0...79800 | 0...80350 | 0...80900 | 0...81450 | 0...82000 | 0...82550 | 0...83100 | 0...83650 | 0...84200 | 0...84750 | 0...85300 | 0...85850 | 0...86400 | 0...86950 | 0...87500 | 0...88050 | 0...88600 | 0...89150 | 0...89700 | 0...90250 | 0...90800 | 0...91350 | 0...91900 | 0...92450 | 0...93000 | 0...93550 | 0...94100 | 0...94650 | 0...95200 | 0...95750 | 0...96300 | 0...96850 | 0...97400 | 0...97950 | 0...98500 | 0...99050 | 0...99600 | 0

### Pressure range (adjustment in psi)

| Pressure range | psi | bar | kPa | MPa | 0...750 | 0...100 | 0...138 | 0...200 | 0...232 | 0...362 | 0...500 | 0...60 | 0...517 | 0...512 | 0...648 |
|----------------|-----|-----|-----|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0...750        | 0   | 0   | 0   | 0    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0...100        | 0   | 0   | 0   | 0    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0...138        | 0   | 0   | 0   | 0    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0...200        | 0   | 0   | 0   | 0    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0...232        | 0   | 0   | 0   | 0    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0...362        | 0   | 0   | 0   | 0    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0...500        | 0   | 0   | 0   | 0    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0...60         | 0   | 0   | 0   | 0    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |

### Pressure indication

<table>
<thead>
<tr>
<th>Pressure range</th>
<th>bar</th>
<th>psi</th>
<th>kPa</th>
<th>MPa</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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### Output

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 analogue output</td>
<td>diagnostic input</td>
<td>0</td>
</tr>
<tr>
<td>0...10 V</td>
<td>diagnostic input</td>
<td>3</td>
</tr>
<tr>
<td>3...20 mA</td>
<td>1 digital output</td>
<td>5</td>
</tr>
<tr>
<td>0...10 V</td>
<td>1 digital output</td>
<td>5</td>
</tr>
<tr>
<td>4...20 mA</td>
<td>1 analogue output</td>
<td>5</td>
</tr>
<tr>
<td>0...10 V</td>
<td>1 analogue output</td>
<td>5</td>
</tr>
</tbody>
</table>

### Electrical connection

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12x1 NPN</td>
<td>Without digital output</td>
<td>0</td>
</tr>
<tr>
<td>M12x1 PNP</td>
<td>Without digital output</td>
<td>0</td>
</tr>
</tbody>
</table>

### Pressure connection

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside thread</td>
<td>INS 20 UNF sealed at front SAE J1926-1, ISO 11926-1</td>
<td>A</td>
</tr>
<tr>
<td>G ¼ with O-ring sealing FPM</td>
<td>INS 20 UNF sealed at front SAE J1926-1, ISO 11926-1</td>
<td>1</td>
</tr>
<tr>
<td>Outside thread</td>
<td>INS 20 UNF sealing core</td>
<td>D</td>
</tr>
<tr>
<td>G ¼ sealed at back DIN 3852-E with profile seal ring FPM</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>R ¼ acc. EN 10226</td>
<td>INS 20 UNF sealing core</td>
<td>4</td>
</tr>
</tbody>
</table>

### Accessories (supplied loose)

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
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<tbody>
<tr>
<td>Mounting bracket with screw</td>
<td>118716</td>
</tr>
<tr>
<td>Heat sink with outside thread G ½ - inside thread G ¼</td>
<td>105073</td>
</tr>
<tr>
<td>Heat sink with outside thread G ¼ - inside thread G ½</td>
<td>105074</td>
</tr>
<tr>
<td>Straight-wire box for connector M12x1 with cable 5-pole</td>
<td>114564</td>
</tr>
<tr>
<td>Calibration certificate (available for analogue output, only)</td>
<td>104551</td>
</tr>
</tbody>
</table>

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### Notes

1) Other pressure on request
2) Delivery without female connector
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