All details and descriptions in this operating manual and installation instructions have been given only after careful checking. Despite this, errors cannot be completely eliminated. Therefore, no guarantee is given regarding completeness or for the contents. The manual should also not be taken as providing assurance of product characteristics. Furthermore, some characteristics are described in it that are only available as options.

Modifications due to progress in development are reserved. However, we would be very grateful to receive information about errors, etc. or suggestions for improvement.

In relation to the extended product liability, the stated data and material characteristics should only be regarded as guidelines and must always be checked in individual cases and corrected if necessary. This particularly applies where safety aspects are involved.

The passing on and copying of this manual or extracts of it is only permitted with the written agreement of ELSTER Handel.

Mainz-Kastel, June 1996
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Safety information

Some of the pressure and temperature sensors described here can be operated in Ex areas. It is therefore essential to follow the instructions below:

Follow the regulations in the relevant standards, particularly DIN VDE 0165.

During the installation and setting up of the sensors with an ELSTER volume corrector follow the DVGW guidelines on the construction and operation of gas measurement systems as well as the appropriate PTB guidelines.
1 Pulse generators

For the pulse generators to be connected the details in the operating manual for the ELSTER volume corrector and the relevant PTB approvals should be followed. These list the required limits and parameters.

1.1 LF pulse generators (Elster turbine-wheel impellers)

ELSTER turbine-wheel meters are fitted as standard with low frequency pulse generators. They are designed for use in intrinsically safe electrical circuits.

The mechanical counter mechanism in Versions I and II are fitted as standard with a magnetically operated reed contact on the last counter wheel. The maximum switching frequency depends on the meter size and is situated in the range between 0.018 and 0.44 Hz.

The contact is located in an enclosed glass tube filled with an inert gas, eliminating contamination and corrosion.

Technical data:

- Switching voltage \( U_{\text{max}} = 24 \text{ V} \)
- Switching current \( I_{\text{max}} = 50 \text{ mA} \)
- Switching capacity \( P_{\text{max}} = 0.25 \text{ W/VA} \)
- Series resistance \( R_i = 100 \Omega \pm 20\% \)

Connection assignment:

![Diagram of connection assignment](image)

- E1 Generator
- 8-pole DIN 45326
- 6-pole + earth contact
- Connector assignment on counting head:
  - Version 1
  - Version 2
  (Viewed on the ends of the connections)
1.2 HF pulse generators (Elster turbine-wheel impellers)

The optionally obtainable HF generators for Elster turbine-wheel impellers (A1S and A1R Generators) consist of an inductive proximity switch in a cylindrical shape. Each turbine vane passing the A1R Pulse Generator or each hole (or mark) on the reference disc passing the A1R Pulse Generator creates an output pulse. The output pulses of the A1S and A1R Generators must be matched with suitable cp values so that the same volumes are measured.

Technical data according to DIN 19234:

Nominal voltage: \( U_n = 8 \text{ VDC} \)
Current consumption
- active surface free: \( I \leq 2.1 \text{ mA} \)
- active surface covered: \( I \leq 1.2 \text{ mA} \)

Connection assignment:
2 Pressure sensors

2.1 “Rosemount - 1151”

Pressure sensor type: Codes 5-8: Absolute Pressure Transducer 1151 AP
                Code 9: Relative Pressure Transducer 1151 GP

Standard measurement ranges (bar):

<table>
<thead>
<tr>
<th>Code</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>7</th>
<th>7</th>
<th>8</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure-</td>
<td>0.5-</td>
<td>0.9</td>
<td>1.5-</td>
<td>4.0-</td>
<td>20.0-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ment span</td>
<td>1.9</td>
<td>7.0</td>
<td>21.0</td>
<td>70.0</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pmin</td>
<td>0.5</td>
<td>0.9</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>9</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Pmax</td>
<td>1.9</td>
<td>4.5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>45</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

The measurement range can be freely selected within the measurement spans taking into account the following restriction:

\[
2.4 \leq \frac{P_{\text{max}}}{P_{\text{min}}} \leq 5
\]

Measurement uncertainty: \( \leq \pm 0.3\% \) of measurement

Perm. ambient temperature: -10...+50°C (for applications subject to official calibr.)

Duration of calibr. validity: 5 years

Output signal: 4...20 mA

Explosion protection: EEx d II C T6

Protection: IP 65

System connection: 6 mm Ermeto or 1/4" NPT internal thread

Cable gland: 1/2" NPT to terminal block

Weight: approx. 5.5 kg

Accessories: Wall Bracket B2, order no.: 04107106
Bracket for 2" pipe, no.: 04107105
Dimensions of 1151 AP/GP:

Connection assignment 1151 AP/GP:
Wall/pipe fixtures for 1151 AP/GP:

Mounting bracket for DN 50/2" pipe

Mounting bracket for wall installation

Sealing plan 1151 AP/GP:

screw seal (adhesive label)

adhesive label against rotation (adhesive label)

Supplementary ELSTER label attached with cross-head screws and sealed with lead seal

Replace ELSTER adhesive label by official label after initial operation.
2.2 “Rosemount - 3051 CA”

Pressure sensor type: Absolute Pressure Sensor 3051 CA

Standard measurement ranges (bar):

<table>
<thead>
<tr>
<th>Code</th>
<th>2</th>
<th>2</th>
<th>3</th>
<th>3</th>
<th>3</th>
<th>3</th>
<th>4</th>
<th>4</th>
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<tbody>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>10.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0</td>
<td>120.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pmin</td>
<td>0.9</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Pmax</td>
<td>4.5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>30</td>
<td>50</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

The measurement range can be freely selected within the measurement spans taking into account the following restriction:

\[
2.4 \leq \frac{P_{\text{max}}}{P_{\text{min}}} \leq 5
\]

Measurement uncertainty:
\(\leq \pm 0.2\% \text{ of measurement (at } 20^\circ C)\)
\(\leq \pm 0.3\% \text{ of measurement (0...+40}^\circ C)\)

Perm. ambient temperature:
-10...+40 \(^\circ C\) (for applications subject to official calibr.)

Duration of calibr. validity:
1 year min.

Output signal:
4...20 mA

Explosion protection:
Intrinsically safe (EEx ia IIC T4)
Option: Flameproof Ex d IIC T6

Protection:
IP 65

System connection:
6 mm Ermeto or 1/4" NPT internal thread

Cable gland:
1/2" NPT to terminal block

Weight:
approx. 2.5 kg

Accessories:
Wall and Pipe Bracket B4, no.: 04107108
Adapter for 1/4" NPT to 6 mm Ermeto, order no.: 03008379

The Pressure Sensor 3051 also supplies valid current values outside the permissible limits. The alarm limits should therefore be set to the minimum "Lower perm. limit - 1.5%" and maximum "Upper perm. limit +1.5%", e.g.:

permissible limits 14-70 bar \(\rightarrow P_{\text{min}} = 13.70 \text{ bar and } P_{\text{max}} = 71.00 \text{ bar.}\)
Dimensions of 3051 CA:

Sealing plan 3051 CA:

Replace ELSTER adhesive labels by official labels after initial operation!
Connection assignment for 3051 CA:

Wall and pipe fixtures for 3051 CA:
### 2.3 “Rosemount - 2088 A”

**Pressure sensor type:** Absolute Pressure Sensor 2088 A

#### Standard measurement ranges (bar):

<table>
<thead>
<tr>
<th>Code</th>
<th>1</th>
<th>2</th>
<th>2</th>
<th>3</th>
<th>3</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.35</td>
<td>1.7</td>
<td>1.7</td>
<td>9.2</td>
<td>9.2</td>
<td>9.2</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>2.1</td>
<td>10.3</td>
<td>55.2</td>
<td>120.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pmin</td>
<td>0.6</td>
<td>0.9</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Pmax</td>
<td>1.9</td>
<td>4.5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>50</td>
<td>120</td>
</tr>
</tbody>
</table>

The measurement range for types 1 to 3 can be freely selected within the measurement spans taking into account the following restriction (see VC approval):

\[
2.4 \leq \frac{P_{\text{max}}}{P_{\text{min}}} \leq 5
\]

Type 4 is designed only for industrial applications and is not approved for applications subject to official calibration. The measurement range for type 4 can be freely selected within the specified limits.

**Measurement uncertainty:**

\[
\leq \pm 0.3\% \text{ of measurement (at } 20^\circ\text{C)}
\]

\[
\leq \pm 0.5\% \text{ of measurement (0...+40}\,^\circ\text{C)}
\]

**Perm. ambient temperature:** -10...+40 °C (for applications subject to official calibr.)

**Duration of calibr. validity:** 1 year min.

**Output signal:** 4...20 mA

**Explosion protection:** Intrinsically safe: EEx ia IIC T4

**Protection:** IP 65

**System connection:** 6 mm Ermeto or 1/2" NPT internal thread

**Cable gland:** 1/2" NPT to terminal block

**Weight:** approx. 0.9 kg

**Accessories:**

Wall and Pipe Bracket B4, no.: 04107107

Adapter for 1/2" NPT to 6 mm Ermeto, order no.: 03008187
Dimensions of 2088 A:

- **Name-plate**: 71.1 mm
- **Min. 19 mm**
- **Max. 96.5 mm**
- **Required space for removing the cover!**

Sealing plan of 2088 A:

- **Adhesive label for terminal side**
- **Adhesive label for electronic side**
- **Measuring point and calibration label supplemented by:**
  - ELSTER adhesive label (secured with adhesive label)

Replace ELSTER adhesive labels by official labels after initial operation!
Connection assignment for 2088 A:

2088 A

Wall and pipe fixtures for 2088 A:

M8 screws for wall mounting (supplied by customer)

stirrup for 2”/DN50-pipe mounting

mounting screws for attaching pressure sensor
2.4 “Druck - PTX-610”

Pressure sensor type: Absolute Pressure Sensor PTX 610

Fixed measurement ranges in applications subject to official calibrations (bar):

<table>
<thead>
<tr>
<th>Pmin</th>
<th>0.64</th>
<th>0.92</th>
<th>1.6</th>
<th>2.4</th>
<th>4</th>
<th>6.4</th>
<th>10</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pmax</td>
<td>1.6</td>
<td>2.3</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>16</td>
<td>25</td>
<td>40</td>
</tr>
</tbody>
</table>

Fixed measurement ranges - only for use in the industrial sector (bar):

<table>
<thead>
<tr>
<th>Pmin</th>
<th>24</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pmax</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

Measurement uncertainty: ≤ ±0.3% of measurement
Perm. ambient temperature: -10...+40 °C (for applications subject to official calibr.)
Duration of calibr. validity: 2 years
Output signal: 4...20 mA
Explosion protection: intrinsically safe; EEx ia IIC T4
Protection: IP 65
System connection: 6 mm Ermeto
Cable gland: DIN 43650 to terminal block, PG-9
Cable diameter 5-8 mm
Weight: approx. 0.33 kg
Accessories: Wall Bracket, no.: 73013775
Dimensions of PTX 610:

Sealing plan for PTX 610:

supplementary ELSTER label secured with official adhesive label!
Connection assignment for PTX 610:

PTX 610 DIN connector

Volume corrector

P+
P-
earth strip

Connect earth on VC via the EMC cable gland or int. earth strip

core sleeves

Terminal 2 (P-) br

View on connection side

Terminal 1 (P+) wh

core sleeves

Wall mounting for PTX 610:

85

75

30

M10

112

139

67

∅38

∅13
2.5  Pressure sensor accessories

2.5.1 Connecting cables for pressure sensor

There are certain essential conditions for connection which must be observed for systems in the official calibration sector. The following standards apply for cables that are used in intrinsically safe systems:
- DIN VDE 0298 Parts 1 and 3
- DIN VDE 0891 Parts 1, 5 and 6
- Combustion characteristics according to DIN VDE 0472 Part 804, Test Type B
- Electric strength between conductor and screen according to DIN VDE 0165 Section 6.1.3.2.1: min. 500 Vrms.

This results in the following requirements for the connecting cables:

a.) Cables for intrinsically safe circuits (2088 Ex-i, 3051 Ex-i and PTX-610)
- Ex connecting cable for intrinsically safe circuits
- 2-core with screen (min. 60% coverage)
- core thickness $\geq 0.5 \text{ mm}^2$, single strands $\geq 0.1 \text{ mm}^2$
- core colour coding according to DIN 47100
- cable diameter: 5-10 mm for 2088 and 3051, colour bright blue
- cable diameter: 5-8 mm for PTX-610, colour bright blue

  e.g. Order number: 04250829
    - designation: 2x0.75 mm$^2$; sheath LiYCY; sheath colour bright blue (RAL 5015); overall diam. 5.7 mm
  
  or: Order number: 04250123
    - designation: $2 \times 2 \times 0.5\text{ mm}^2$; each with 2 cores joined; sheath LiYCY; sheath colour bright blue (RAL 5015); overall diam. $\leq 8.0$ mm

b.) Cables for Ex-d circuits (1151, 2088 Ex-d and 3051 Ex-d)
- 2-core with screen (min. 60% coverage)
- core thickness $\geq 0.5 \text{ mm}^2$
- core colour coding according to DIN 47100
- cable diameter 8-10 mm

  e.g.: Order number: 04250828
    - designation: $4 \times 1.5 \text{ mm}^2$; each with 2 cores joined; sheath LiYCY; sheath colour light grey (RAL 7032); overall diam. 9.0 mm
2.5.2 Three-way tap

Normally a three-way tap is installed when mounting the pressure sensor in order to be able to test the pressure sensor in the installed condition or to be able to replace a defective sensor without needing to turn off the complete gas line. The three-way taps from ELSTER (special accessory - Order no.: 73008403) have the following construction:

![Three-way tap diagram]

**Explanation:**

"from meter" From the "p, connection" on the gas meter; with dry gas meters the pressure is obtained from the input side of the meter.

"to VC" For connection of the pressure sensor used.

"test connection" Here there is the option of obtaining a test pressure or subjecting the volume corrector pressure sensor to an external pressure.

⚠️ When mounting the three-way tap, it is essential to ensure that the position of the operating lever is checked by noting the direction of flow, because the lever can be removed and may be mounted the wrong way round!

- Working pressure: 100 bar
- Housing: galvanised steel
- Ball: chromium plated
- Seal: polyamide
- Ident. no.: 73008403

Sealing holes in union—nut and tap handle
Meaning of separate positions

Operating position
This is the "normal position" for the three-way tap. The connection from the gas meter to the pressure sensor is open; all other connections are shut off. The three-way tap is sealed in this position. The TC point (test connection) is closed.

Testing with operating pressure
The test connection (TC) is also opened in this position. Another pressure sensor can be connected to this point for a comparison.

Testing with external pressure
The volume corrector pressure sensor can be subjected to an external pressure in this case. It can be used for checking/calibrating the pressure sensor. This can take place with the pressure sensor installed.

Shut-off position
All connections are blocked in each of the 45° operating lever positions. This is required when replacing the pressure sensor for example.
3 Temperature sensors

3.1 The Elster short-form designation

The temperature transducers from ELSTER are identified based on the following short-form designation:

EBL xx y z / a

EBL xx: Nominal installation length in mm (250, 160, 140 or 50 mm);
y: A = Connection head with terminals  K = Fixed cable connection
z: F = Used in sensor pocket  D = Used directly in gas flow
a: EX-I = Intrinsically safe version  EX-D = Flameproof version

Summary of available temperature sensors:

EBL250AF/EX-D  Pg. 24
EBL250AF/EX-I  Pg. 26
EBL160AF/EX-D  Pg. 24
EBL160AF/EX-I  Pg. 27
EBL160KF      Pg. 30
EBL140AF/EX-I  Pg. 28
EBL50AF/EX-I   Pg. 29
EBL50KF        Pg. 31
3.2 Pt100 “EBL160AF/EX-D” and “EBL250AF/EX-D”

Temperature sensor type: Pt100 according to DIN IEC 751
Type of connection: 4-wire technology, used in sensor pocket
Measurement uncertainty: < ±0.1% of measurement
Perm. gas temp. range: -10°C...+60°C
Mech. dimensions: installed length =160/250 mm; system connection: G 1/2”;
Cable connection: DIN EN 50018; cable diam.: 8-10 mm

4x0.75 mm² with core sleeves; screen connection; see Chap. Cable connection
Explosion protection: EEx d II C T6
Order designation: EBL160AF/EX-D; Order no.: 04102001
EBL250AF/EX-D; Order no.: 04102002

Connection assignment (EBL160AF/EX-D and EBL250AF/EX-D):

Circuit diagram

1. 3 yellow (I+)
2. 4 white (U+)
3. 1 brown (U-)
4. 2 green (I-)
Dimensions (EBL160AF/EX-D and EBL250AF/EX-D):

Sealing plan (EBL160AF/EX-D and EBL250AF/EX-D):

Replace ELSTER labels by official labels after initial operation!
3.3 Pt100 “EBL250AF/EX-I”

**Temperature sensor type:** Pt100 according to 1/3 DIN Cl. B

**Type of connection:**
- 4-wire technology
- Used in sensor pocket with installed length = 250 mm

**Measurement uncertainty:** ≤ ±0.1% of measurement

**Perm. gas temp. range:** -10°C...+60°C

**Mech. dimensions:**
- Installed length = 250 mm;
- System connection: G 1/2";

**Cable connection:**
- PG 9 for cable diameter 5-8 mm, 4x0.75 mm² with core sleeves;
- Screen connection; see Chap. Cable connection

**Explosion protection:** EEx ib II C T6

**Order designation:** EBL250AF/EX-I; Order no.: 73014885

**Dimensions and sealing plan (EBL250AF/EX-I):**

---

**Diagram:**
- Elster seal for clamped cover
- EMC cable entry for PG9
- Sealing of housing with temperature pocket
- Calibration label for sealing the name-plate (see below)
- Cover seal (ELSTER seal)
- ELSTER seals must be replaced by official seals after initial operation!
3.4 Pt100 “EBL160AF/EX-I”

Temperature sensor type: Pt100 according to 1/3 DIN Cl. B
Type of connection: 4-wire technology
Used in sensor pocket with installed length = 160 mm
Measurement uncertainty: ≤ ±0.1% of measurement
Perm. gas temp. range: -10°C...+60°C
Mech. dimensions: installed length =160 mm;
system connection: G 1/2”;
Cable connection: PG 9 for cable diameter 5-8 mm, 4x0.75 mm² with core sleeves;
screen connection; see Chap. Cable connection
Explosion protection: EEx ib II C T6
Order designation: EBL160AF/EX-I; Order no.: 73014105

Dimensions and sealing plan (EBL160AF/EX-I):

![Diagram of the sensor](image.png)

ELSTER seals must be replaced by official seals after initial operation!
3.5 Pt100 “EBL140AF/EX-I”

Temperature sensor type: Pt100 according to 1/3 DIN Cl. B
Type of connection: 4-wire technology
Used direct in gas flow; PN 16
Measurement uncertainty: ≤ ±0.1% of measurement
Perm. gas temp. range: -10°C...+60°C
Mech. dimensions: installed length =140 mm;
system connection: G 3/4”;
Cable connection: PG 9 for cable diameter 5-8 mm, 4x0.75 mm²
with core sleeves;
screen connection; see Chap. Cable connection
Explosion protection: EEx ib II C T6
Order designation: EBL140AF/EX-I; Order no.: 73014103

Dimensions and sealing plan (EBL140AF/EX-I):

ELSTER seals must be replaced by official seals after initial operation!
3.6 Pt100 “EBL50AF/EX-I”

Temperature sensor type: Pt100 according to 1/3 DIN Cl. B
Type of connection: 4-wire technology
Used in sensor pocket with installed length = 50 mm
Measurement uncertainty: ≤ ±0.1% of measurement
Perm. gas temp. range: -10°C...+60°C
Mech. dimensions: installed length =50 mm; system connection: M10x1 mm;
Cable connection: PG 9 for cable diameter 5-8 mm, 4x0.75 mm² with core sleeves; screen connection; see Chap. Cable connection
Explosion protection: EEx ib II C T6
Order designation: EBL50AF/EX-I; Order no.: 73014104

Dimensions and sealing plan (EBL50AF/EX-I):

![Diagram of sensor dimensions and sealing plan]

ELSTER seals must be replaced by official seals after initial operation!
3.7 Pt100 "EBL160KF"

**Temperature sensor type:** Pt100 according to DIN IEC 751

**Type of connection:** 4-wire technology

Used in sensor pocket with installed length = 160 mm

**Measurement uncertainty:** \( \leq \pm 0.1\% \) of measurement

**Perm. gas temp. range:** -10°C...+60°C

**Explosion protection:** Only for use outside Ex Zone 2

**Order designation:** EBL160KF; Order no.: 73012554

**Cable connection:** Cu cores, type: LIFTCY

2x2x0.2mm connection length: 2.5m

Extendible via Ex terminal box (Order No.: 73010430)

**Dimensions and sealing plan:**

![Diagram showing dimensions and sealing plan]
3.8 Pt100 “EBL50KF”

Temperature sensor type: Pt100 according to DIN IEC 751
Type of connection: 4-wire technology
Used in sensor pocket with installed length = 50 mm
Measurement uncertainty: ≤ ±0.1% of measurement
Perm. gas temp. range: -10°C...+60°C
Explosion protection: Only for use outside Ex Zone 2
Order designation: EBL50KF; Order no.: 73012553
Cable connection: Cu cores, type: LIFTCY
2x2x0.2mm connection length: 2.5m
Extendible via Ex terminal box (Order No.: 73010430)

Dimensions and sealing plan:
3.9 Temperature sensor accessories

3.9.1 Temperature pockets EBL160 and EBL50

The temperature sensor must be installed in a thermometer pocket on the gas meter. If no pocket is available, then with turbine and dry gas meters, the temperature sensor should be mounted up to 3D (but a maximum of 600 mm) after the meter and with rotary piston gas meters it should be mounted up to 2D before the meter (D = pipe diameter).

Various pockets are available for the installation depending on the pipe diameter:

a.) Temperature pockets in Elster meter housings

| Temperature measurement point in Elster meter housing |
|---------------------------------------------|---------------------------------------------|
| DN (housing/meas. cartridge) (PN;ANSI) | Type (installed length in mm) | Order no. (pocket) |
| 80 / 50 PN 10 to ANSI 600 | EBL 58 | 73013524 |
| 80 PN 10 to ANSI 600 | EBL 45 | 73013410 |
| 100/80 PN 10 to ANSI 600 | EBL 58 | 73013524 |
| 100 PN 10 to ANSI 600 | EBL 50 | 73012556 |
| 150/100 PN 10 to ANSI 600 | EBL 67 | 73013525 |
| 150 PN 10 to ANSI 600 | EBL 50 | 73012556 |
| 200/150 PN 10 to ANSI 600 | EBL 67 | 73013525 |
| 200 PN 10/16; ANSI 300/600 | EBL 58 | 73013524 |
| 200 PN 25/40; ANSI 300/600 | EBL 67 | 73013525 |
| >250 PN10 to ANSI 600 | EBL 160 | 73011620 |

The described pockets are supplied together with the meter.
### Temperature pockets for pipes

<table>
<thead>
<tr>
<th>DN</th>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>Order no. (pocket)</th>
</tr>
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<tbody>
<tr>
<td>40</td>
<td>EBL 50</td>
<td>23</td>
<td>50</td>
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<td>EBL 58</td>
<td>23</td>
<td>58</td>
<td>73013524</td>
</tr>
<tr>
<td>80</td>
<td>EBL 67</td>
<td>23</td>
<td>67</td>
<td>73013525</td>
</tr>
<tr>
<td>80</td>
<td>EBL 160</td>
<td>68</td>
<td>142</td>
<td>73011620</td>
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<tr>
<td>100</td>
<td>EBL 160</td>
<td>56</td>
<td>142</td>
<td>73011620</td>
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<tr>
<td>&gt;150</td>
<td>EBL 160</td>
<td>34</td>
<td>142</td>
<td>73011620</td>
</tr>
</tbody>
</table>

**Temperature pocket for EBL160**

The pocket is suitable for PT100 temperature probes with an installation length (EBL) of 160 mm. It consists of the temperature pocket, the seal and the welding sleeve (article number for the complete pocket: 73012100). The welding sleeve is suitable for a pipe diameter from DN 80 upwards.

**Important:**

For acceptance of the system a second pocket is normally required for the comparison measurement. Also, it must be ensured that this pocket is fitted displaced from the sensor temperature pocket (note the size of the connecting head).
Temperature pocket for EBL45-67

The pocket is suitable for Pt-100 temperature probes with an installation length of 50 mm. The complete pocket (article no.: 73012634) consists of the temperature pocket, the seal and the welding sleeve.

The welding sleeve is suitable for pipe diameters from DN 40 to DN 80. The maximum system operating pressure must not exceed 16 bar for this welding sleeve.

Important:
For acceptance of the system a second pocket is normally required for the comparison measurement. Also, it must be ensured that this pocket is fitted displaced from the sensor temperature pocket (note the size of the connecting head).

3.9.2 Connecting cables for the temperature sensor

There are certain connection conditions for systems subject to official calibration and it is essential that they are observed. The following standards apply to cables that are used in intrinsically safe systems:
- DIN VDE 0298 Parts 1 and 3
- DIN VDE 0891 Parts 1, 5 and 6
- Combustion characteristics according to DIN VDE 0472 Part 804, Test Type B
- Electric strength between conductor and screen according to DIN VDE 0165 Section 6.1.3.2.1: min. 500 Vrms.

This results in the following requirements for the connecting cables:
a.) Cables for intrinsically safe circuits (e.g.: EBL160AF/EX-I)
- Ex connecting cable for intrinsically safe circuits
- 4-core with screen (min. 60% coverage)
- core thickness ≥ 0.5 mm², single strands ≥ 0.1 mm²
- core colour coding according to DIN 47100
- overall cable diameter: 5-8 mm, colour bright blue
- from 50 m cable length see Chap. Cable connection.

  e.g. Order number: **04250123**
  - designation: 2x2x0.5 mm²; sheath LiYCY; sheath colour bright blue (RAL 5015); overall diam. ≤ 8.0 mm

b.) Cable for Ex-d circuits (e.g.: EBL160AF/EX-D)
- 4-core with screen (min. 60% coverage)
- core thickness ≥ 0.5 mm²
- core colour coding according to DIN 47100
- overall cable diameter 8-10 mm
- from 50 m cable length see Chap. Cable connection.

  e.g.: Order number: **04250124**
  - designation: 2x2x0.5 mm²; stranded in pairs; sheath LiYCY; sheath colour light grey (RAL 7032); overall diam. 9.0 mm

  or Order number: **04250828**
  - designation: 4x1.5 mm²; sheath LiYCY; sheath colour light grey (RAL 7032); overall diam. 9.0 mm