Multipoint thermometer in band design
Models TR95-A-B, TC95-A-B, with thermowell
Models TR95-B-B, TC95-B-B, without thermowell

Applications
- Chemical and petrochemical industry
- Measurement of temperature layerings or hotspots in reactors
- Fuel depots

Special features
- Versions to customer specification
- Various process connections
- Exchangeable measuring inserts
- Application in conjunction with a thermowell
- Explosion-protected versions Ex i, Ex n and NAMUR NE24

Description
Multipoint thermometers are often used for measuring temperature profiles in reactors or fuel depots or for the detection of the so-called "hotspots".

The so-called multipoint thermometer in band design is a common construction. In this design, several, if required, exchangeable thermocouples or resistance thermometers are linearly arranged on a guide band.

To achieve rapid response times, the individual measuring points are pressed by pressure springs to the internal side of the thermowell which forms a single entity with the thermometer or which can ideally be an already existing component of the reactor. Connection terminals or temperature transmitters are placed in the connection housing which is either a component of the multipoint thermometer or can be mounted separately, e.g. on a wall or pipeline.
Specifications

Versions
- Model Tx95-A-B: with thermowell
- Model Tx95-B-B: without thermowell

Materials
- Stainless steel 316L or 1.4571
- Special alloys or carbon steels as thermowell material

Process connection
- Flanges of all major national and international standards
- Threaded connections with male or female threads to customer specifications
- High pressure connections, such as sealing cone or lens-type sealing ring to customer specifications

Sensors TC95-x-B
- Thermocouples as sheathed cable installation
- Single, double element
- Measuring point ungrounded or grounded
- For details, see data sheet TE 65.40 of the cable thermocouple model TC40

Sensors TR95-x-B
- PT100 class A or B as sheathed cable installation
- Single, double sensor
- For details, see data sheet TE 60.40 of the cable resistance thermometer model TR40

Shipping
- Model Tx95-A-B with thermowell:
  In wooden box with lengths of up to 12 metres

- Model Tx95-B-x without thermowell:
  In wooden box, depending on design straight or rolled
Base elements of a multipoint thermometer

A multipoint thermometer can be basically divided into 5 individual assemblies which are described separately from each below:

**Multipoint thermometer without thermowell (for installation in a thermowell)**

**Multipoint thermometer with integrated thermowell**
Dimensions in mm

Thermowell (option)

In multipoint thermocouples Tx95-A-B in band design, the thermowell, depending on detailed specifications, is guided through the flange and thus takes over the function of the neck tube. Each multipoint thermometer Tx95-A-B and the suitable thermowell is designed and manufactured according to individual customer specifications.

Tube dimensions Ø F₁ x s
- 48.3 x 3.2 mm
- 48.3 x 5.1 mm
- 48.3 x 7.1 mm
- 60.3 x 5.5 mm

Insertion length U
freely selectable (max. 10 m)

Material
Stainless steel 316
Stainless steel 316L
Stainless steel 1.4571 (316TI)

Process connection

In multipoint thermocouples Tx95-A-B in band design, the thermowell, depending on detailed specifications, is guided through the flange and thus takes over the function of the neck tube. Each multipoint thermometer Tx95-A-B and the suitable thermowell is designed and manufactured according to individual customer specifications.

Flange designs

Flanges in accordance with applicable standards, such as ANSI/ASME B16.5, EN 1092-1, DIN 2527 or to customer specification

<table>
<thead>
<tr>
<th>Standards</th>
<th>Flange design</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASME B16.5</td>
<td>Nominal width: 2...4&quot;</td>
</tr>
<tr>
<td></td>
<td>Pressure rating: class 150 ... 2,500</td>
</tr>
<tr>
<td>EN 1092-1/DIN 2527</td>
<td>Nominal width: DN 50 ... DN 200</td>
</tr>
<tr>
<td></td>
<td>Pressure rating: PN 16 ... PN 100</td>
</tr>
</tbody>
</table>

Each multipoint thermometer model Tx95-x-B is designed and manufactured according to individual customer specifications.
Each multipoint thermometer model Tx95-x-B is designed and manufactured according to individual customer specifications. Skid design with 18 mm band width in conjunction with small thermowell inner diameters.
### Neck tube

#### Straight tube design

- **Tube dimension**: 60.3 x 5.5 mm
- **Length N**: 250 mm or longer

#### Separable threaded connection (rotatable)

- **Tube dimension**: 60.3 x 5.5 mm
- **Length N**: 250 mm or longer

### Version

<table>
<thead>
<tr>
<th>Version</th>
<th>Tube dimension</th>
<th>Length N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight tube design</td>
<td>60.3 x 5.5 mm</td>
<td>250 mm or longer</td>
</tr>
<tr>
<td>Separable threaded connection</td>
<td>60.3 x 5.5 mm</td>
<td>250 mm or longer</td>
</tr>
<tr>
<td></td>
<td>80 mm flats</td>
<td></td>
</tr>
</tbody>
</table>

Each multipoint thermometer model Tx95-x-B is designed and manufactured according to individual customer specifications.
The actual wiring can deviate from the illustration in the data sheet.

The terminal enclosure dimensions can deviate from the illustration in the data sheet.

<table>
<thead>
<tr>
<th>Connection options in the terminal enclosure</th>
<th>Terminal enclosure dimensions in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ca. 160 x 160</td>
</tr>
<tr>
<td>Connection terminals</td>
<td>up to 10 MP</td>
</tr>
<tr>
<td>Transmitters</td>
<td>up to 4 MP</td>
</tr>
<tr>
<td>Transmitter on terminal</td>
<td>up to 3 MP</td>
</tr>
<tr>
<td>Terminal on transmitter on terminal</td>
<td>up to 2 MP</td>
</tr>
</tbody>
</table>

**Materials:** plastic or aluminium

**Note:** Depending on the manufacturer, the terminal enclosure dimensions can deviate from the data sheet values.

Each multipoint thermometer model Tx95-x-B is designed and manufactured according to individual customer specifications. In multipoint thermometers with explosion protection, the terminal enclosure dimensions can deviate considerably from the data sheet specifications, depending on design.
Position of the measuring points

Legend:
- \( l_g \): Length of the guide band
- MP1: Position of the 1st measuring point
- MP2: Position of the 2nd measuring point
- MP3: Position of the 3rd measuring point
- MP10: Position of the 10th measuring point