

## Data sheet

# Temperature sensor

## Type MBT 3270

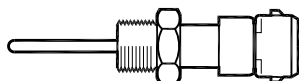


The flexible temperature sensor MBT 3270 can be used in many industrial applications such as: Air Compressors, Mobile Hydraulics and Exhaust gas return systems. In other words applications where robustness, size and performance are essentials.

The sensor can be equipped with different sensing elements (RTD, NTC and PTC) and is available with different electrical connections (Cable, Delphi Metri Pack, AMP junior power Timer, Deutch DT04).

**Features**

- OEM Temperature Sensor program
- Various sensor elements available (RTD, NTC, PTC)
- Robust, high protection against moisture
- Fixed measuring insert
- Brass or stainless steel
- Very low response times
- Temperature range up to 300 °C
- Available with cable or integrated plug (Delphi Metri Pack, AMP junior power Timer, Deutch DT04)

**Technical data,  
Integrated Plug version**

**General data**

|                        |                        |  |
|------------------------|------------------------|--|
| Ambient temperature    | Plug                   | -40 °C – 125 °C  |
| Media temperature      | Pt 1000, Pt 100<br>NTC | -50 °C – 300 °C<br>-50 °C – 150 °C,<br>special versions up to 300 °C |
|                        | PTC                    | -50 °C – 150 °C  |
| Max. external pressure | Operating pressure     | 500 bar  |
|                        | Burst pressure         | > 900 bar  |
| Max. tightening torque | M10                    | 17 Nm  |
|                        | M14                    | 24 Nm  |

**Performance**

|                         |   |
|-------------------------|---|
| Sensor Element          | Pt 100, Pt 1000, NTC, PTC   |
| Process Connection      | Refer to ordering standard page 3   |
| Sensor insertion length | Max 100 mm  |
| Electrical Connection   | AMP Junior Power Timer<br>Delphi Metri Pack<br>Deutsch DT04<br>Other on request |
| Connection              | 2-wire  |

**Indicative response times**

| Material protection tube | Protection tube | Indicative response times |           |
|--------------------------|-----------------|---------------------------|-----------|
|                          |                 | Water 0,2 m/s             |           |
|                          |                 | $t_{0,5}$                 | $t_{0,9}$ |
| Stainless Steel          | ø6 mm           | 6.0 s                     | 18 s      |
|                          | ø4 mm           | 2.0 s                     | 6.0 s     |
|                          | ø3 mm           | 0.5 s                     | 1.5 s     |

Response times can vary very much depending on the design of the sensor and the temperature element chosen.

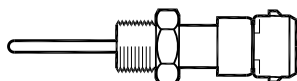
**Mechanical and environmental specifications**

|                     |   |   |
|---------------------|---|---|
| Sensor Tolerances   | Pt 1000 / Pt 100<br>NTC<br>PTC 2000 (KTY 81 – 210)          | EN 60751 Class B<br>On request<br>± 1% at 25 °C |
| Vibration stability | Shock   | 50 g / 6 ms                                     |
|                     | Vibrations, x-y-z directions                                | 15.3 g sine, 20 – 2000 Hz, 8 hours              |
| Enclosure           | AMP Junior Power Timer<br>Delphi Metri Pack<br>Deutsch DT04 | IP65 according to IEC 60529                     |

**Materials**

|                                       |                               |
|---------------------------------------|-------------------------------|
| Protection tube in contact with media | AISI 316<br>Brass             |
| Process connection                    | AISI 316<br>Brass             |
| Gasket                                | Viton, NBR (other on request) |
| Plug                                  | PPS (Ryton 4)                 |

Ordering standard  
Integrated Plug version



| Type MBT 3270                        |       |
|--------------------------------------|-------|
| <b>Measuring range</b>               |       |
| -50 – 150 °C                         | 0     |
| -50 – 200 °C                         | 1     |
| -50 – 300 °C                         | 2     |
| Other                                | 9     |
| <b>Resistance value</b>              |       |
| 1 × Pt 100                           | 0     |
| 1 × Pt 1000                          | 2     |
| NTC 2000, B25/85 2880 - 4570         | 6     |
| NTC 2700, B25/85 2880 - 4570         | K     |
| NTC 3000, B25/50 3499                | A     |
| NTC 5000, B25/100 3988               | L     |
| Other (e.g. NTC)                     | 9     |
| <b>Tolerance</b>                     |       |
| EN 60751 Class B                     | 0     |
| ± 1%                                 | 1     |
| ± 2%                                 | 2     |
| ± 3%                                 | 3     |
| Other                                | 9     |
| <b>NTC characteristic</b>            |       |
| No NTC                               | 0     |
| Other                                | 9     |
| <b>Protection tube</b>               |       |
| Brass                                | 0     |
| Acid-Proof Steel, AISI 316           | 1     |
| Other                                | 9     |
| <b>Insertion length (100 mm max)</b> |       |
| 24 mm                                | 0 2 4 |
| 28 mm                                | 0 2 8 |
| 40 mm                                | 0 4 0 |
| Other (21 – 100)                     | x x x |
| <b>Connection</b>                    |       |
| 2-wire                               | 0     |
| Other                                | 9     |
| <b>Plug</b>                          |       |
| None                                 | 0     |
| AMP Junior Power Timer               | 3     |
| Delphi Metri-pack Integrated – 102   | 4     |
| Deutsch Integrated DT04 – 2 pin      | C     |
| Other                                | 9     |
| <b>Insert</b>                        |       |
| Fixed                                | 0     |
| <b>Process connection</b>            |       |
| G ¼ A                                | 0     |
| G ⅜ A                                | 1     |
| G ½ A                                | 2     |
| M10 × 1                              | 3     |
| M14 × 1.5                            | B     |
| Other                                | 9     |

Electrical connections

| Deutsch DT04 | AMP Junior Power Timer | Delphi Metri Pack 102 |
|--------------|------------------------|-----------------------|
|              |                        |                       |

**Technical data,  
Cable version**
*General data*

|                        |       |   |   |
|------------------------|-------|---|---|
| Ambient temperature    | Cable | PVC<br>Silicon<br>Teflon<br>Polyolefin (oil resistant)                          | -40 °C – 100 °C<br>-40 °C – 200 °C<br>-40 °C – 200 °C<br>-40 °C – 150 °C                |
|                        | Plug  | AMP spade<br>AMP Junior Power Timer<br>Delphi Metri Pack 102<br>Deutsch DT04-3P | -40 °C – 200 °C<br>-40 °C – 125 °C<br>-40 °C – 125 °C<br>-40 °C – 125 °C                |
| Media temperature      |       | Pt 100<br>NTC<br><br>PTC  | -50 °C – 300 °C<br>-50 °C – 150 °C,<br>special versions up to 300 °C<br>-50 °C – 150 °C |
| Max. external pressure |       | Operating pressure  | 500 bar   |
|                        |       | Burst pressure  | > 900 bar   |
| Max. tightening torque |       | M10   | 17 Nm   |
|                        |       | M14   | 24 Nm   |

*Performance*

|                       |   |
|-----------------------|---|
| Sensor element        | Pt 100, Pt 1000, NTC, PTC   |
| Process connection    | Refer to ordering standard page 5   |
| Insertion length      | Max 100 mm  |
| Electrical connection | Stripped wire ends<br>Cable with AMP spade (6.35)<br>Cable with AMP Junior Power Timer<br>Cable with Delphi Metri Pack 102<br>Cable with Deutsch DT04-3P-2P<br>Other on request |
| Connection            | 2, 3 or 4 wire (depending on electrical connection)   |

*Indicative response times*

| Material protection tube | Protection tube | Indicative response times |           |
|--------------------------|-----------------|---------------------------|-----------|
|                          |                 | Water 0,2 m/s             |           |
|                          |                 | $t_{0.5}$                 | $t_{0.9}$ |
| Stainless Steel          | ø6 mm           | 6 s                       | 18 s      |
|                          | ø4 mm           | 2 s                       | 6 s       |
|                          | ø3 mm           | 0.5 s                     | 1.5 s     |

Response times can vary very much depending on the design of the sensor and the temperature element chosen.

**Mechanical and environmental specifications**

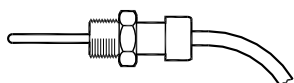
|                     |   |   |
|---------------------|---|---|
| Sensor tolerances   | Pt 1000 / Pt 100<br>NTC<br>PTC 2000 (KTY 81 – 210)  | EN 60751 Class B: $\pm (0,3 + 0,005 \times t)$<br>On request<br>$\pm 1\%$ at 25° C  |
| Vibration stability | Shock   | 50 g / 6 ms   |
|                     | Vibrations, x-y-z directions  | 15.3 g sine, 20 – 2000 Hz, 8 hours  |
| Enclosure           | Sensor only<br>Cable with AMP spade<br>Cable with AMP Junior Timer<br>Cable with Delphi Metri Pack 102<br>Cable with Deutsch DT04 | IP67 according to IEC 60529<br>IP00 according to IEC 60529<br>IP65 according to IEC 60529<br>IP65 according to IEC 60529<br>IP65 according to IEC 60529 |

**Materials**

|                                       |   |
|---------------------------------------|---|
| Protection tube in contact with media | AISI 316<br>Brass                       |
| Process connection                    | AISI 316<br>Brass                       |
| Cable                                 | PVC, Silicon, Teflon (Other on request) |
| Gasket                                | Viton, NBR (Other on request)           |
| Plug                                  | PPS (Ryton 4)                           |

Ordering standard

Cable version



| Type MBT 3270                        |     |     |                                |
|--------------------------------------|-----|-----|--------------------------------|
| <b>Measuring range</b>               |     |     | <b>Cable length</b>            |
| -50 – 150 °C                         | 0   | 050 | 0.5 m                          |
| -50 – 200 °C                         | 1   | 100 | 1.0 m                          |
| -50 – 300 °C                         | 2   | 200 | 2.0 m                          |
| Other                                | 9   | xxx | x.x m                          |
| <b>Resistance value</b>              |     |     | <b>Cable</b>                   |
| 1 × Pt 100                           | 0   | 1   | Silicone                       |
| 1 × Pt 1000                          | 2   | 2   | Silicone, screened             |
| NTC 2000, B25/85 2880 - 4570         | 6   | 3   | Teflon                         |
| NTC 2700, B25/85 2880 - 4570         | K   | 4   | Teflon, screened               |
| NTC 3000, B25/50 3499                | A   | 5   | PVC                            |
| NTC 5000, B25/100 3988               | L   | 6   | PVC, screened                  |
| Other (e.g. NTC)                     | 9   | 7   | Polyolefine, screened          |
|                                      |     | 8   | Polyolefine, screened 80 °C    |
|                                      |     | 9   | Other                          |
| <b>Tolerance</b>                     |     |     | <b>Connection</b>              |
| EN 60751 Class B                     | 0   | 0   | 2-wire                         |
| ± 1%                                 | 1   | 1   | 3-wire                         |
| ± 2%                                 | 2   | 2   | 4-wire                         |
| ± 3%                                 | 3   |     |                                |
| Other                                | 9   |     |                                |
| <b>NTC characteristic</b>            |     |     | <b>Plug</b>                    |
| No NTC                               | 0   | 0   | None                           |
| Other                                | 9   | 1   | AMP (Spade 6.35)               |
|                                      |     | 3   | AMP Junior Power Timer         |
|                                      |     | 5   | Deutsch Flying DT04 – 3 pin    |
|                                      |     | D   | Deutsch Flying DT04 – 2 pin    |
|                                      |     | E   | Delphi Metri Pack flying – 102 |
|                                      |     | 9   | Other                          |
| <b>Protection tube</b>               |     |     | <b>Insert</b>                  |
| Brass                                | 0   | 0   | Fixed                          |
| Acid-Proof Steel, AISI 316           | 1   |     |                                |
| Other                                | 9   |     |                                |
| <b>Insertion length (100 mm max)</b> |     |     | <b>Process connection</b>      |
| 24 mm                                | 024 | 0   | G ¼ A                          |
| 28 mm                                | 028 | 1   | G ⅜ A                          |
| 40 mm                                | 040 | 2   | G ½ A                          |
| Other (21 – 100)                     | xxx | 3   | M10 × 1                        |
|                                      |     | B   | M14 × 1.5                      |
|                                      |     | 9   | Other                          |

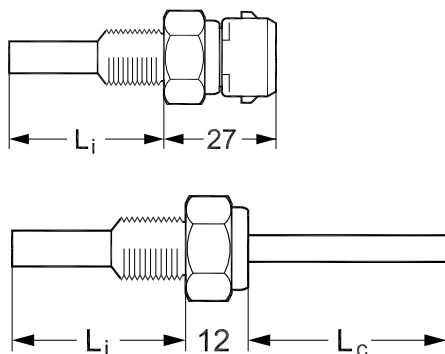
Electrical connections

| AMP spade (6.35) | AMP Junior Power Timer | Deutsch DT04 3 pin | Deutsch DT04 2 pin | Delphi Metri Pack 102 |
|------------------|------------------------|--------------------|--------------------|-----------------------|
|                  |                        |                    |                    |                       |

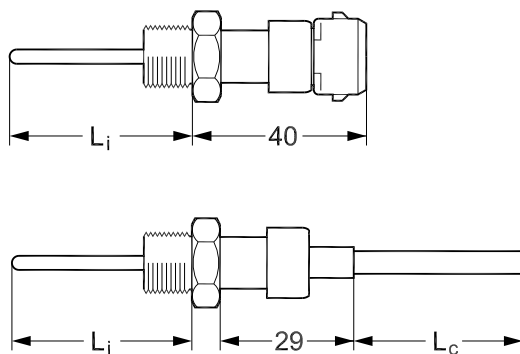
Dimensions

Examples

-50 – 150 °C



-50 – 150 °C / 300 °C



Insertion length:

$L_i = 21$  to xx (max.100 mm)

Cable length:

$L_c = 0.5$  m to x.xx m

Tube diameter depends on the chosen sensor element and the wanted response time.