

## Resistance thermometer Pt100 with weld-in thermowell Type Series GA252 .



### Application area

- Chemical and petrochemical industry
- Machinery construction
- General process technology

### Features

- Resistance thermometer with weld-in thermowell DIN 43772 model 4 or custom-made design
- Pt100 connection in 3- or 4-wire technology
- Measuring insert 1 x Pt100 or 2 x Pt100
- Measuring insert interchangeable

### Options

- Explosion protection
- Classification per SIL 2
- Transmitter can be integrated
- Measuring insert for In-process calibration

### Application

The resistance thermometer with weld-in thermowell is suited for operation on tanks and pipes. Weld-in thermowells per DIN 43772 model 4 or custom-made versions are available. Because of its robust design it is suitable for use in a great number of technological processes. The resistance thermometer can be supplied with a built in transmitter. A variety of transmitters for head mounting is available for different applications.

For In-process calibration the integration of a special measuring insert with additional test pipe is possible (data sheet T4-025-45, Type GA3100, reference sensor: data sheet T4-025-46, Type GA3110).

## Technical Data

### Mechanical design

Measuring insert interchangeable with connection head and neck-tube

### Connection head

selective

- model B, cap with 2 slotted screws, mat. aluminium, IP 54
  - model BUZH, high spring cover with slotted screw, mat. aluminium, IP 65
  - field housing Ø 60 mm, screw cap, stainless steel mat.-no. 1.4305 (303), IP 67
- further connection heads upon request

### Neck tube

stainless steel mat.no. 1.4571 (316Ti)  
neck tube Ø 9 mm  
reinforced design Ø 11 mm  
length and connection see order details

### Measuring insert

material stainless steel, interchangeable, DIN 43735.  
length of measuring insert  $l_s$  = thermowell length  $L$  + 10 mm +  $M$ .  
Ø of meas. insert 6 mm  
resistor Pt 100 according to DIN EN 60751  
Optional: Measuring insert with connection socket per DIN 43735 and with additional test pipe for In-process calibration.  
Material: stainless steel, mat.-no. 1.4571 (316 Ti) (see data sheet T4-025-45)

### Type of sensor/class/circuit

see order details

### Ex-approval

BVS 04 ATEX E 144 X

Ex II 2G Ex ia IIC T4/T6 Gb

$U_i \leq 30$  V

$P_i \leq 200$  mW

More technical information see XA\_002

For In-process calibration:

IBExU 13 ATEX 1017 X

Ex II 2G Ex ia IIC T6-T1 Gb

$U_i \leq 30$  V

$P_i \leq 750$  mW

$L_i$  max. 10  $\mu$ H/m

$C_i$  max. 500 pF/m

More technical information see XA\_003.

### Functional safety

per EN 61508, classification per SIL 2;  
without transmitter, only

### Accuracy of the measuring resistor

class A according to DIN EN 60751

### Thermowell

weld-in thermowell acc. to DIN 43772 model 4 or custom-made design  
applications and materials see order code  
option: certification of material testing per DIN EN 10204

Upon request a calculation for thermowells can be made (for static or dynamic application) with certificate.

### Integration of transmitter

suitable Pt 100 transmitters can be integrated into the connection head.

Options:

a) instead of terminal block

b) mounting in the spring cover of the connection head BUZH

see product group T4 for analog or digital transmitters

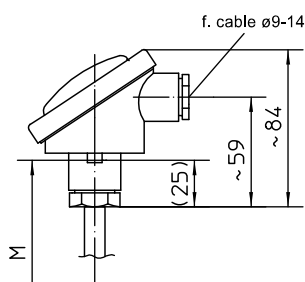
### LED-on-site indication

programmable LED-on-site indication for stainless steel field housing (Ø 60 mm), see data sheet M6-031.

## Dimensions

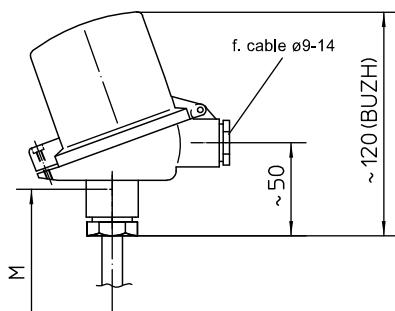
### Connection heads

model B, cap with  
2 slotted screws  
mat. aluminium, IP 54



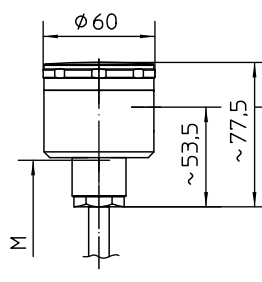
up to sealing surface

model BUZH, high spring cover  
with slotted screw,  
mat. aluminium, IP 65

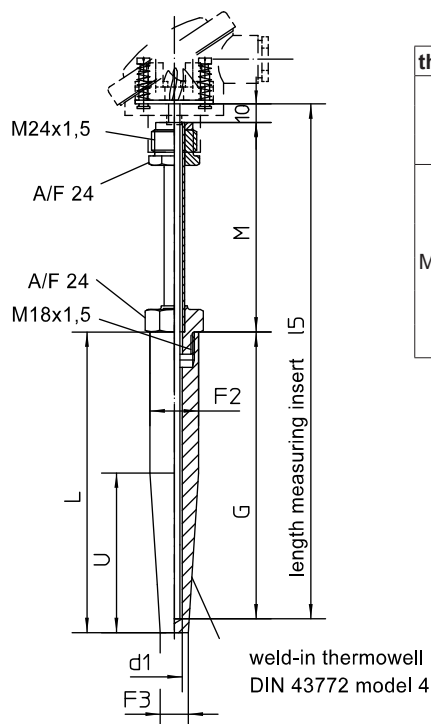
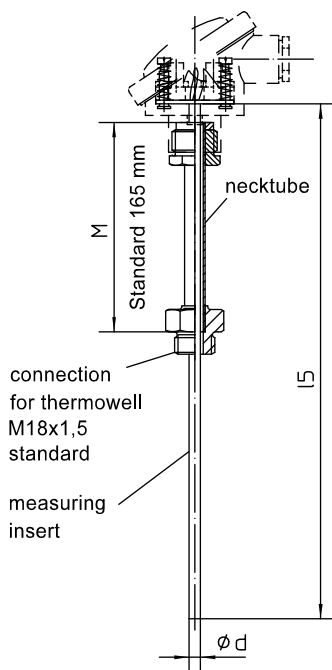
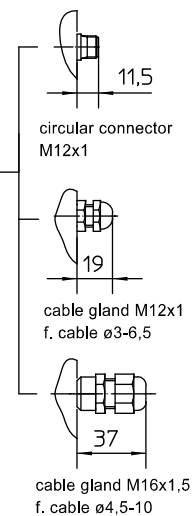


up to sealing surface

connection head field housing,  
screw cap,  
mat. stainless steel, IP 67



up to sealing surface



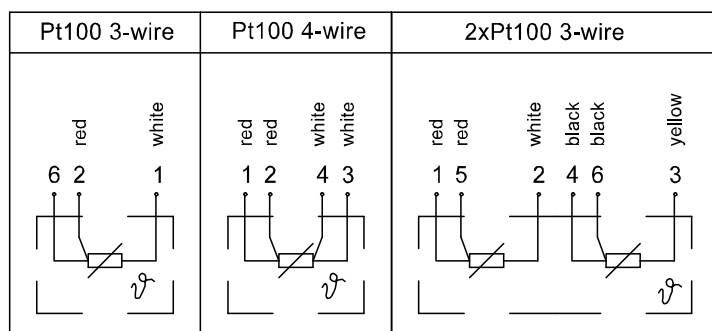
length measuring insert  $I5 = L + 10 + M$

thermowell length DIN 43772, model 4

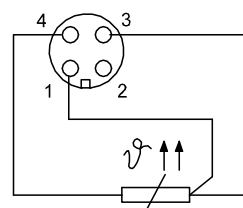
| N         | L   | G   | U   | F2   | F3   | d1 |
|-----------|-----|-----|-----|------|------|----|
|           | +2  | +1  | +2  |      |      |    |
|           | 0   | 0   | 0   |      |      |    |
| M18 x 1.5 | 110 | 105 | 65  | 24h7 | 12.5 | 7  |
|           | 140 | 135 | 65  |      |      |    |
|           | 170 | 165 | 133 |      |      |    |
|           | 200 | 195 | 65  |      |      |    |
|           | 200 | 195 | 125 |      |      |    |
|           | 260 | 255 | 125 |      |      |    |

## Connection diagram

### connection head



### circular connector M12x1



## Order details

| Resistance thermometer Pt100 with weld-in thermowell                                                  |                                                                                                                                                                |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    |         |     |     |  |  |  |
|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------|-----------------------------------------------|-----------------|--|-----------|--|--|--------|---------------|--------------------|---------|-----|-----|--|--|--|
| design                                                                                                | · with weld-in thermowell                                                                                                                                      |                                                               |                 |                                               |                 |  |           |  |  |        | GA252         | .                  |         |     |     |  |  |  |
| ex-protection                                                                                         | · without                                                                                                                                                      |                                                               |                 |                                               |                 |  |           |  |  |        | 0             |                    |         |     |     |  |  |  |
|                                                                                                       | · explosion protection, type of ex-protection s. below                                                                                                         |                                                               |                 |                                               |                 |  |           |  |  |        | 1             |                    |         |     |     |  |  |  |
| with neck tube                                                                                        | · to connection head M24x1.5                                                                                                                                   |                                                               |                 |                                               |                 |  |           |  |  |        | A23           | .....              |         |     |     |  |  |  |
|                                                                                                       | · to thermowell M18x1.5                                                                                                                                        |                                                               |                 |                                               |                 |  |           |  |  |        | 17            |                    |         |     |     |  |  |  |
|                                                                                                       | neck tube Ø                                                                                                                                                    | 9 mm, standard                                                |                 |                                               |                 |  |           |  |  |        |               | 1                  |         |     |     |  |  |  |
|                                                                                                       |                                                                                                                                                                | 11 mm, reinforced design                                      |                 |                                               |                 |  |           |  |  |        |               | 2                  |         |     |     |  |  |  |
|                                                                                                       |                                                                                                                                                                | varying                                                       |                 |                                               |                 |  |           |  |  |        |               | 9                  |         |     |     |  |  |  |
|                                                                                                       | length neck tube                                                                                                                                               | M = 165 mm                                                    |                 |                                               |                 |  |           |  |  |        |               | 2                  |         |     |     |  |  |  |
|                                                                                                       |                                                                                                                                                                | varying                                                       |                 |                                               |                 |  |           |  |  |        |               | 9                  |         |     |     |  |  |  |
|                                                                                                       | mat. neck tube                                                                                                                                                 | stainless steel mat.-no. 1.4571 (316Ti)                       |                 |                                               |                 |  |           |  |  |        |               | 1                  |         |     |     |  |  |  |
| varying                                                                                               |                                                                                                                                                                |                                                               |                 |                                               |                 |  |           |  |  | 9      |               |                    |         |     |     |  |  |  |
| weld-in thermowell<br>DIN 43772, model 4                                                              | dimensions thermowell                                                                                                                                          |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    |         |     |     |  |  |  |
|                                                                                                       | L =                                                                                                                                                            | U =                                                           | d1 Ø            | meas. insert length with neck tube M = 165 mm |                 |  |           |  |  |        |               |                    |         |     |     |  |  |  |
|                                                                                                       | 110 mm                                                                                                                                                         | 65 mm                                                         | 7 mm            | 285 mm                                        |                 |  |           |  |  |        | B10           | .                  |         |     |     |  |  |  |
|                                                                                                       | 140 mm                                                                                                                                                         | 65 mm                                                         | 7 mm            | 315 mm                                        |                 |  |           |  |  |        | B11           | .                  |         |     |     |  |  |  |
|                                                                                                       | 170 mm                                                                                                                                                         | 133 mm                                                        | 7 mm            | 345 mm                                        |                 |  |           |  |  |        | B12           | .                  |         |     |     |  |  |  |
|                                                                                                       | 200 mm                                                                                                                                                         | 125 mm                                                        | 7 mm            | 375 mm                                        |                 |  |           |  |  |        | B13           | .                  |         |     |     |  |  |  |
|                                                                                                       | 200 mm                                                                                                                                                         | 65 mm                                                         | 7 mm            | 375 mm                                        |                 |  |           |  |  |        | B14           | .                  |         |     |     |  |  |  |
|                                                                                                       | 260 mm                                                                                                                                                         | 125 mm                                                        | 7 mm            | 435 mm                                        |                 |  |           |  |  |        | B15           | .                  |         |     |     |  |  |  |
| thermowell material                                                                                   | varying                                                                                                                                                        |                                                               |                 |                                               |                 |  |           |  |  |        | B99           | .                  |         |     |     |  |  |  |
|                                                                                                       | · stainless steel mat.-no. 1.4571 (316Ti)                                                                                                                      |                                                               |                 |                                               |                 |  |           |  |  |        | 1             |                    |         |     |     |  |  |  |
|                                                                                                       | · steel mat.-no. 1.5415, 16 Mo 3                                                                                                                               |                                                               |                 |                                               |                 |  |           |  |  |        | 2             |                    |         |     |     |  |  |  |
|                                                                                                       | · steel mat.-no. 1.7335, 13 Cr Mo 44                                                                                                                           |                                                               |                 |                                               |                 |  |           |  |  |        | 3             |                    |         |     |     |  |  |  |
| measuring insert,<br>as per EN 43735<br>(class A)                                                     | varying                                                                                                                                                        |                                                               |                 |                                               |                 |  |           |  |  |        | 9             |                    |         |     |     |  |  |  |
|                                                                                                       | diameter, design, material                                                                                                                                     |                                                               | meas. element   |                                               | operating range |  | test pipe |  |  |        |               |                    |         |     |     |  |  |  |
|                                                                                                       | · 6 mm, rigid, st. steel, standard                                                                                                                             |                                                               | thin film       |                                               | -50...+400 °C   |  | -         |  |  | D2-M22 |               |                    |         |     |     |  |  |  |
|                                                                                                       | · 6 mm, sheathed element, st. steel                                                                                                                            |                                                               | ceramic         |                                               | -200...+600 °C  |  | -         |  |  | D6-M21 |               |                    |         |     |     |  |  |  |
| sensor type                                                                                           | · 6 mm, rigid, st. steel (In-process)                                                                                                                          |                                                               |                 |                                               |                 |  |           |  |  |        | -50...+400 °C | 28 mm <sup>2</sup> | D22-M22 |     |     |  |  |  |
|                                                                                                       | · 1 x Pt100 in 3-wire technology, standard                                                                                                                     |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | N2      |     |     |  |  |  |
|                                                                                                       | · 1 x Pt100 in 4-wire technology                                                                                                                               |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | N3      |     |     |  |  |  |
| connection head                                                                                       | · 2 x Pt100 in 3-wire technology                                                                                                                               |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | N5      |     |     |  |  |  |
|                                                                                                       | · model B                                                                                                                                                      | electrical connection cable gland M20x1.5 nickel plated brass |                 |                                               |                 |  |           |  |  |        |               |                    |         | T11 |     |  |  |  |
|                                                                                                       |                                                                                                                                                                | cable Ø 9-14                                                  |                 |                                               |                 |  |           |  |  |        |               |                    |         | T15 |     |  |  |  |
|                                                                                                       | · model BUZH                                                                                                                                                   | cable gland                                                   | polyamide black | cable Ø 3-6.5                                 |                 |  |           |  |  |        |               |                    | T47     |     |     |  |  |  |
|                                                                                                       |                                                                                                                                                                |                                                               | st. steel       | cable Ø 4.5-10                                |                 |  |           |  |  |        |               |                    | T47.40  |     |     |  |  |  |
|                                                                                                       |                                                                                                                                                                |                                                               | cable Ø 3-6.5   |                                               |                 |  |           |  |  |        |               | T47.21             |         |     |     |  |  |  |
| with plug connector M12x1                                                                             |                                                                                                                                                                |                                                               |                 |                                               |                 |  |           |  |  |        |               | T47.51             |         |     |     |  |  |  |
| additional features (to be indicated in case of need, only)                                           |                                                                                                                                                                |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    |         |     |     |  |  |  |
| type of ex-protection                                                                                 | ·  II 2G Ex ia IIC T4/T6 Gb <sup>1</sup>                                    |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | S68     |     |     |  |  |  |
|                                                                                                       | ·  II 2G Ex ia IIC T6-T1 Gb, IIBExU 13 ATEX 1017 X (In-process calibration) |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | S75     |     |     |  |  |  |
| incl. transmitter<br>(pls specify separately)                                                         | · mounting on the measuring insert (instead of terminal block)                                                                                                 |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | Z1      |     |     |  |  |  |
|                                                                                                       | · mounting in the spring cover of the connection head BUZH                                                                                                     |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | Z2      |     |     |  |  |  |
| material certificate per DIN EN 10204-3.1                                                             |                                                                                                                                                                |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | W1020   |     |     |  |  |  |
| functional safety per EN 61508, classification per SIL 2                                              |                                                                                                                                                                |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | W2604   |     |     |  |  |  |
| transmitter with resistance thermometer calibrated, incl. calibration certificate with 3 meas. points |                                                                                                                                                                |                                                               |                 |                                               |                 |  |           |  |  |        |               |                    | W1204   |     |     |  |  |  |
| order code (example):                                                                                 |                                                                                                                                                                |                                                               |                 |                                               |                 |  |           |  |  | GA2520 | A2317121      | B111               | D2-M22  | N2  | T47 |  |  |  |

<sup>1</sup> only with sheathed element

<sup>2</sup> for In-process calibration