

## Measuring insert for In-process calibration Type Series GA310.



### Application area

- Food industry
- Pharmaceuticals
- Chemical and petrochemical industry
- Machinery construction

### Features

- Measuring insert per DIN 43735 with additional test pipe
- Measuring insert Ø 6 mm
- Temperature range -50...400 °C
- Measuring resistor per DIN EN 60751
- Accuracy per DIN EN 60751, class A
- Electrical connection in 4-wire technology

### Options

- Ex-protection
- As per UKCA regulations
- Classification per SIL2
- Measuring insert Ø 4 mm
- Prepared for transmitter mounting

### Application

The measuring inserts per DIN 43735 are additionally equipped with a test pipe. A calibrated reference sensor (e.g. LABOM type GA3110, data sheet T4-025-46) can be inserted in the test pipe. This makes it possible to calibrate the installed resistance thermometer without disassembling the measuring insert.

### Mechanical design

measuring insert with connection socket per DIN 43735 and with additional test pipe  
measuring insert: stainless steel  
mat.-no. 1.4571 (316 Ti),  
length and Ø see order details.

The measuring insert is spring loaded (spring travel: max. 10 mm) to ensure that the measuring insert is pressed down on the bottom of the thermowell. Instead of the terminal socket a transmitter can be installed, or the measuring insert is prepared for transmitter mounting.

Reference sensor see data sheet T4-025-46, Type series GA3110.

### Measuring resistor

measuring resistor Pt100 4-wire per DIN EN 60751  
nominal value of Pt100 sensor: 100 Ohm at 0 °C  
Option: 2x Pt100 in 3-wire  
Class A per EN60751

### Temperature range

-50...400 °C

### Accuracy

measuring resistor:  
class A per EN 60751  
in the range between -50...300 °C,  
above this class B

### Insulation resistance

> 100 MOhm bei 20 °C (500 VDC)

### Ex-approval

IBExU 13 ATEX 1017 X  
Ⓔ II 2G Ex ia IIC T6-T1 Gb  
 $U_i \leq 30 \text{ V}$   
 $P_i \leq 750 \text{ mW}$   
 $L_i \text{ max. } 10 \mu\text{H/m}$   
 $C_i \text{ max. } 500 \text{ pF/m}$

Intrinsically safe per EN 60079-11, P5.7  
simple electrical apparatus (UK).

More technical information and restrictions  
see Ex instructions XA\_003.

### Functional safety

classification of Pt100 sensor per SIL2,  
per EN 61508.  
For detailed information see  
SIL instruction SA\_005.

### Measuring insert length

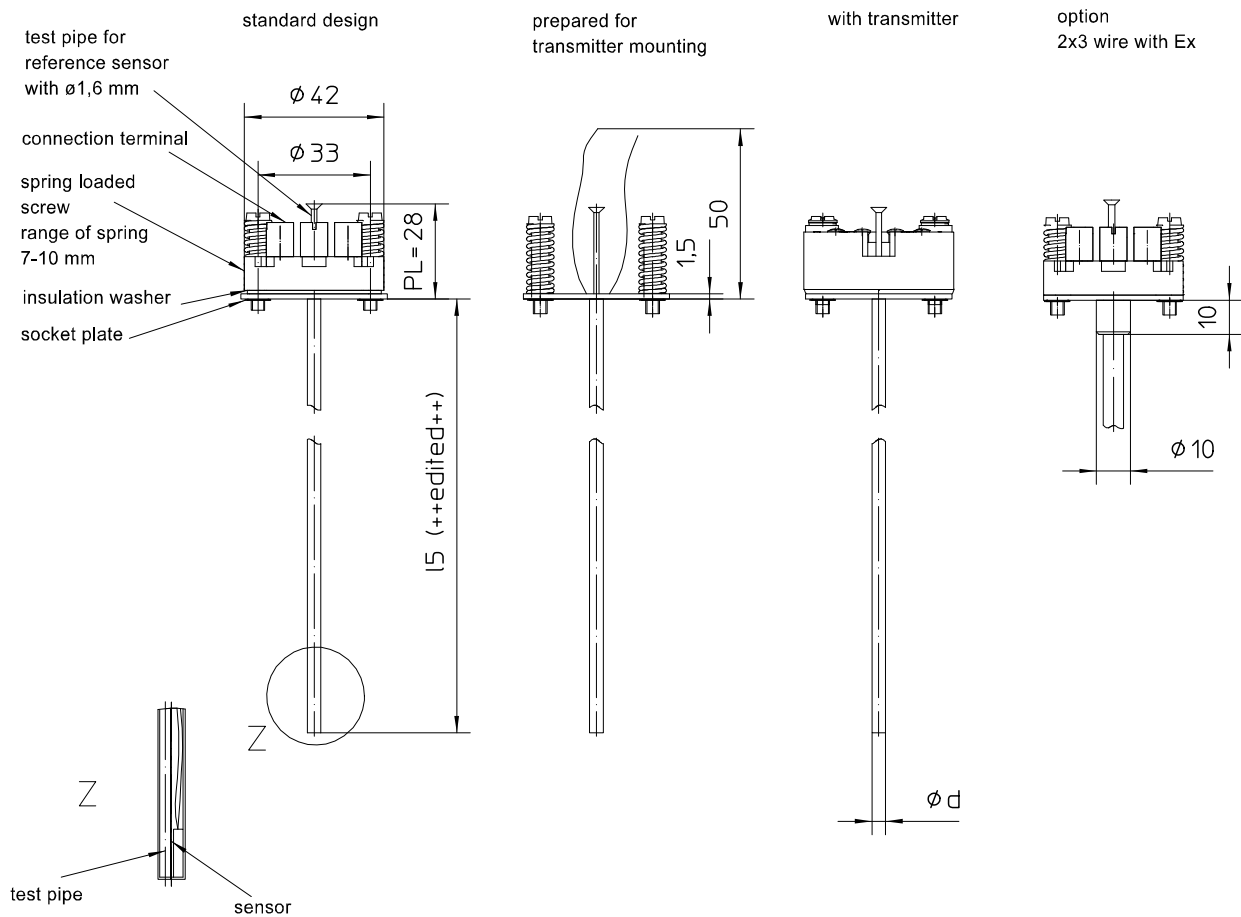
The length of the measuring insert is to be selected so that the measuring insert stands on the thermowell bottom. This ensures good heat transfer. We recommend the use of thermolube.

Standard lengths see order details.  
Special lengths are possible.

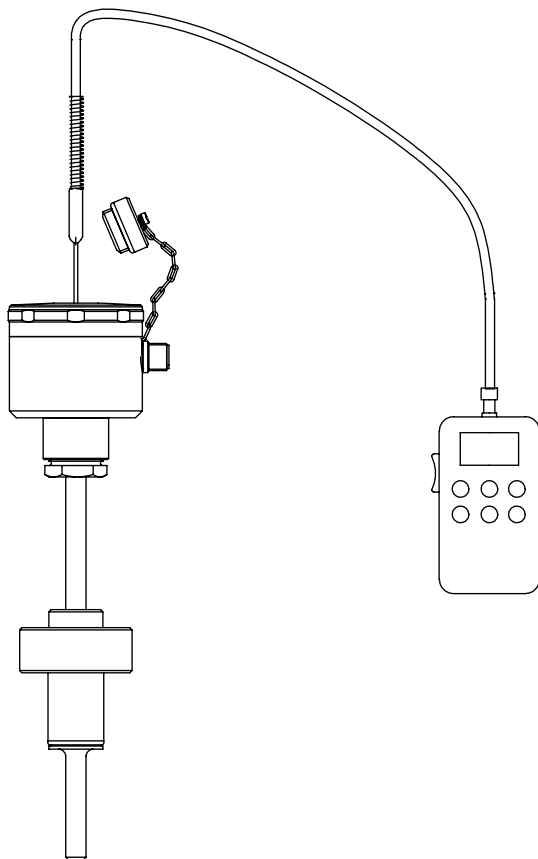
### Mounting of transmitter

Pt100 transmitter for head mounting  
can be mounted instead of terminal  
socket.

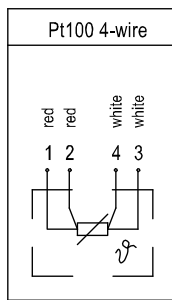
## Dimensions



## Reference sensor during test condition



## Connection diagram



## Order details

| Measuring inserts for n-process calibration                                                            |                                                                                                                                        |                           |           | GA310 . |     |         |    |  |  |  |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------|---------|-----|---------|----|--|--|--|
| ex-design                                                                                              | · without                                                                                                                              |                           |           | 0       |     |         |    |  |  |  |
|                                                                                                        | · ex-protection, type of protection see below                                                                                          |                           |           | 1       |     |         |    |  |  |  |
|                                                                                                        | standard lengths                                                                                                                       |                           |           |         |     |         |    |  |  |  |
| length l5 of measuring insert                                                                          | 100 mm                                                                                                                                 |                           |           | B09     |     |         |    |  |  |  |
|                                                                                                        | 105 mm                                                                                                                                 |                           |           | B10     |     |         |    |  |  |  |
|                                                                                                        | 125 mm                                                                                                                                 |                           |           | B13     |     |         |    |  |  |  |
|                                                                                                        | 140 mm                                                                                                                                 |                           |           | B16     |     |         |    |  |  |  |
|                                                                                                        | 190 mm                                                                                                                                 |                           |           | B19     |     |         |    |  |  |  |
|                                                                                                        | 205 mm                                                                                                                                 |                           |           | B22     |     |         |    |  |  |  |
|                                                                                                        | 250 mm                                                                                                                                 |                           |           | B25     |     |         |    |  |  |  |
|                                                                                                        | 255 mm                                                                                                                                 |                           |           | B28     |     |         |    |  |  |  |
|                                                                                                        | 275 mm                                                                                                                                 |                           |           | B31     |     |         |    |  |  |  |
|                                                                                                        | 290 mm                                                                                                                                 |                           |           | B34     |     |         |    |  |  |  |
|                                                                                                        | 315 mm                                                                                                                                 |                           |           | B37     |     |         |    |  |  |  |
|                                                                                                        | 375 mm                                                                                                                                 |                           |           | B40     |     |         |    |  |  |  |
|                                                                                                        | 405 mm                                                                                                                                 |                           |           | B43     |     |         |    |  |  |  |
|                                                                                                        | 435 mm                                                                                                                                 |                           |           | B46     |     |         |    |  |  |  |
|                                                                                                        | 525 mm                                                                                                                                 |                           |           | B49     |     |         |    |  |  |  |
|                                                                                                        | 555 mm                                                                                                                                 |                           |           | B52     |     |         |    |  |  |  |
| meas. insert class A per DIN EN 43735                                                                  | diameter, design, material                                                                                                             | operating range           | test pipe |         |     |         |    |  |  |  |
|                                                                                                        | · 6 mm, rigid, st. steel                                                                                                               | -50...400 °C <sup>2</sup> | 28 mm     | D22-M24 |     |         |    |  |  |  |
|                                                                                                        | · 4 mm, rigid, st. steel <sup>1</sup>                                                                                                  | -50...400 °C <sup>2</sup> | 28 mm     | D42-M24 |     |         |    |  |  |  |
| type of sensor                                                                                         | · 1 x Pt100 in 4-wire technology                                                                                                       |                           |           | N3      |     |         |    |  |  |  |
|                                                                                                        | · 2 x Pt100 in 3-wire technology <sup>3,4</sup>                                                                                        |                           |           | N5      |     |         |    |  |  |  |
| additional features (to be indicated in case of need, only):                                           |                                                                                                                                        |                           |           |         |     |         |    |  |  |  |
| type of ex-protection                                                                                  | ·  II 2G Ex ia IIC T6-T1 Gb<br>IBExU 13 ATEX 1017 X |                           |           | S75     |     |         |    |  |  |  |
|                                                                                                        | · intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus (UK)                                                            |                           |           | S53     |     |         |    |  |  |  |
| functional safety per EN 61580, classification per SIL2                                                |                                                                                                                                        |                           |           | W2604   |     |         |    |  |  |  |
| as per UKCA regulations                                                                                |                                                                                                                                        |                           |           | W2660   |     |         |    |  |  |  |
| transmitter (head mounting) mounted in connection head instead of terminal block (without transmitter) |                                                                                                                                        |                           |           | Z1      |     |         |    |  |  |  |
| order code (example):                                                                                  |                                                                                                                                        |                           |           | GA3101  | B31 | D22-M24 | N3 |  |  |  |

<sup>1</sup> not in Ex-design

<sup>2</sup> up to 300 °C accuracy class A, above this class B

<sup>3</sup> not possible with measuring insert 4 mm (D42 - M24)

<sup>4</sup> In Ex version not possible with Labom field housing