

GENERAL DESCRIPTION

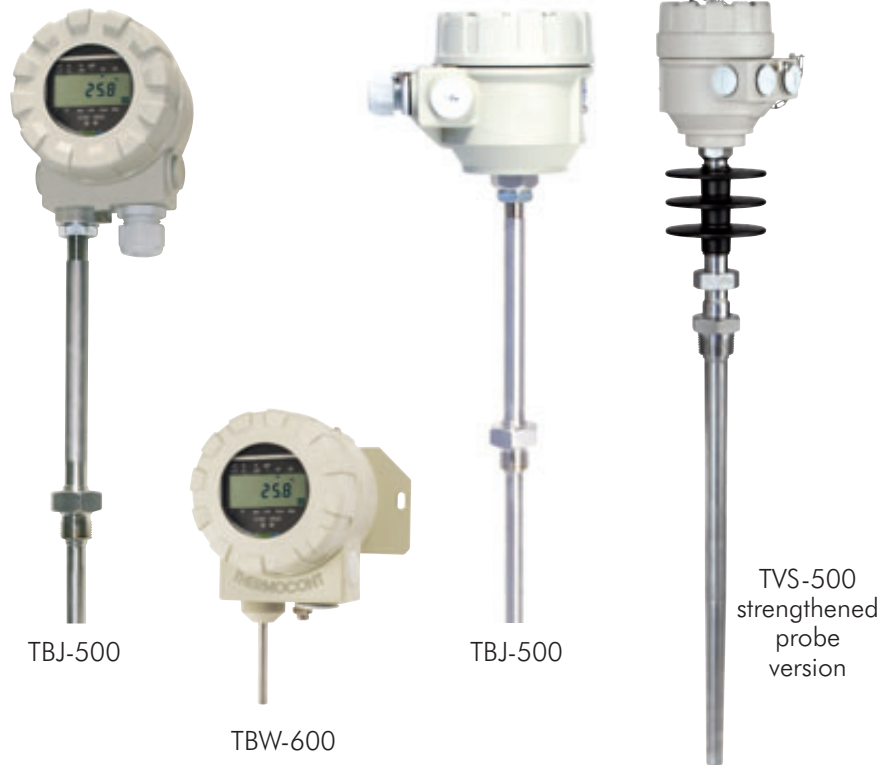
THERMOCONT TT field devices incorporating Pt100 sensor are 2-wire temperature transmitter with 4 ... 20 mA analogue output or transmitter/indicator if equipped with plug in display. Intrinsically safe version of each model is available in ordinary or flame-proof housing. The measured temperature can also be transmitted by HART communication. The THERMOCONT TT temperature transmitters are suitable for temperature measurement of liquids in tanks and pipes and free flowing or powdered solids, but also applicable for gases. Wall mounted versions are available for ambient temperature measurements. The PFA coated stainless steel probe makes measurement of very aggressive materials also possible. The reinforced temperature probe version is an ideal solution for meeting the requirements of the oil-, gas- and heavy chemical industries, but also a good choice when robustness of the probe is advantageous. As special version of the unit a remote transmitter is also available which can be connected to a standard Pt 100 sensor through a simple 4-wire cable.

MAIN FEATURES

- Temperature transmitting and displaying
- Measurement range:
from -50 °C up to +600 °C
- 4 ... 20 mA output
- HART communication
- Variety of head positions
- Stainless steel probe
- Plastic coated version
- Flameproof casing
- Strengthened probe version
- Ex versions
- IP 65 protection

APPLICATIONS

- For normal and hazardous mediums
- For temperature metering of liquids, vapours, gases
- Temperature transmitting for far distances
- Temperature metering in tanks, tubes, furnaces or boilers
- Temperature metering of halls or rooms



TBJ-500

TBW-600

TBJ-500

TVS-500 strengthened probe version

CERTIFICATIONS

- ATEX II 1G EEx ia IIB T6...T1
- ATEX II 2G EEx d IIB T6...T1
- ATEX II 1/2G EEx d ia IIB T6...T1

POSITION OF THE DISPLAY

"A" is the default head position



SAP-202 display

Requested head position differing from standard ("A") version should be specified when placing an order

TECHNICAL DATA

| Type | | Standard | High temperature version | Plastic coated version | Strengthened probe version |
|---|------------------------|--|-----------------------------------|---|-----------------------------------|
| Measurement range | | -50 °C ... +200 °C | -50 °C ... +600 °C ⁽³⁾ | -40 °C ... +70 °C | -50 °C ... +600 °C ⁽³⁾ |
| Insertion length | | As per order code, max. 3000 mm | | | Max. 800 mm |
| Process connection | | As per order code | | | ½" NPT / 1" NPT threaded |
| Maximum process pressure | | 2.5 MPa (25 bar) at +20 °C, 1.6 MPa (16 bar) at +400 °C | | | 4 MPa (40 bar) |
| Material of wetted parts ⁽²⁾ | | stainless steel DIN 1.4571 | | stainless steel DIN 1.4571 + PFA / PFTE | stainless steel DIN 1.4571 |
| Probe | | Class A or Class B Pt100 temperature sensor, as per order code | | | |
| Accuracy ⁽¹⁾ | Output current | Class „A“ Pt 100 | ± (0.3+ 0.0025 t) °C | ± (1.5+ 0.004 t) °C | ± (0.3+ 0.0025 t) °C |
| | | Class „B“ Pt 100 | ± (0.4+ 0.0055 t) °C | ± (1.5+ 0.006 t) °C | ± (0.4+ 0.0055 t) °C |
| | | Temperature error | ± 0.02°C / °C | | |
| | Displayed-current | Class „A“ Pt 100 | ± (0.2+ 0.0025 t) °C | ± (1.5+ 0.004 t) °C | ± (0.2+ 0.0025 t) °C |
| | | Class „B“ Pt 100 | ± (0.35+ 0.0055 t) °C | ± (1.5+ 0.006 t) °C | ± (0.35+ 0.0055 t) °C |
| | | Temperature error | ± 0.02°C / °C | | |
| Power supply | | 10 V ... 36 V DC; Ex: 12 V - 30 V DC, see: special data for Ex certified models | | | |
| Output | Analogue | 44...20 mA, output limit values: 3.9 mA ... 20.5 mA | | | |
| | Digital communication | HART | | | |
| | Output load | R _t = (U _s -10V) / 0.022 A, U _s = power supply voltage | | | |
| | Display | type | SAP-202 | | |
| resolution | | 0.1 °C | 0.4 °C | 0.1 °C | |
| Error indication | | 3.8 mA or 22 mA | | | |
| Ambient temperature | | -40 °C ... +70 °C, with display: -25 °C ... +70 °C; see: special data for Ex certified models | | | |
| Electrical protection | | Class III. | | | |
| Ingress protection | | IP 65 | | | |
| Electrical connection | | Plastic or steel cable gland: M20 x 1.5; Cable outer diameter: Ø 6...12 mm; Wire cross section: 0.25...1.5 mm ² / see: special data for Ex certified models | | | |
| Housing material | | Paint coated aluminium or plastic (PBT) | Paint coated aluminium | Paint coated aluminium or plastic (PBT) | Paint coated aluminium |
| Mass | with aluminium housing | ~ 0.9kg + probe 0.5kg/m (for T □ W types ~ 0.9kg total) | | | ~ 1.55kg + probe 0.25kg / 100 mm |
| | with plastic housing | ~ 0.5kg + probe 0.5kg/m (for T □ W.... types ~ 0.5kg total) | - | ~ 0.5kg + probe 0.5kg/m (for T □ W.... types ~ 0.5kg total) | - |

⁽¹⁾ t = measured temperature
⁽²⁾ Not valid for T □ W types
⁽³⁾ with heatsink above 200 °C

SPECIAL DATA FOR EX CERTIFIED MODELS

| Protection type | Intrinsically safe | Strengthened probe version | Flameproof casing | Intrinsically safe with flameproof casing |
|-------------------------|---|----------------------------|----------------------------|---|
| Ex marking | ⊕ II 1 G EEx ia IIB T6...T1 | | ⊕ II 2 G EEx d IIB T6...T1 | ⊕ II 1/2 G EEx d ia IIB T6...T1 |
| Intrinsically safe data | U _{max} = 30 V, I _{max} = 140 mA, P _{max} = 1.0 W C _i ≤ 20 nF, L _i ≤ 200 μH | | - | U _{max} = 30 V, I _{max} = 140 mA, P _{max} = 1.0 W, C _i ≤ 20 nF, L _i ≤ 200 μH |
| Ambient temperature | -40 °C ... +70 °C, with display: -25 °C ... +70 °C | | | -40 °C ... +70 °C, with display: -20 °C ... +70 °C |
| Cable gland | Steel, M 20 x1.5 cable outer diameter: 6...12 mm | | | Steel, M 20 x1.5 cable outer diameter: 9...11 mm |

| Temperature classes | T6 | T5 | T4 | T3 | T2 | T1 |
|---------------------|--------|--------|---------|---------|---------|---------|
| Ambient temperature | +60 °C | | | +70 °C | | |
| Medium temperature | +80 °C | +95 °C | +130 °C | +195 °C | +295 °C | +440 °C |

TEMPERATURE MEASUREMENT