

Surface contact / tube contact temperature measuring transducers, incl. strap, with detached sensor head, calibratable, with multi-range switching and active output (Automatic Output Switching)

**Patented quality product** (patent no. DE 10 2015 015 941 B4)

Calibratable tube contact temperature measuring transducer **THERMASGARD® ALTM 2**, with eight switchable measuring ranges (max. -20...+150 °C), active output, external sensor, incl. strap, housing made from impact-resistant plastic with quick-release screws, with cable gland or M12 connector according to DIN EN 61076-2-101, optionally with/without display. The standard display can be changed from SI [°C] to imperial [°F] units via DIP switch.

The measuring transducer converts the measured variables into a standard signal of 0- 10 V or 4...20 mA. The unit with **Automatic Output Switching** (AOS variant) detects the required output type and automatically switches to U or I output. Alternatively, a **type version** (2-wire I variant) with 2-wire connection and I output is available.

The surface-contact sensor is used for temperature detection on lines, pipes (e.g. cold and hot water) or on heating sections for heating system control. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

**TECHNICAL DATA**

**ALTM2 - I**

|                     |   |
|---------------------|---|
| Power supply:       | 15...36 V DC, depending on working resistance, residual ripple stabilised ± 0.3 V |
| Working resistance: | $R_a \text{ (Ohm)} = (U_b - 14 \text{ V}) / 0.02 \text{ A}$                       |
| Connection type:    | 2-wire connection   |
| Output:             | 4...20 mA   |

**ALTM2 - A (AOS)**

|                  |  |
|------------------|--|
| Power supply:    | 24 V AC / DC (± 10%)   |
| Load resistance: | $R_L = 25...450 \text{ Ohm}$ with AOS I variant<br>$R_L > 15 \text{ kOhm}$ with AOS U variant  |
| Connection type: | 3-wire connection  |
| Output:          | <b>automatic 0-10V / 4...20 mA</b> (via <b>Automatic Output Switching</b> – the unit detects the required output type and automatically switches to U or I output) |

**GENERAL**

|                          |   |
|--------------------------|---|
| Power consumption:       | < 1.0 VA / 24 V DC; < 2.2 VA / 24 V AC  |
| System of units:         | <b>SI</b> (default) or <b>Imperial</b> (switchable via DIP switch)  |
| Data points:             | Temperature [°C] [°F]   |
| Measuring ranges:        | <b>multi-range switching with 8 measuring ranges</b> , see table (other ranges optional)<br>$T_{max}$ <b>up to +100 °C</b> , operating range -50...+150 °C<br><b>with manual zero point correction (± 10 K)</b>       |
| Sensor:                  | Pt1000, DIN EN 60751, class B ( <b>Perfect Sensor Protection</b> ) at IP68  |
| Accuracy, temperature:   | typically ± 0.2 K at +25 °C   |
| Insulating resistance:   | ≥ 100 MΩ, at +20 °C (500 V DC)  |
| Sensor protection:       | pipe feeder made of stainless steel <b>V4A</b> (1.4571), Ø = 6 mm, L = 50 mm  |
| Sensor cable:            | silicone, SiHF, 2x 0.25mm <sup>2</sup> ; cable length (KL) = 1.5m (other lengths and jacket materials, e.g. PTFE or glass fibre with steel mesh, available on request)  |
| Housing:                 | plastic, UV-resistant, material polyamide, 30% glass-globe reinforced, with quick-release screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), cover for display is transparent! |
| Housing dimension:       | 72 x 64 x 37.8 mm (Tyr 1 without display)<br>72 x 64 x 43.3 mm (Tyr 1 with display)   |
| Cable connection:        | <b>cable gland</b> , plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) <b>or M12 connector</b> (male, 5-pin, A-code) according to DIN EN 61076-2-101                                |
| Electrical connection:   | 0.14 - 1.5 mm <sup>2</sup> , via terminal screws  |
| Process connection:      | endless strap with metal tightener (included in the scope of delivery) Ø = 13 - 92 mm (¼ - 3"), L = 300 mm  |
| Ambient temperature:     | measuring transducer -30...+70 °C   |
| Permissible humidity:    | < 95% RH, non-precipitating air   |
| Protection class:        | III (according to EN 60 730)  |
| Protection type housing: | <b>IP65</b> (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)  |
| Protection type sensor:  | <b>IP65</b> (according to EN 60 529) <b>sleeve</b> humidity-tight (standard)<br><b>IP68</b> (according to EN 60 529) <b>sleeve</b> water-tight (optional)   |
| Standards:               | CE conformity according to EMC directive 2014 / 30 / EU   |
| Optional:                | two-line <b>display with illumination</b> , cutout approx. 36 x 15 mm (W x H), for displaying the <b>ACTUAL</b> temperature and the internal diagnostics (sensor breakage, sensor short circuit)                      |

**ACCESSORIES** (see table)

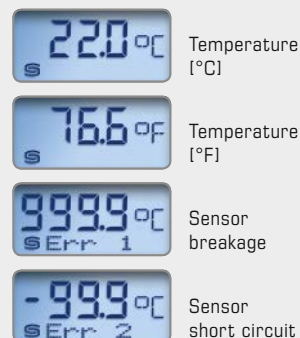
**ALTM 2** with cable gland



**ALTM 2 - Q** with M12 connector



Display and internal diagnostics  
**THERMASGARD®**  
**Measuring transducer with display**



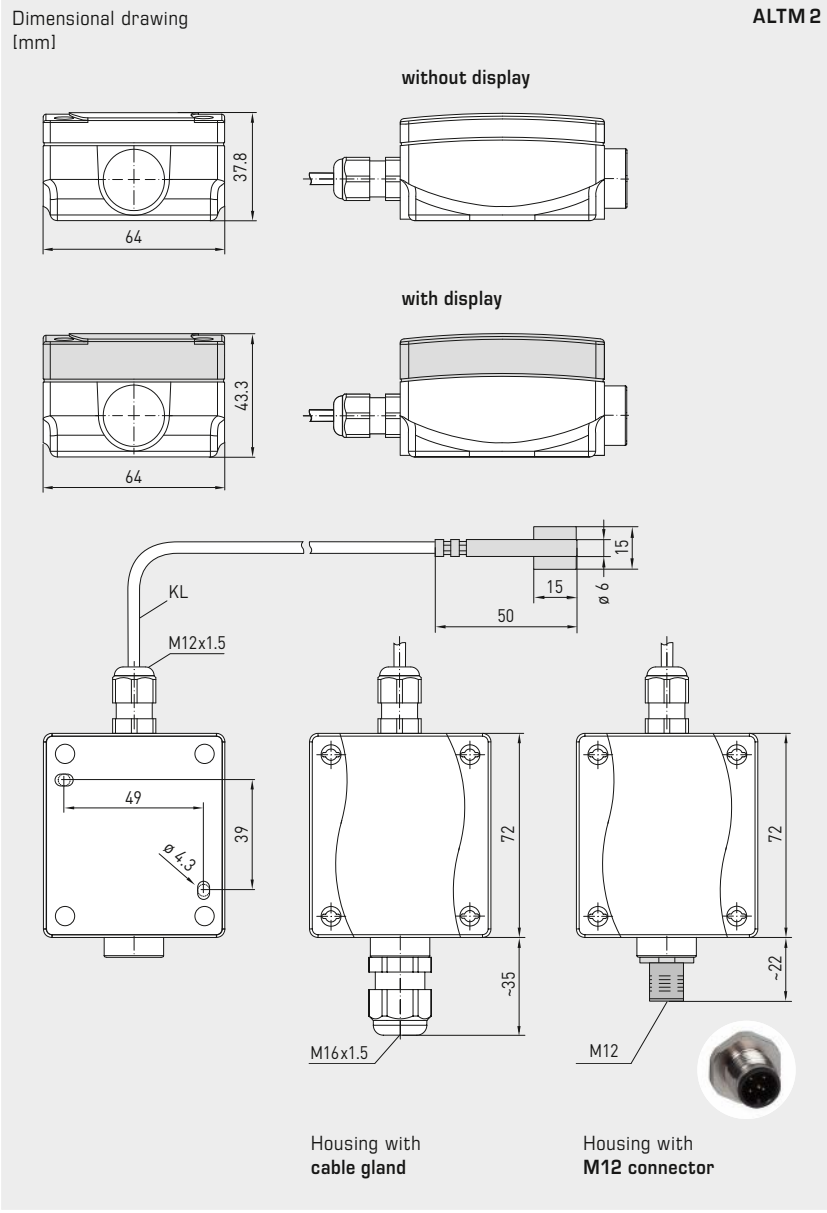


**NEW**

S+S REGELTECHNIK

THERMASGARD® ALTM 2

Surface contact / tube contact temperature measuring transducers, incl. strap, with detached sensor head, calibratable, with multi-range switching and active output (Automatic Output Switching)



**ALTM 2**  
with cable gland and display



**ALTM 2-Q**  
with M12 connector and display



High-performance encapsulation against vibration, mechanical stress and humidity

**PS-PROTECTION**  
PERFECT SENSOR PROTECTION

Automatic detection and switching to standard signal 0...10V or 4...20 mA

**AOS-PATENTED**  
AUTOMATIC OUTPUT SWITCHING



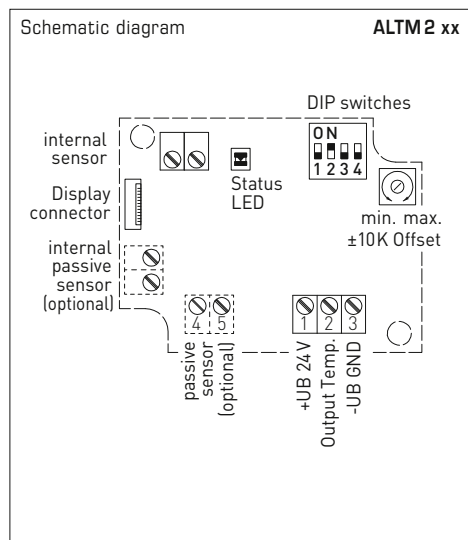
**IP 65** (standard)  
humidity-tight



**IP 68** (optional)  
water-tight  
Perfect Sensor Protection



Surface contact / tube contact temperature measuring transducers, incl. strap, with detached sensor head, calibratable, with multi-range switching and active output (Automatic Output Switching)



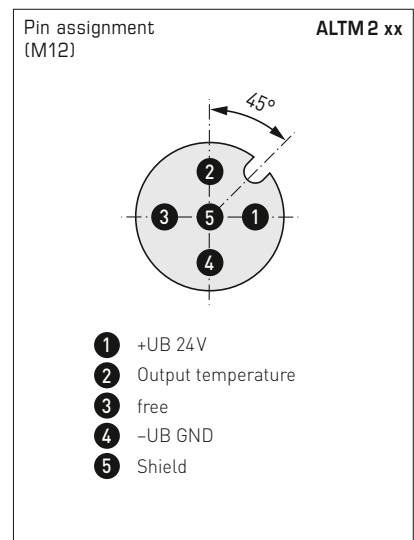
**2-wire connection\* ALTM 2 - I**

- 1 +UB 24V DC
- 2 Output Temp. 4...20mA
- 3 -UB GND (optional for backlighting)

\* 2-wire connection for devices with / without display (not illuminated)  
3-wire connection for devices with illuminated display

**3-wire connection (AOS) ALTM 2 - A**

- 1 +UB 24V AC/DC
- 2 Output Temp. 0-10V / 4...20mA
- 3 -UB GND

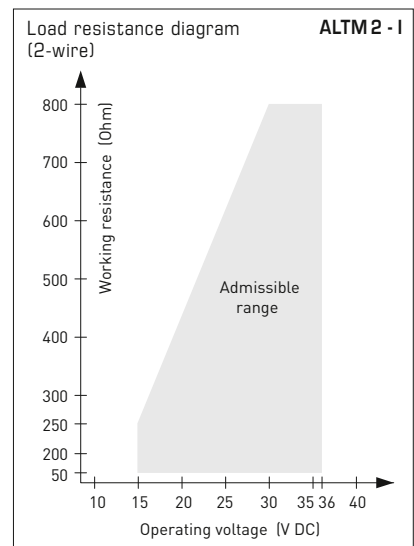


| Measuring ranges [°C] | DIP 1      | DIP 2     | DIP 3      | Measuring ranges [°F]  |
|-----------------------|------------|-----------|------------|------------------------|
| -20...+ 150 °C        | ON         | ON        | ON         | -4...+ 302 °F          |
| -50... + 50 °C        | OFF        | ON        | ON         | -58...+ 122 °F         |
| -20... + 80 °C        | ON         | OFF       | ON         | -4...+ 176 °F          |
| -30... + 60 °C        | OFF        | OFF       | ON         | -22...+ 140 °F         |
| 0... + 40 °C          | ON         | ON        | OFF        | 32...+ 104 °F          |
| <b>0... + 50 °C *</b> | <b>OFF</b> | <b>ON</b> | <b>OFF</b> | <b>32...+ 122 °F *</b> |
| 0...+ 100 °C          | ON         | OFF       | OFF        | 32...+ 212 °F          |
| 0...+ 150 °C          | OFF        | OFF       | OFF        | 32...+ 302 °F          |

\* (default)

| Display [°C] / [°F]      | DIP 4      |
|--------------------------|------------|
| Imperial [°F]            | ON         |
| <b>SI (default) [°C]</b> | <b>OFF</b> |

**Display switchable**  
Temperature [°C] → [°F]  
The display value depends on the set unit system (DIP 4).



For further technical information, see the operating instructions



**NEW**

Surface contact / tube contact temperature measuring transducers, incl. strap, with detached sensor head, calibratable, with multi-range switching and active output (Automatic Output Switching)

**ALTM 2 - Q**  
with M12 connector



**ALTM 2**  
with cable gland

**THERMASGARD® ALTM 2** Surface contact / tube contact temperature measuring transducers (with cable gland)

| Type / WG01                              | Output   | Type          | Display | Item No.           |
|--|--|---------------|---------|--------------------|
| <b>ALTM 2 - I</b>                        | <b>(2-wire)</b>  |               |         |                    |
| ALTM2-I                                  | 4...20 mA  | Remote sensor |         | 1101-1122-0219-920 |
| ALTM2-I LCD                              | 4...20 mA  | Remote sensor | ■       | 1101-1122-2219-920 |
| <b>ALTM 2 - A</b>                        | <b>(3-wire AOS)</b>  |               |         |                    |
| ALTM2-A                                  | 0-10 V / 4...20 mA   | Remote sensor |         | 1101-112E-0219-920 |
| ALTM2-A LCD                              | 0-10 V / 4...20 mA   | Remote sensor | ■       | 1101-112E-2219-920 |
| <b>Automatic Output Switching (AOS):</b> | Patented analogue interface (patent no. DE 10 2015 015 941 B4)<br>Unit automatically detects the required output type 0-10 V or 4...20 mA.   |               |         |                    |
| <b>Housing variant:</b>                  | Cable connection with cable gland  |               |         |                    |
| Extra charge:                            | other measuring ranges optional<br>Protection type <b>IP 68</b> (Sensor sleeve watertight compound-filled)<br>2-wire connecting leads, per running meter (silicone / PTFE / glass fibre) |               |         | on request         |

**THERMASGARD® ALTM 2 - Q** Surface contact / tube contact temperature measuring transducers (with M12 connector)

| Type / WG01I                             | Output   | Type          | Display | Item No.           |
|--|--|---------------|---------|--------------------|
| <b>ALTM 2 - I Q</b>                      | <b>(2-wire)</b>  |               | ● = Q   |                    |
| ALTM2-I Q                                | 4...20 mA  | Remote sensor | ●       | 2001-2121-2100-001 |
| ALTM2-I Q LCD                            | 4...20 mA  | Remote Sensor | ● ■     | 2001-2122-2100-001 |
| <b>ALTM 2 - A Q</b>                      | <b>(3-wire AOS)</b>  |               |         |                    |
| ALTM2-A Q                                | 0-10 V / 4...20 mA   | Remote sensor | ●       | 2001-2121-B100-001 |
| ALTM2-A Q LCD                            | 0-10 V / 4...20 mA   | Remote Sensor | ● ■     | 2001-2122-B100-001 |
| <b>Automatic Output Switching (AOS):</b> | Patented analogue interface (patent no. DE 10 2015 015 941 B4)<br>Unit automatically detects the required output type 0-10 V or 4...20 mA. |               |         |                    |
| <b>Housing variant "Q":</b>              | Cable connection with <b>M12 connector</b> (male, 5-pin, A-code)   |               |         |                    |
| Extra charge:                            | see table above!   |               |         |                    |

**ACCESSORIES**

|              |  |                    |
|--------------|--|--------------------|
| <b>WLP-1</b> | Heat-conductive paste, silicone-free                                     | 7100-0060-1000-000 |
|              | <b>Special accessories for M12 connector</b><br>see chapter Accessories! |                    |