

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. $-20...+150\text{ }^{\circ}\text{C}$), 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 [$^{\circ}\text{C}$] to imperial [$^{\circ}\text{F}$] 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

ALTM 2 - I

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

ALTM 2 - A (AOS)

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

GENERAL

Power consumption:	$< 1.0\text{ VA} / 24\text{ V DC}$; $< 2.2\text{ VA} / 24\text{ V AC}$
System of units:	SI (default) or Imperial (switchable via DIP switch)
Data points:	Temperature [$^{\circ}\text{C}$] [$^{\circ}\text{F}$]
Measuring ranges:	multi-range switching with 8 measuring ranges , see table (other ranges optional) T_{max} up to +100 °C , operating range $-50...+150\text{ }^{\circ}\text{C}$ with manual zero point correction ($\pm 10\text{ K}$)
Sensor:	Pt1000, DIN EN 60751, class B (Perfect Sensor Protection) at IP68)
Deviation, temperature:	typically $\pm 0.2\text{ K}$ at $+25\text{ }^{\circ}\text{C}$
Insulating resistance:	$\geq 100\text{ M}\Omega$, at $+20\text{ }^{\circ}\text{C}$ (500 V DC)
Sensor protection:	pipe feeder made of stainless steel V4A (1.4571), $\varnothing = 6\text{ mm}$, $L = 50\text{ mm}$
Sensor cable:	Silicone, SiHF, $2 \times 0.25\text{ mm}^2$; 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) 72 x 64 x 43.3 mm (Tyr 1 with display)
Cable connection:	cable gland , plastic (M16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) or M12 connector (male, 5-pin, A-code) according to DIN EN 61076-2-101
Electrical connection:	0.14 - 1.5 mm ² , via terminal screws
Process connection:	endless strap with metal tightener (included in the scope of delivery) $\varnothing = 13 - 92\text{ mm}$ ($\frac{1}{4} - 3"$), $L = 300\text{ mm}$
Ambient temperature:	measuring transducer $-30...+70\text{ }^{\circ}\text{C}$
Permissible humidity:	$< 95\%$ RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type housing:	IP65 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)
Protection type sensor:	IP65 (according to EN 60 529) sleeve humidity-tight (standard) IP68 (according to EN 60 529) sleeve water-tight (optional)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC directive 2014 / 30 / EU
Optional:	two-line display with illumination , cutout approx. 36 x 15 mm (W x H), for displaying the ACTUAL 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

	Temperature [$^{\circ}\text{C}$]
	Temperature [$^{\circ}\text{F}$]
	Sensor breakage
	Sensor short circuit

**NEW**

S+S REGELTECHNIK

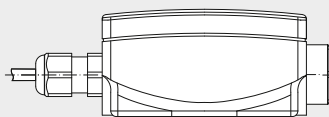
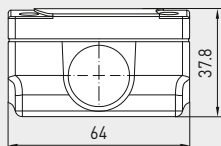
THERMASGARD® ALTM 2

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with detached sensor head, calibratable, with multi-range switching and
active output (Automatic Output Switching)

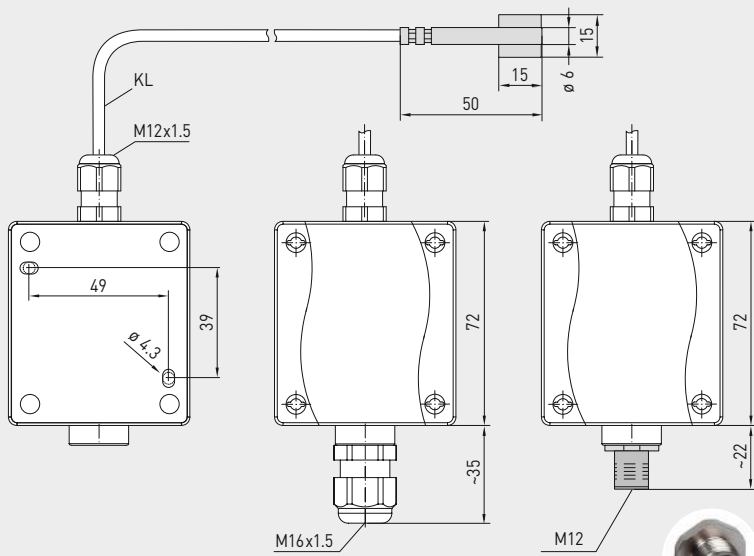
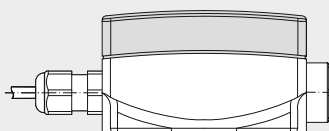
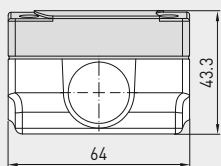
Dimensional drawing
[mm]

ALTM 2

without display



with display

Housing with
cable glandHousing with
M12 connector

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...20mA



AOS-PATENTED
AUTOMATIC OUTPUT SWITCHING



IP 65 (standard)
humidity-tight



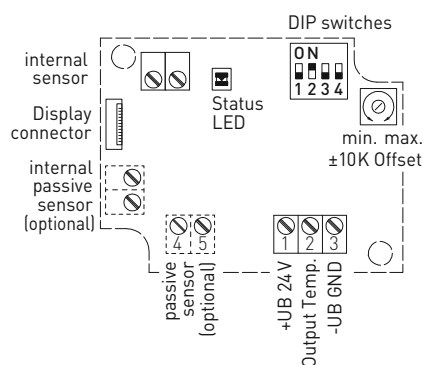
IP 68 (optional)
water-tight
Perfect Sensor Protection



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Schematic diagram

ALTM 2 xx



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

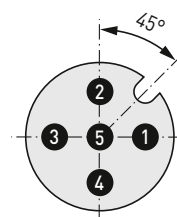
3-wire connection (AOS)

ALTM 2 - A

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

Pin assignment (M12)

ALTM 2 xx



- 1 +UB 24V
- 2 Output temperature
- 3 free
- 4 -UB GND
- 5 Shield

Measuring ranges [°C] (adjustable)	DIP 1	DIP 2	DIP 3
-20...+150 °C	ON	ON	ON
-50... +50 °C	OFF	ON	ON
-20... +80 °C	ON	OFF	ON
-30... +60 °C	OFF	OFF	ON
0... +40 °C	ON	ON	OFF
0... +50 °C (default)	OFF	ON	OFF
0... +100 °C	ON	OFF	OFF
0... +150 °C	OFF	OFF	OFF

Display (switchable)	DIP 4
Imperial [°F]	ON
SI (default) [°C]	OFF

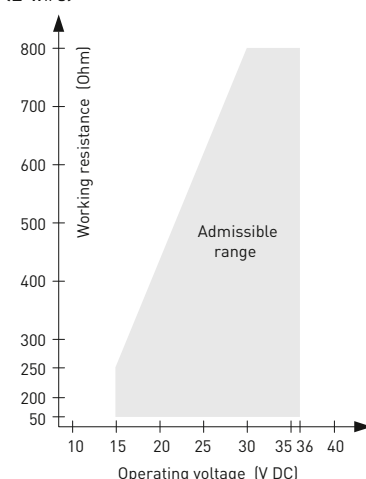
Display
Temperature [°C] → [°F]

The display value depends
on the set unit system (DIP4).



Load resistance diagram (2-wire)

ALTM 2 - I



For further technical information,
see the operating instructions

