THERMASGARD® ALTM 1

Surface contact / tube contact temperature measuring transducers, including strap, compact variant, calibratable, with multi-range switching and active outputg (Automatic Output Switching)

NEW

S+S REGELTECHNIK

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

Calibratable surface-contact temperature measuring transducer **THERM**ASGARD® **ALTM 1**, with eight switchable measuring ranges (max. –20...+150 °C), active output, compact variant 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 to detect the temperature on lines, pipes (e.g., cold and warm water) or on heating sections for heating control. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

ALTM 1



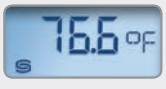
TECHNICAL DATA

ALTM 1 - I	
Power supply:	15...36 V DC, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (Ohm) = (U_b -14 V) / 0.02 A
Connection type:	2-wire connection
Output:	**4...20 mA**
ALTM 1 - A (AOS)	
Power supply:	24 V AC / DC (± 10 %)
Load resistance:	R_L = 25...450 Ohm with AOS I variant R_L > 15 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 VA / 24 V DC; < 2.2 VA / 24 V AC
System of units:	**SI** (default) or **Imperial** (switchable via DIP switch)
Data points:	Temperature [°C] [°F]
Measuring ranges:	**multi-range switching with 8 measuring ranges,** see table (other ranges optional) T_{max} **up to +100 °C**, operating range –50...+100 °C **with manual zero point correction (± 10 K)**
Sensor:	Pt1000, DIN EN 60751, class B (**Perfect Sensor Protection**)
Deviation, temperature:	typically ± 0.2 K at +25 °C
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
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 (M 16 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 mm², via terminal screws
Process connection:	endless strap with metal tightener, (included in the scope of delivery) Ø = 13 - 92 mm (¼ - 3"), length 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:	**IP 65** (according to EN 60 529) Housing tested, TÜV SÜD, Report No.713139052 (Tyr 1)
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)

Display and internal diagnostics
THERMASGARD®
Measuring transducer with display



Temperature [°C]



Temperature [°F]



Sensor breakage



Sensor short circuit

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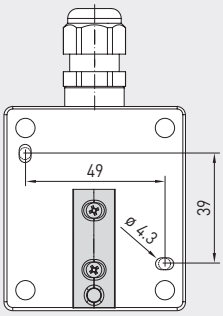
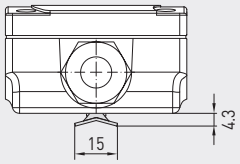
Dimensional drawing
[mm]

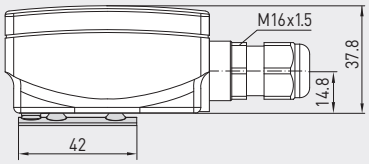
ALTM 1



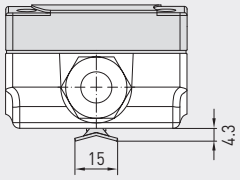


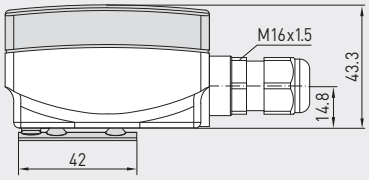
without display

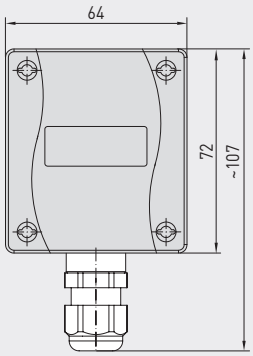




with display









M12 connector
(optional on request)

ALTM 1
with display



SI IMP

High-performance encapsulation against vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

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

AOS-PATENTED
AUTOMATIC OUTPUT SWITCHING

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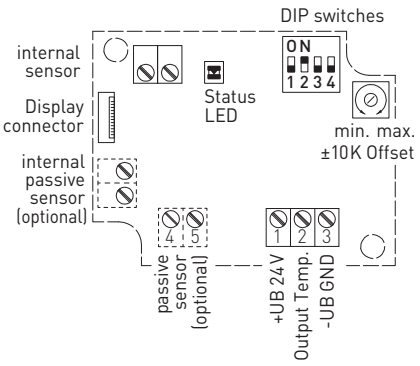
Schematic diagram **ALTM 1 xx**



2-wire connection* **ALTM 1 - I**

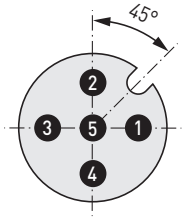
1 +UB 24V DC
2 Output Temp. 4...20mA
3 –UB GND (optional for backlighting)

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

3-wire connection (AOS) **ALTM 1 - A**

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

Pin assignment (M12) **ALTM 1 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

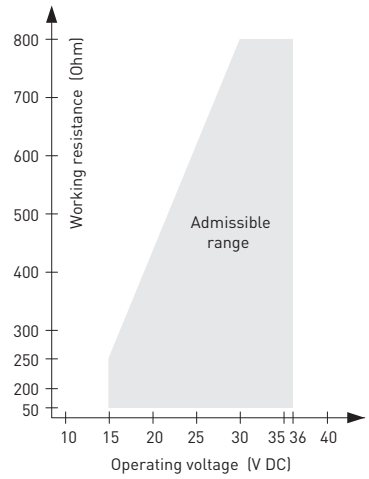
Display (switchable)		DIP 4
Imperial	[°F]	**ON**
SI (default)	[°C]	OFF

Display
Temperature [°C] → [°F]

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

SI IMP

Load resistance diagram (2-wire) **ALTM 1 - I**



For further technical information, see the operating instructions

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Surface contact / tube contact temperature measuring transducers, including strap, compact variant, calibratable, with multi-range switching and active output (Automatic Output Switching)

ALTM 1 - Q
with M12 connector
(on request)



ALTM 1
with cable gland



THERMASGARD® ALTM 1	Surface contact / tube contact temperature measuring transducers (compact variant)				
Type / WG01	**Output**	**Type**	**Display**	**Item No.**	**Price**
ALTM 1 - I	**(2-wire)**				
ALTM1-I	4...20 mA	compact		1101-1112-0219-920	**108,18 €**
ALTM1-I LCD	4...20 mA	compact	■	1101-1112-2219-920	**160,64 €**
ALTM 1 - A	**(3-wire AOS)**				
ALTM1-A	0-10 V / 4...20 mA	compact		1101-111E-0219-920	**108,18 €**
ALTM1-A LCD	0-10 V / 4...20 mA	compact	■	1101-111E-2219-920	**160,64 €**
Automatic Output Switching (AOS):	Patented analogueinterface (patent no. DE 10 2015 015 941 B4) Unit automatically detects the required output type 0-10 V or 4...20 mA.				
Extra charge:	Other ranges optional Cable connection with **M12 connector** according to DIN EN 61076-2-101			on request	**26,16 €**

ACCESSORIES			
WLP-1	Heat-conductive paste, silicone-free	7100-0060-1000-000	**4,79 €**
	Special accessories for M12 connector see chapter Accessories !		