

## TEMPERATUR AKTIV



**PÅSPÆNDINGS-  
& PENDULFØLERE**

**Surface contact / tube contact temperature measuring transducers, including strap, compact variant, calibratable, with multi-range switching and active output**

Calibratable surface-contact temperature measuring transducer (compact variant)

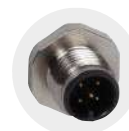
**THERMASGARD® ALTM 1** with eight switchable measuring ranges, continuous output, in an impact-resistant plastic housing with quick-locking screws, optionally with /without display, incl. strap.

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.

#### TECHNICAL DATA

Power supply:	24 V AC / DC ( $\pm 10\%$ ) for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised $\pm 0.3$ V
Working resistance:	$R_a(\text{ohm}) = (U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant
Load resistance:	$R_L > 5 \text{ kOhm}$ for U variant
Power consumption:	$< 1.0 \text{ VA} / 24 \text{ V DC}$ ; $< 2.2 \text{ VA} / 24 \text{ V AC}$
Sensor:	Pt1000, DIN EN 60751, class B ( <b>Perfect Sensor Protection</b> )
Measuring ranges:	<b>multi-range switching with 8 switchable measuring ranges</b> , see table (other ranges optional) compact variant: <b><math>T_{\text{max}}</math> up to <math>+100^\circ\text{C}</math></b> , operating range $-50...+100^\circ\text{C}$ <b>with manual zero point correction (<math>\pm 10 \text{ K}</math>)</b>
Deviation, temperature:	typically $\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$
Output:	0 - 10 V or 4...20 mA
Connection type:	2- or 3-wire connection
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
Cable connection:	<b>cable gland</b> , plastic (M16 x 1.5; with strain relief, exchangeable, inner diameter 10.4 mm) <b>or</b> <b>M12 connector</b> according to DIN EN 61076-2-101 (optional on request)
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) $\varnothing = 13 - 92 \text{ mm}$ ( $1/4 - 3"$ ), length $L = 300 \text{ mm}$
Insulating resistance:	$\geq 100 \text{ M}\Omega$ , at $+20^\circ\text{C}$ (500 V DC)
Ambient temperature:	measuring transducer $-30...+70^\circ\text{C}$
Humidity:	$< 95\%$ r. H., non-precipitating air
Protection class:	III (according to EN 60730)
Protection type:	<b>IP65</b> (according to EN 60529) 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 <b>display with illumination</b> , cutout approx. 36 x 15 mm (W x H), for displaying the <b>ACTUAL temperature</b> and the <b>internal diagnostics</b> (measuring range exceeded, measuring range not reached, sensor breakage, sensor short circuit)



ALTM 1



**M12 connector**  
(optional on request)

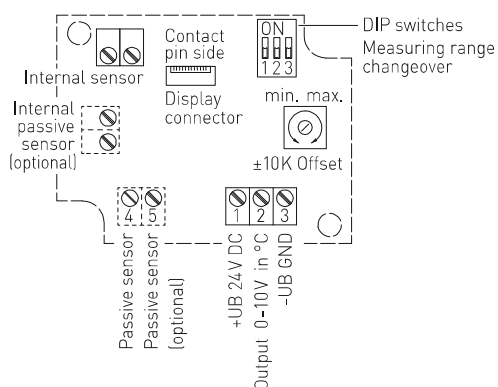
Display and internal diagnostics

**THERMASGARD®**  
**Measuring transducer with display**

	Standard
	Measuring range exceeded
	Measuring range not reached
	Sensor breakage
	Sensor short circuit

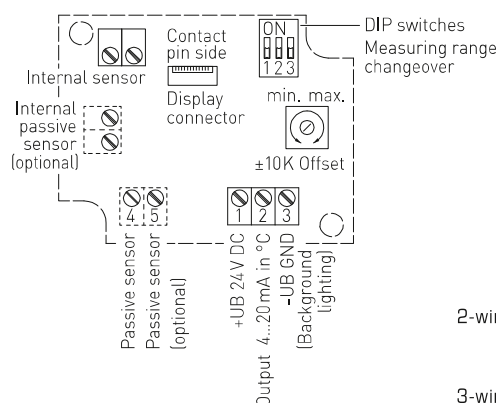
#### 3-wire connection

ALTM 1-U



#### 2- or 3-wire connection\*

ALTM 1-I



Connection\*:

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

3-wire connection for devices with illuminated display



S+S REGELTECHNIK

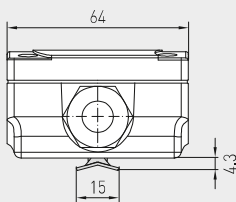
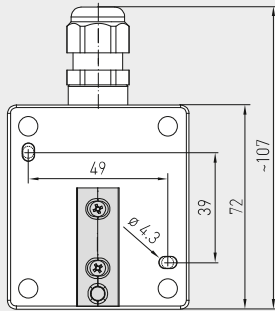
THERMASGARD® ALTM 1

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

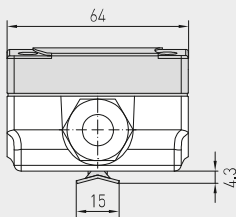
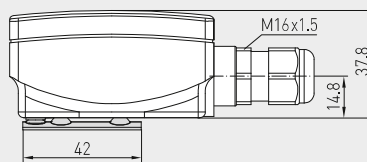


Dimensional drawing

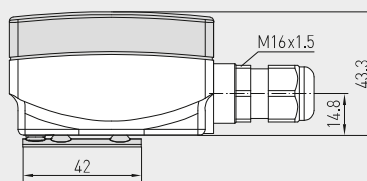
ALTM 1



without display



with display



ALTM 1  
with display



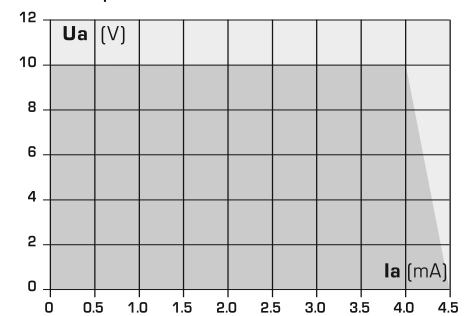
High-performance encapsulation against  
vibration, mechanical stress and humidity



**PS-PROTECTION**  
PERFECT SENSOR PROTECTION

Measuring ranges (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

Dependency of output voltage  
on output current



THERMASGARD® ALTM 1 Surface contact / tube contact temperature measuring transducers (compact)						
Type / WG01	Sensor	Output	Type	Display	Item No.	Price
<b>ALTM 1-I</b>					<b>IP65, I-variant</b>	
ALTM1-I	Pt1000	4...20 mA	Compact		1101-1112-0219-920	100,03 €
ALTM1-I LCD	Pt1000	4...20 mA	Compact	■	1101-1112-2219-920	148,53 €
<b>ALTM 1-U</b>					<b>IP65, U-variant</b>	
ALTM1-U	Pt1000	0-10 V	Compact		1101-1111-0219-920	100,03 €
ALTM1-U LCD	Pt1000	0-10 V	Compact	■	1101-1111-2219-920	148,53 €
Extra charge:		Other ranges optional				24,19 €
		Cable connection with <b>M12 connector</b> according to DIN EN 61076-2-101				on request

ACCESSORIES			
WLP-1	Heat-conductive paste, silicone-free	7100-0060-1000-000	3,22 €

**Surface contact / tube contact temperature measuring transducers,  
incl. strap, with detached sensor head, calibratable,  
with multi-range switching and active output**

Calibratable tube contact temperature measuring transducer **THERMASGARD® ALTM 2** with eight switchable, measuring ranges, external sensor, continuous output, housing made from impact-resistant plastic with quick-release screws, optionally **with / without display**, with **cable gland** or **M12 connector** according to DIN EN 61076-2-101.

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

Power supply:	24 V AC / DC (± 10 %) for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	$R_a \text{ (ohm)} = (U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant, see working resistance diagram
Load resistance:	$R_L > 5 \text{ kOhm}$ for U variant
Power consumption:	< 1.0 VA / 24 V DC; < 2.2 VA / 24 V AC
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Sensor:	Pt1000, DIN EN 60751, class B ( <b>Perfect Sensor Protection</b> at IP68) sensor external
Measuring ranges:	<b>multi-range switching with 8 switchable measuring ranges</b> see table (other measuring ranges optional) <b>T<sub>max</sub> above +100 °C</b> , operating range -50...+150 °C <b>with manual zero point correction (± 10 K)</b>
Deviation in temperature:	typically ± 0.2 K at +25 °C
Output:	0 - 10 V or 4...20 mA
Connection type:	2- or 3-wire connection
Cable connection:	<b>cable gland</b> , plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) <b>or</b> <b>M12 connector</b> (male, 5-pin, A-code) according to DIN EN 61076-2-101
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 dimensions:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
Sensor cable:	Silicone, SiHF, 2 x 0.25 mm²; KL = 1.5 m (optionally also other lengths and measuring range limits, e.g., PTFE up to +250 °C or glass fibre with steel mesh up to +350 °C)
Sensor protection:	pipe feeder made of stainless steel <b>V4A</b> (1.4571), Ø = 6 mm, L = 50 mm
Electrical connection:	0.14 - 1.5 mm², via screw terminals
Process connection:	endless strap with metal tightener (included in the scope of delivery) Ø = 13 - 92 mm (1/4 - 3"), L = 300 mm
Ambient temperature:	measuring transducer -30...+70 °C
Permitted humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60730)
Protection type housing:	<b>IP 65</b> (according to EN 60529) Housing tested, TÜV SÜD, Report No.713139052 (Tyr 1)
Protection type sensor:	<b>IP 65</b> (according to EN 60529) <b>sleeve</b> humidity-tight (standard) <b>IP 68</b> (according to EN 60529) <b>sleeve</b> water-tight (optional)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Optional:	<b>display with illumination</b> , two-line, cut-out approx. 36 x 15 mm (B x H), to display the <b>actual temperature</b> and <b>internal diagnostics</b> (measuring range exceeded, measuring range not reached, sensor breakage, sensor short circuit)
<b>ACCESSORIES</b>	(see table)

**ALTM 2**  
with cable gland



**ALTM 2-Q**  
with M12 connector







S+S REGELTECHNIK

THERMASGARD® ALTM 2

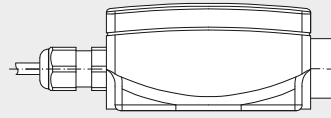
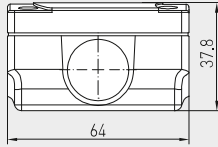
Surface contact / tube contact temperature measuring transducers,  
incl. strap, with detached sensor head, calibratable,  
with multi-range switching and active output



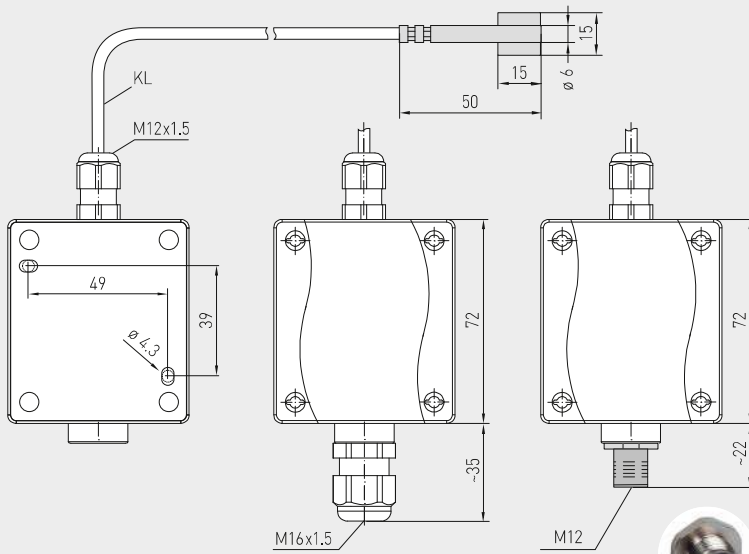
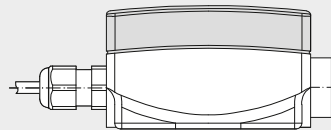
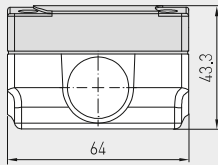
Dimensional drawing

ALTM 2

without display



with display



Housing with  
cable gland

Housing with  
M12 connector

ALTM 2  
with cable gland  
and display



ALTM 2 - Q  
with M12 connector  
and display



Display and internal diagnostics

THERMASGARD®  
Measuring transducer with display



Standard



Measuring range  
exceeded



Measuring range  
not reached



Sensor  
breakage



Sensor  
short circuit



IP65 (standard)  
humidity-tight



IP68 (optional)  
water-tight  
Perfect Sensor Protection

\* High-performance encapsulation against  
vibration, mechanical stress and humidity

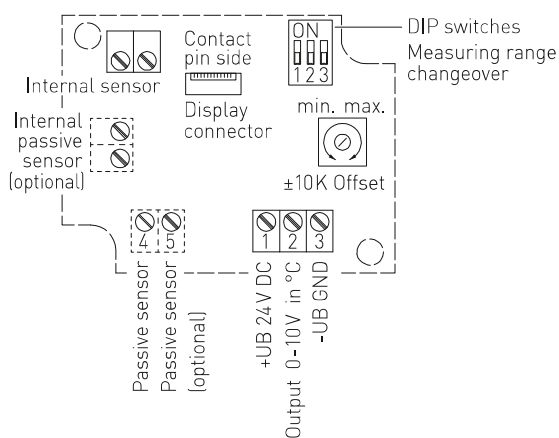


**PS-PROTECTION**  
PERFECT SENSOR PROTECTION

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

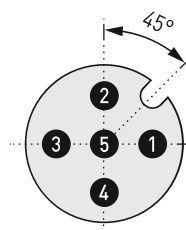
Schematic diagram

ALT M 2 - U



Pin assignment (M12)

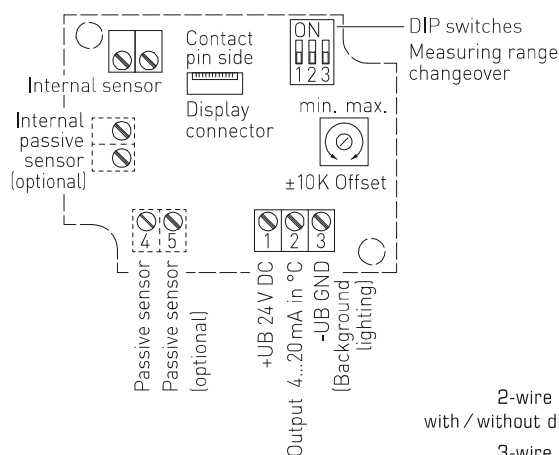
ALT M 2 - U



- 1 +UB 24V AC/DC
- 2 Output temperature 0-10V [°C]
- 3 free
- 4 -UB GND
- 5 Shield

Schematic diagram \*

ALT M 2 - I

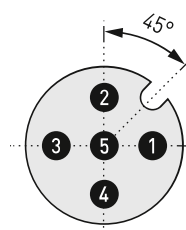


Connection\*:

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

Pin assignment (M12)

ALT M 2 - I



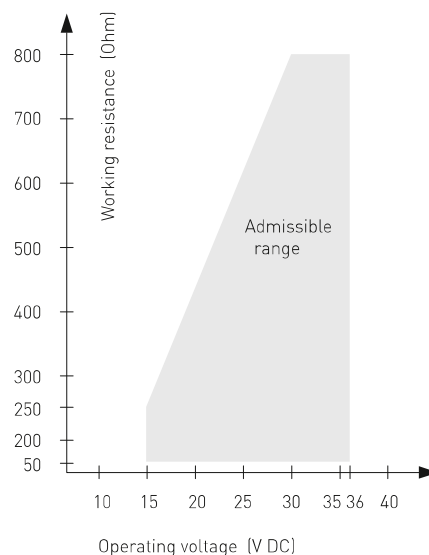
- 1 +UB 24V DC
- 2 Output temperature 4...20mA [°C]
- 3 free
- 4 -UB GND (optional for LCD backlighting)
- 5 Shield

Measuring ranges (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

ALT M 2-xx  
with display,  
hinged

Load resistance diagram  
4...20 mA

ALT M 2 - I





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

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	Sensor	Output	Type	Display	Item No.	Price
<b>ALTM 2</b>						
ALTM2-I	Pt1000	4...20 mA	Remote sensor		1101-1122-0219-920	106,69 €
ALTM2-I LCD	Pt1000	4...20 mA	Remote sensor	■	1101-1122-2219-920	155,20 €
ALTM2-U	Pt1000	0-10 V	Remote sensor		1101-1121-0219-920	106,69 €
ALTM2-U LCD	Pt1000	0-10 V	Remote sensor	■	1101-1121-2219-920	155,20 €
<b>Housing variant:</b>		Cable connection <b>with cable gland</b>				
Extra charge:		other measuring ranges optional				24,19 €
		Protection type <b>IP68</b> (Sensor sleeve watertight compound-filled)				3,24 €
		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	Sensor	Output	Type	Display ● = Q	Item No.	Price
<b>ALTM 2 - Q</b>						
ALTM2-I Q	Pt1000	4...20 mA	Remote sensor	●	2001-2121-2100-001	146,62 €
ALTM2-I Q LCD	Pt1000	4...20 mA	Remote sensor	● ■	2001-2122-2100-001	195,11 €
ALTM2-U Q	Pt1000	0-10 V	Remote sensor	●	2001-2121-1100-001	146,62 €
ALTM2-U Q LCD	Pt1000	0-10 V	Remote sensor	● ■	2001-2122-1100-001	195,11 €
<b>Housing variant "Q":</b>		Cable connection <b>with 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	3,22 €
<b>Special accessories for M12 connector</b> see chapter Accessories!			

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

Calibratable tube contact temperature measuring transducer **THERMASGARD® ALTM 2 - VA**  
with eight switchable measuring ranges, external sensor, continuous output, rugged housing made  
from **stainless steel V4A**, with **cable gland** or **M12 connector** according to DIN EN 61076-2-101.

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.

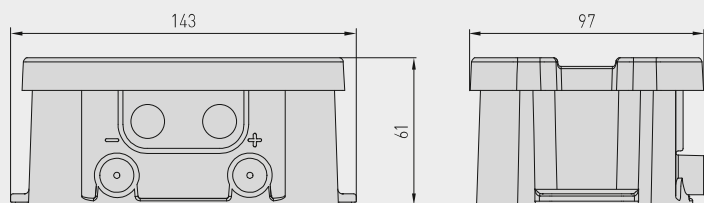
The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

#### TECHNICAL DATA

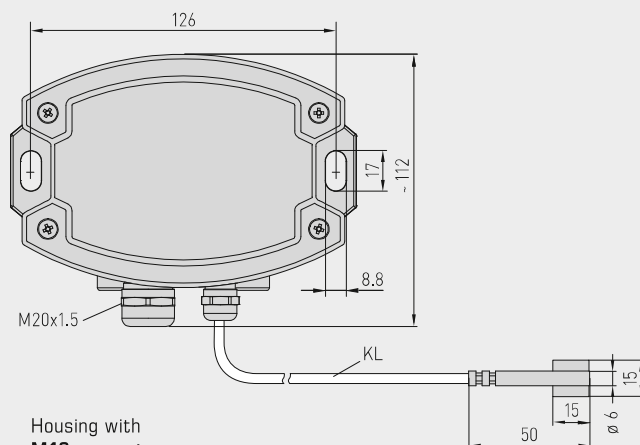
Power supply:	24 V AC / DC ( $\pm 10\%$ ) for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised $\pm 0.3$ V
Working resistance:	$R_a(\text{ohm}) = (U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant, see working resistance diagram
Load resistance:	$R_L > 5 \text{ kOhm}$ for U variant
Power consumption:	$< 1.0 \text{ VA} / 24 \text{ V DC}$ ; $< 2.2 \text{ VA} / 24 \text{ V AC}$
Insulating resistance:	$\geq 100 \text{ M}\Omega$ , at $+20^\circ\text{C}$ (500 V DC)
Sensor:	Pt1000, DIN EN 60751, class B ( <b>Perfect Sensor Protection</b> with IP68) Sensor external
Measuring ranges:	<b>multi-range switching</b> <b>with 8 switchable measuring ranges</b> see table (other ranges optional) <b>T<sub>max</sub> above <math>+100^\circ\text{C}</math></b> , operating range $-50\dots+150^\circ\text{C}$ <b>with manual zero point correction (<math>\pm 10 \text{ K}</math>)</b>
Deviation, temperature:	typically $\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$
Output:	0 - 10 V or 4...20 mA
Connection type:	2-wire connection
Cable connection:	<b>cable gland, stainless steel V2A</b> (1.4305) (M20 x 1.5; with strain relief, exchangeable, inner diameter 6 - 12 mm) <b>or</b> <b>M12 connector</b> (male, 5-pin, A-code) according to DIN EN 61076-2-101
Housing:	<b>stainless steel V4A</b> (1.4571), with non-distortion cover bolting, impact-resistant, high EMI shielding, corrosion, temperature, weather- and UV-resistant
Housing dimensions:	143 x 97 x 61 mm (Tyr 2E)
Sensor cable:	Silicone, SiHF, $2 \times 0.25 \text{ mm}^2$ ; KL = 1.5 m (optionally also other lengths and measuring range limits, e.g., PTFE up to $+250^\circ\text{C}$ or glass fibre with steel mesh up to $+350^\circ\text{C}$ )
Sensor protection:	pipe feeder, made of stainless steel <b>V4A</b> (1.4571), $\varnothing = 6 \text{ mm}$ , L = 50 mm
Electrical connection:	$0.14 - 1.5 \text{ mm}^2$ , via screw terminals
Process connection:	endless strap with metal tightener (included in the scope of delivery) $\varnothing = 13 - 92 \text{ mm}$ ( $1/4 - 3"$ ), L = 300 mm
Ambient temperature:	measuring transducer $-30\dots+70^\circ\text{C}$
Permitted humidity:	$< 95\%$ r. H., non-precipitating air
Protection class:	III (according to EN 60730)
Protection type housing:	<b>IP 65</b> (according to EN 60529) Housing tested, TÜV SÜD, Report No. 713160960B (Skadi2)
Protection type sensor:	<b>IP 65</b> (according to EN 60529) <b>sleeve</b> humidity-tight (standard) <b>IP 68</b> (according to EN 60529) <b>sleeve</b> water-tight (optional)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014/30/EU
ACCESSORIES	(see table)

## Dimensional drawing

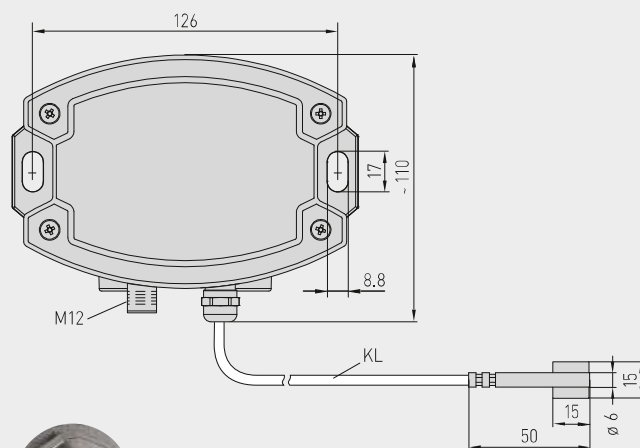
ALTM 2 - VA



Housing with  
cable gland



Housing with  
**M12 connector**



M12 connector  
(male)



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



**IP68** (optional)  
water-tight  
**Perfect Sensor Protection**

High-performance encapsulation against vibration, mechanical stress and humidity



**PS-PROTECTION**  
PERFECT SENSOR PROTECTION

**ALTM 2-VA**  
with cable gland



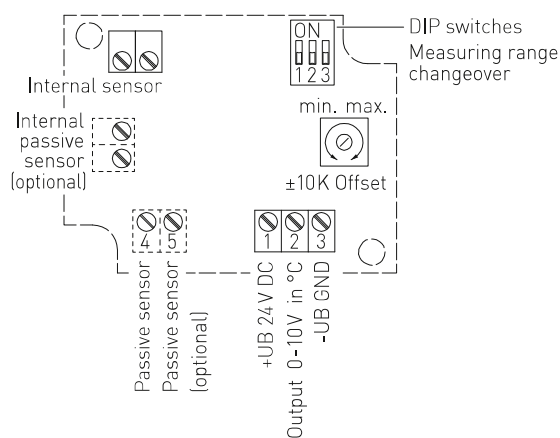
**ALTM 2 - VAQ**  
with M12 connector



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

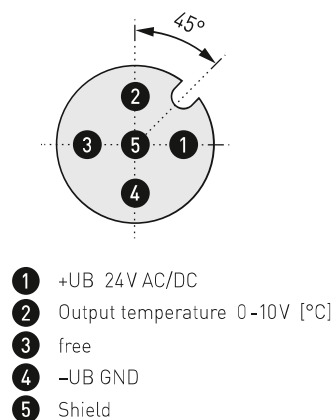
Schematic diagram

ALTM 2 - U



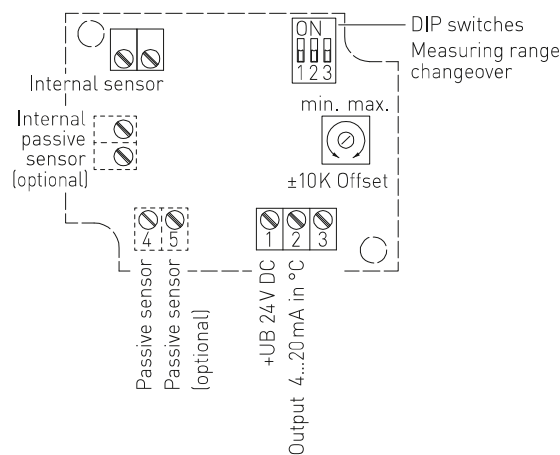
Pin assignment (M12)

ALTM 2 - U



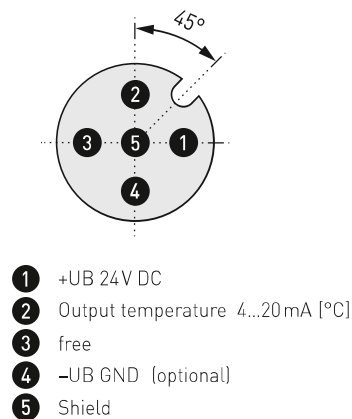
Schematic diagram

ALTM 2 - I



Pin assignment (M12)

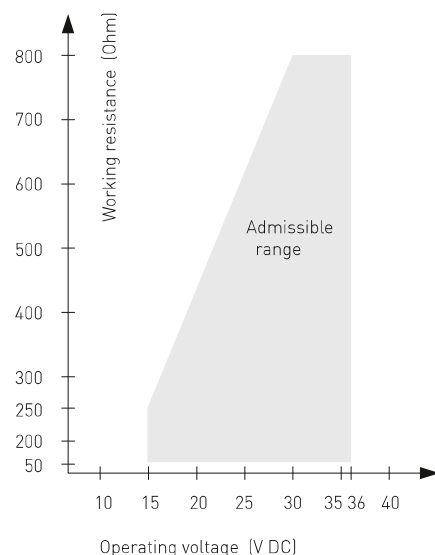
ALTM 2 - I



Measuring ranges (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

Load resistance diagram 4...20mA

ALTM 2 - I







S+S REGELTECHNIK

THERMASGARD® **ALTM 2 - VA**

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

**ALTM 2 - VAQ**  
with M12 connector

**ALTM 2 - VA**  
with cable gland



THERMASGARD® ALTM 2 - VA					
Surface contact / tube contact temperature measuring transducers, <i>ID</i> (Stainless steel housing with cable gland)					
Type / WG02I	Sensor	Output	Type	Item No.	Price
<b>ALTM 2 - VA</b>					
ALTM2-I VA	Pt1000	4...20 mA	Remote sensor	2001-2151-2200-001	<b>375,82 €</b>
ALTM2-U VA	Pt1000	0-10 V	Remote sensor	2001-2151-1200-001	<b>375,82 €</b>
<b>Housing variant:</b>		Cable connection with cable gland			
Extra charge:		other measuring ranges optional			<b>24,19 €</b>
		Protection type <b>IP68</b> (Sensor sleeve watertight compound-filled)			<b>3,24 €</b>
		2-wire connecting leads, per running meter (silicone / PTFE / glass fibre)			on request

THERMASGARD® ALTM 2 - VAQ					
Surface contact / tube contact temperature measuring transducers, <i>ID</i> (Stainless steel housing with M12 connector)					
Type / WG02I	Sensor	Output	Type	● = Q	Item No.
<b>ALTM 2 - VAQ</b>					
ALTM2-I VAQ	Pt1000	4...20 mA	Remote sensor	●	2001-2151-2100-001
ALTM2-U VAQ	Pt1000	0-10 V	Remote sensor	●	2001-2151-1100-001
<b>Housing variant "Q":</b>		Cable connection with M12 connector (male, 5-pin, A-code)			
Extra charge:		see table above!			

ACCESSORIES	
Special accessories for M12 connector see chapter Accessories!	

**Pendulum room temperature measuring transducers, calibratable, with multi-range switching and active output**

Calibratable room pendulum temperature measuring transducer (with sleeve) **THERMASGARD® RPTM 1** with eight switchable measuring ranges, continuous output, in an impact-resistant plastic housing with quick-locking screws, optionally with /without display, cable sensor with stainless steel sleeve and plastic sinter filter (exchangeable).

The pendulum sensor has been specially designed to detect the temperature in larger rooms or halls. The resistance thermometer achieves a very good representative measurement result due to its positioning in the room. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

### TECHNICAL DATA

Power supply:	24 V AC / DC ( $\pm 10\%$ ) for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised $\pm 0.3$ V
Working resistance:	$R_a(\text{ohm}) = (U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant
Load resistance:	$R_L > 5 \text{ kOhm}$ for U variant
Power consumption:	$< 1.0 \text{ VA} / 24 \text{ V DC}$ ; $< 2.2 \text{ VA} / 24 \text{ V AC}$
Sensor:	Pt1000, DIN EN 60751, class B
Sensor protection:	<b>plastic</b> sinter filter, $\varnothing 16 \text{ mm}$ , $L = 35 \text{ mm}$ , exchangeable (optional <b>metal</b> sinter filter, $\varnothing 16 \text{ mm}$ , $L = 32 \text{ mm}$ )
Measuring ranges:	<b>multi-range switching with 8 switchable measuring ranges</b> see table (other ranges optional) <b><math>T_{\min} -5^\circ\text{C}</math>, <math>T_{\max} +60^\circ\text{C}</math>, with manual zero point correction (<math>\pm 10 \text{ K}</math>)</b>
Deviation, temperature:	typically $\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$
Output:	0 - 10 V or 4...20 mA
Ambient temperature:	measuring transducer $-5...+60^\circ\text{C}$
Connection type:	2- or 3-wire connection
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1 without display) 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) or <b>M12 connector</b> according to DIN EN 61076-2-101 (on request)
Electrical connection:	0.14 - 1.5 mm <sup>2</sup> , via terminal screws
Connection cable:	PVC, H03VV-F, 2 x 0.5 mm <sup>2</sup> , KL = approx. 1.5 m (other lengths optional)
Protective tube:	<b>stainless steel V2A</b> (1.4301), $\varnothing = 16 \text{ mm}$ , NL = 142 mm
Humidity:	$< 95\%$ r. H., non-precipitating air
Protection class:	III (according to EN 60730)
Protection type:	<b>IP 67</b> (according to EN 60529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1) <b>IP 65</b> (according to EN 60529) Pendulum with sleeve
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, 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 temperature</b> and the <b>internal diagnostics</b> (measuring range exceeded, measuring range not reached, sensor breakage, sensor short circuit)

RPTM 1



Display and internal diagnostics

**THERMASGARD®**  
**Measuring transducer with display**

22.0 °C

Standard

93.8 °C

Measuring range exceeded

-18.4 °C

Measuring range not reached

999.9 °C

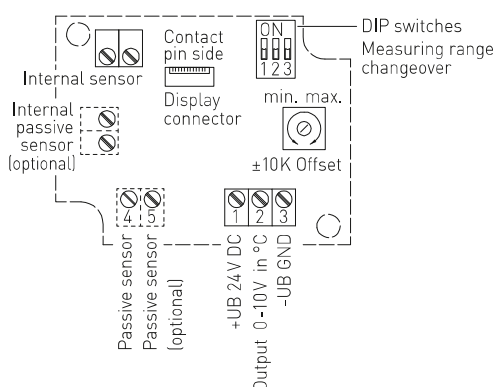
Sensor breakage

-99.9 °C

Sensor short circuit

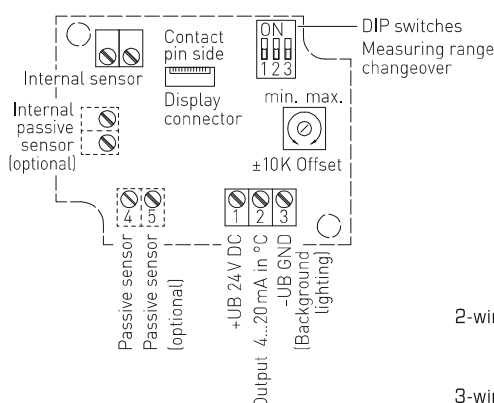
### 3-wire connection

RPTM 1-U



### 2- or 3-wire connection\*

RPTM 1-I



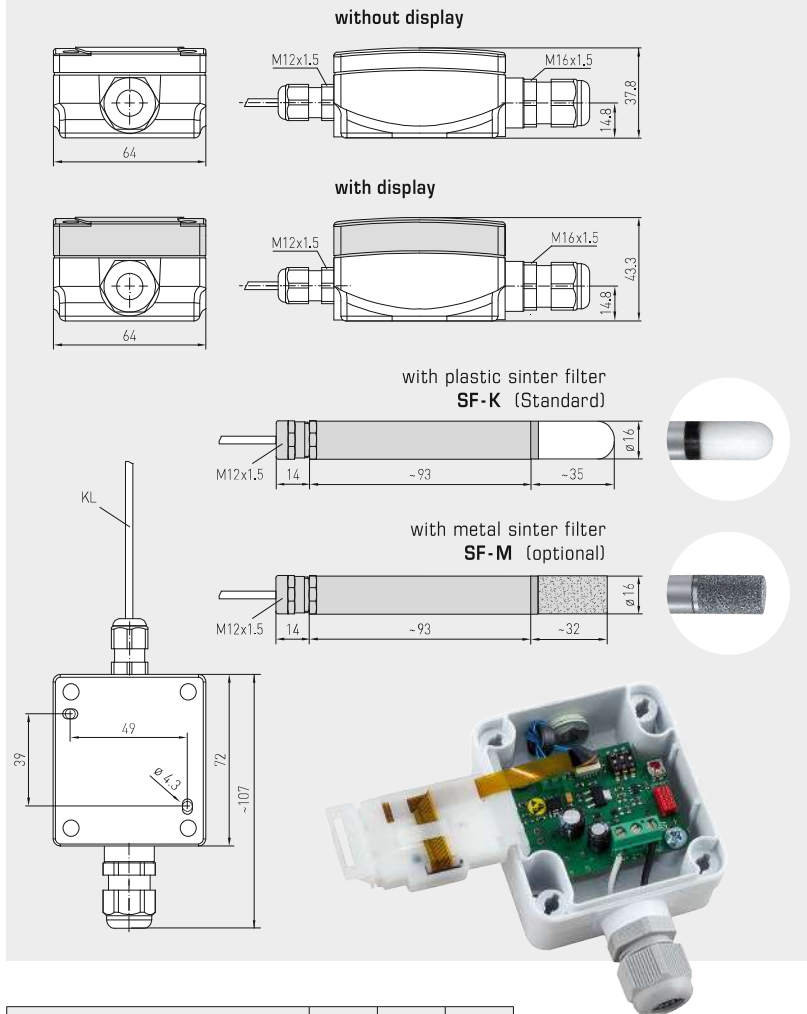
Connection\*:

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

3-wire connection for devices  
with illuminated display

## Dimensional drawing

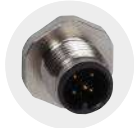
## RPTM 1



**RPTM 1**  
with display



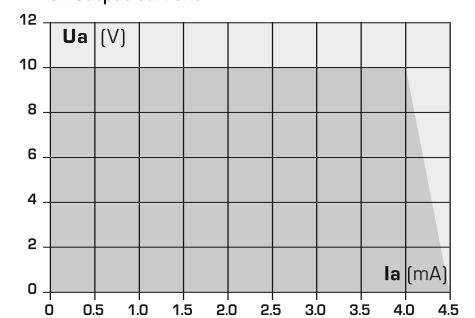
**M12 connector**  
(optional on request)



Measuring ranges (adjustable)	DIP 1	DIP 2	DIP 3
−20...+ 150 °C	<b>ON</b>	<b>ON</b>	<b>ON</b>
−50... + 50 °C	OFF	<b>ON</b>	<b>ON</b>
−20... + 80 °C	<b>ON</b>	OFF	<b>ON</b>
−30... + 60 °C	OFF	OFF	<b>ON</b>
0... + 40 °C	<b>ON</b>	<b>ON</b>	OFF
<b>0... + 50 °C</b> (default)	OFF	<b>ON</b>	OFF
0...+ 100 °C	<b>ON</b>	OFF	OFF
0...+ 150 °C	OFF	OFF	OFF

(observe max. permissible temperature ranges!)

### Dependency of output voltage on output current



**THERMASGARD® RPTM 1** Pendulum room temperature measuring transducer (with stainless steel sleeve)

Type / WG01	Sensor	Output	Type	Item No.	Price
RPTM 1 - I				IP65, I-variant	
RPTM1-I	Pt1000	4...20 mA	Remote sensor	1101-1162-0219-910	144,53 €
RPTM 1 - U				IP65, U-variant	
RPTM1-U	Pt1000	0 - 10 V	Remote sensor	1101-1161-0219-910	144,53 €
Extra charge:	Other ranges optional				24,19 €
	Two-line <b>display</b> with illumination				47,46 €
	2-wire connecting leads, per running meter (PVC)				on request
	Cable connection with <b>M12 connector</b> according to DIN EN 61076-2-101				on request
ACCESSOIRES					
SF-M	Metal sinter filter, Ø 16 mm, L = 32 mm, exchangeable, stainless steel <b>V4A</b> (1.4404)			7000-0050-2200-100	40,31 €

**Pendulum room temperature measuring transducers,  
calibratable, with multi-range switching  
and active output**

RPTM 2

Calibratable room pendulum temperature measuring transducer (with globe) **THERMASGARD® RPTM 2** with eight switchable measuring ranges, continuous output in an impact-resistant plastic housing with quick-locking screws, optionally with /without display, cable sensor with a black plastic globe.

The pendulum sensor has been specially designed to detect the temperature in larger rooms or halls. The resistance thermometer (globe thermometer) achieves a very good, representative measurement result due to its positioning in the room. The dark radiation sensor determines the effective radiation heat at the measured location. This is relevant for calculating the thermal comfort (operative room temperature) taking into account the co-action of thermal radiation and thermal convection. The ratio of globe temperature / air temperature is approx. 70% / 30%. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.






### TECHNICAL DATA

Power supply:	24 V AC / DC (± 10 %) for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	$R_a \text{ (ohm)} = (U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant
Load resistance:	$R_L > 5 \text{ kOhm}$ for U variant
Power consumption:	< 1.0 VA / 24 V DC; < 2.2 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B
Measuring ranges:	<b>multi-range switching with 8 switchable measuring ranges</b> see table (other ranges optional) <b>T<sub>min</sub> -5 °C, T<sub>max</sub> +60 °C, with manual zero point correction (± 10 K)</b>
Deviation, temperature:	typically ± 0.2 K at +25 °C
Output:	0 - 10 V or 4...20 mA
Ambient temperature:	measuring transducer -5...+60 °C
Connection type:	2- or 3-wire connection
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1 without display) 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</b> <b>M12 connector</b> according to DIN EN 61076-2-101 (on request)
Electrical connection:	0.14 - 1.5 mm <sup>2</sup> , via terminal screws
Connection cable:	PVC, H03VV-F, 2 x 0.5 mm <sup>2</sup> , KL = approx. 1.5 m (other lengths optional)
Globe:	plastic, colour black, Ø = 50 mm
Humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60730)
Protection type:	<b>IP 67</b> (according to EN 60529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1) <b>IP 65</b> (according to EN 60529) Pendulum with globe
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, 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 temperature</b> and the <b>internal diagnostics</b> (measuring range exceeded, measuring range not reached, sensor breakage, sensor short circuit)



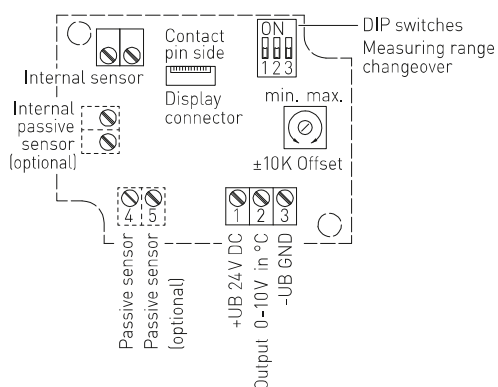
### Display and internal diagnostics

#### THERMASGARD® Measuring transducer with display

	Standard
	Measuring range exceeded
	Measuring range not reached
	Sensor breakage
	Sensor short circuit

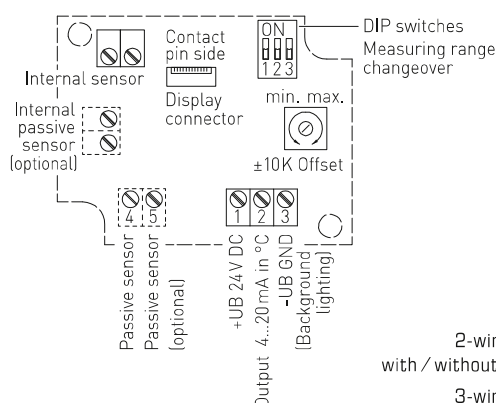
### 3-wire connection

### RPTM 2-U



### 2- or 3-wire connection\*

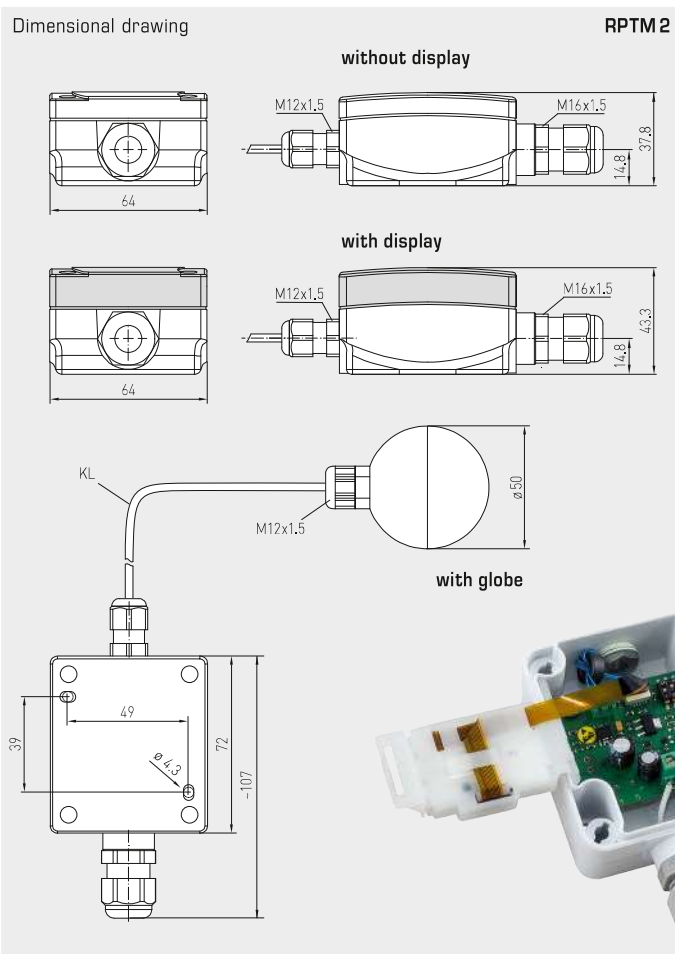
### RPTM 2-I



### Connection\*:

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





RPTM 2  
with display

M12 connector  
(optional on request)

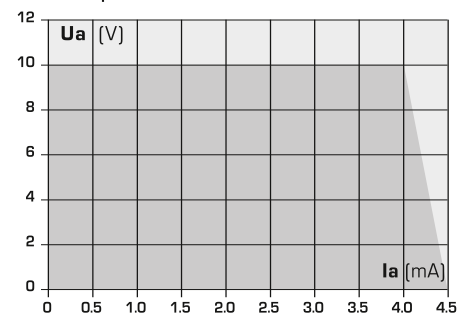


Measuring ranges (adjustable)	DIP 1	DIP 2	DIP 3
-20...+150 °C	ON	ON	ON
-50... +50 °C	OFF	ON	ON
-20... +80 °C	ON	OFF	ON
-30... +60 °C	OFF	OFF	ON
0... +40 °C	ON	ON	OFF
0... +50 °C (default)	OFF	ON	OFF
0...+100 °C	ON	OFF	OFF
0...+150 °C	OFF	OFF	OFF

(observe max. permissible temperature ranges!)



Dependency of output voltage  
on output current

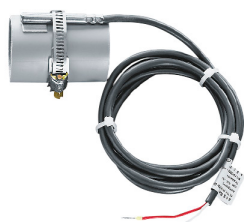


THERMASGARD® RPTM 2 Pendulum room temperature measuring transducers (with globe)					
Type / WG01	Sensor	Output	Type	Item No.	Price
<b>RPTM 2-I</b>				<b>IP65, I-variant</b>	
RPTM2-I	Pt1000	4...20 mA	Remote sensor	1101-1172-0219-910	145,49 €
<b>RPTM 2-U</b>				<b>IP65, U-variant</b>	
RPTM2-U	Pt1000	0-10 V	Remote sensor	1101-1171-0219-910	145,49 €
Extra charge:		Other ranges optional			24,19 €
		Two-line display with illumination			47,46 €
		2-wire connecting leads, per running meter (PVC)			on request
		Cable connection with M12 connector according to DIN EN 61076-2-101			on request



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