

Patented quality product (patent no. DE 10 2012 017 500.0 and DE 10 2015 015 941 B4)

Calibratable temperature measuring transducer **THERMASGARD® TM43**, with eight switchable measuring ranges (max. -20...+150 °C), active output, straight protective tube, housing made from impact-resistant plastic with snap-on lid (IP 54), optionally with or without display. The measuring transducer converts the measured variables into a standard signal of 0-10V or 4...20mA. Available as a U variant (3-wire) or I variant (2-wire).

Calibratable temperature measuring transducer **THERMASGARD® TM65**, with eight switchable measuring ranges (max. -20...+150 °C), active output, straight protective tube, housing made from impact-resistant plastic with quick-locking screws (IP 67), optionally with or 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 0-10V or 4...20mA. The unit with **Automatic Output Switching** (AOS) detects the required output type and automatically switches to U or I output. Alternatively, a **type version** (2-wire) with 2-wire connection and I output is available.

For the detection of temperatures in liquid or gaseous media. For aggressive media, stainless steel immersion sleeves must be used. It is used e.g. in piping systems, in heating technology, in storage tanks, in district heating compact stations, in hot-water and cold-water systems, in oil and lubricant circulation systems, in mechanical, apparatus and plant engineering as well as in the entire industrial sector. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

TECHNICAL DATA**TMxx - U**

Power supply:	24 V AC / DC (± 10 %)
Load resistance:	$R_L > 15 \text{ k}\Omega$ with U variant (TM43)
Connection type:	3-wire connection
Output:	0-10V

TMxx - I

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

TMxx - A (AOS)

Power supply:	24 V AC / DC (± 10 %)
Load resistance:	$R_L = 25...450 \Omega$ with AOS I variant $R_L > 15 \text{ k}\Omega$ with AOS U variant
Connection type:	3-wire connection
Output:	automatic 0-10V / 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 (TM65 can be changed via DIP switch)
Data points:	temperature [°C] [°F]
Measuring ranges:	multi-range switching with 8 measuring ranges , see table (other ranges optional) with manual zero point correction ($\pm 10 \text{ K}$)
Sensor:	Pt1000, DIN EN 60751, class B (Perfect Sensor Protection)
Accuracy, temperature:	typically $\pm 0.2 \text{ K}$ at +25 °C
Protective tube:	stainless steel, V4A (1.4571), $\varnothing = 6 \text{ mm}$, inserted length (EL) = 50-400 mm (see table)
Housing:	plastic, UV-resistant, material polyamide, 30% glass-globe reinforced, colour traffic white (similar to RAL 9016), housing cover for display is transparent! TM43 with snap-on lid TM65 with quick-locking screws (slotted / Phillips head combination)
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 according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.14 - 1.5 mm ² , via terminal screws
Ambient temperature:	measuring transducer -30...+70 °C
Permitted humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	TM43 IP54 (according to EN 60 529)* Housing tested, TÜV SÜD, Report No. 713160960A (Tyr 01) TM65 IP67 (according to EN 60 529)* Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1) * Housing in the built-in state
Standards:	CE conformity 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)

TM43
with snap-on lid
(IP 54)**TM65**
with quick-locking screws
(IP 67)Display and internal diagnostics
THERMASGARD®
Measuring transducer with display

	Temperature [°C]
	Temperature [°F]
	Sensor breakage
	Sensor short circuit



NEW

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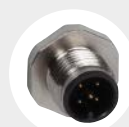
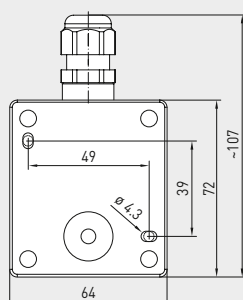
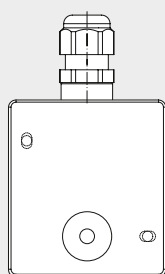
THERMASGARD® TM 43
THERMASGARD® TM 65

Immersion / screw-in / duct temperature measuring transducer,
calibratable, with multi-range switching
and active output (Automatic Output Switching)

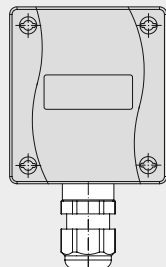
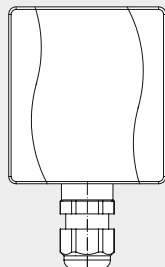
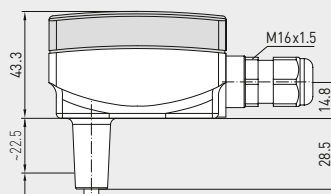
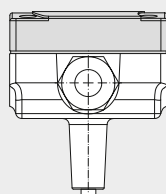
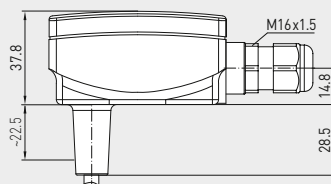
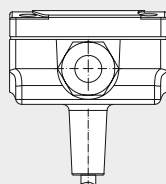


Dimensional drawing
[mm]

TM 43
TM 65



M12 connector
(optional on request)



with snap-on lid

with quick-locking
screws



TM 43
with display and
snap-on lid
(IP54)



TM 65
with display and
quick-locking screws
(IP67)



High-performance encapsulation against
vibration, mechanical stress and humidity

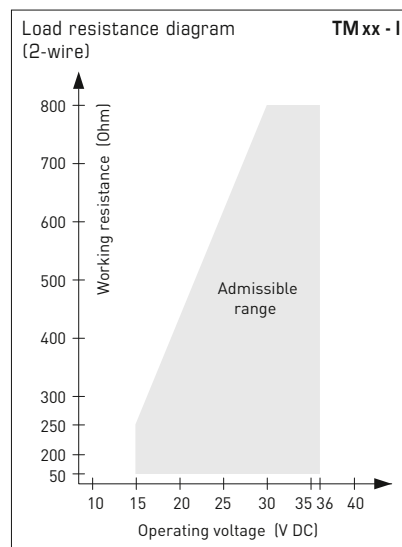
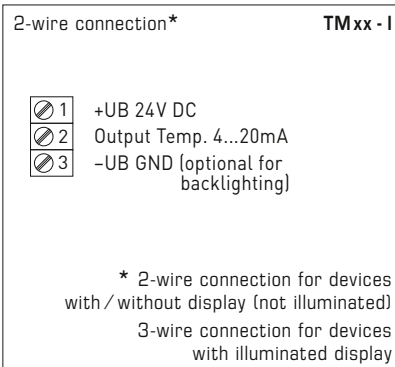
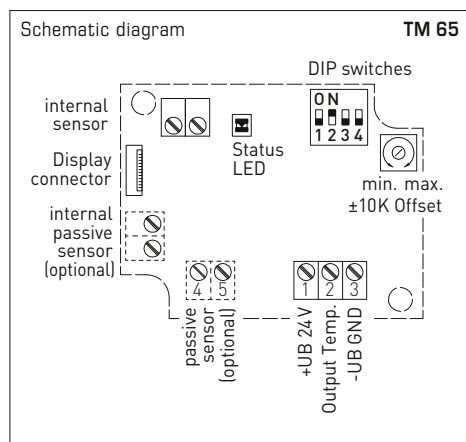
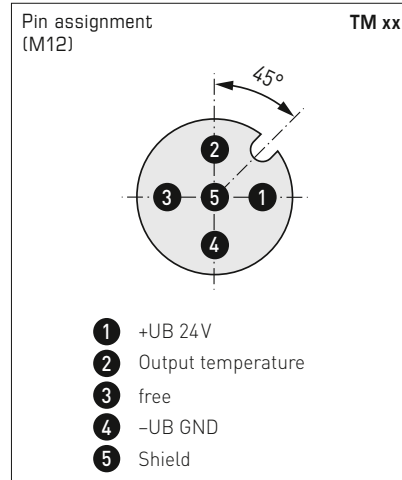
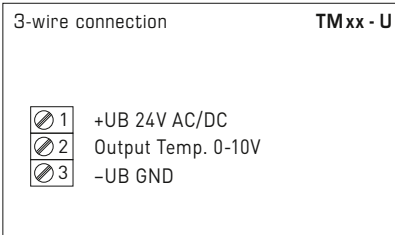
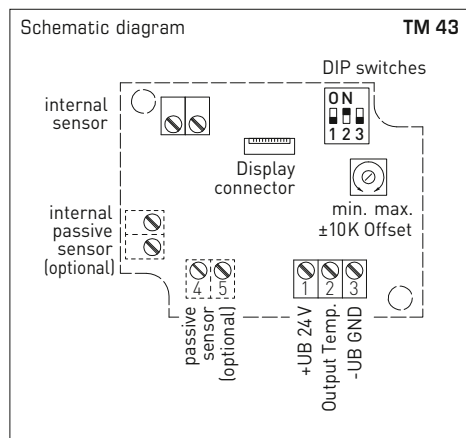
PS-PROTECTION
PERFECT SENSOR PROTECTION

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

AOS-PATENTED
AUTOMATIC OUTPUT SWITCHING



TM 65
Basic device
with accessories



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

TM 65 Display
Temperature [°C] → [°F]
The display value depends on the set unit system (DIP4).



For further technical information, see the operating instructions



**NEW**

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THERMASGARD® TM 43
THERMASGARD® TM 65Immersion / screw-in / duct temperature measuring transducer,
calibratable, with multi-range switching
and active output (Automatic Output Switching)

THERMASGARD® TM 43 Temperature measuring transducer (basic device with snap-on lid), <i>Standard</i>				
Type / WG01B	Output	Inserted Length (EL)	Display	Item No.
TM 43-I	(2-wire)			IP 54
TM43-I 50mm	4...20 mA	50 mm		1101-7112-0019-900
TM43-I 50mm LCD	4...20 mA	50 mm	■	1101-7112-2019-900
TM43-I 100mm	4...20 mA	100 mm		1101-7112-0029-900
TM43-I 100mm LCD	4...20 mA	100 mm	■	1101-7112-2029-900
TM43-I 150mm	4...20 mA	150 mm		1101-7112-0039-900
TM43-I 150mm LCD	4...20 mA	150 mm	■	1101-7112-2039-900
TM43-I 200mm	4...20 mA	200 mm		1101-7112-0049-900
TM43-I 200mm LCD	4...20 mA	200 mm	■	1101-7112-2049-900
TM43-I 250mm	4...20 mA	250 mm		1101-7112-0059-900
TM43-I 250mm LCD	4...20 mA	250 mm	■	1101-7112-2059-900
TM43-I 300mm	4...20 mA	300 mm		1101-7112-0069-900
TM43-I 300mm LCD	4...20 mA	300 mm	■	1101-7112-2069-900
TM 43-U	(3-wire)			IP 54
TM43-U 50mm	0-10 V	50 mm		1101-7111-0019-900
TM43-U 50mm LCD	0-10 V	50 mm	■	1101-7111-2019-900
TM43-U 100mm	0-10 V	100 mm		1101-7111-0029-900
TM43-U 100mm LCD	0-10 V	100 mm	■	1101-7111-2029-900
TM43-U 150mm	0-10 V	150 mm		1101-7111-0039-900
TM43-U 150mm LCD	0-10 V	150 mm	■	1101-7111-2039-900
TM43-U 200mm	0-10 V	200 mm		1101-7111-0049-900
TM43-U 200mm LCD	0-10 V	200 mm	■	1101-7111-2049-900
TM43-U 250mm	0-10 V	250 mm		1101-7111-0059-900
TM43-U 250mm LCD	0-10 V	250 mm	■	1101-7111-2059-900
TM43-U 300mm	0-10 V	300 mm		1101-7111-0069-900
TM43-U 300mm LCD	0-10 V	300 mm	■	1101-7111-2069-900

THERMASGARD® TM 65 Temperature measuring transducer (basic device with quick-locking screws), <i>Premium</i>				
Type / WG01	Output	Inserted Length (EL)	Display	Item No.
TM 65-I	(2-wire)			IP 67
TM65-I 50mm	4...20 mA	50 mm		1101-7122-0019-900
TM65-I 50mm LCD	4...20 mA	50 mm	■	1101-7122-2019-900
TM65-I 100mm	4...20 mA	100 mm		1101-7122-0029-900
TM65-I 100mm LCD	4...20 mA	100 mm	■	1101-7122-2029-900
TM65-I 150mm	4...20 mA	150 mm		1101-7122-0039-900
TM65-I 150mm LCD	4...20 mA	150 mm	■	1101-7122-2039-900
TM65-I 200mm	4...20 mA	200 mm		1101-7122-0049-900
TM65-I 200mm LCD	4...20 mA	200 mm	■	1101-7122-2049-900
TM65-I 250mm	4...20 mA	250 mm		1101-7122-0059-900
TM65-I 250mm LCD	4...20 mA	250 mm	■	1101-7122-2059-900
TM65-I 300mm	4...20 mA	300 mm		1101-7122-0069-900
TM65-I 300mm LCD	4...20 mA	300 mm	■	1101-7122-2069-900
TM65-I 400mm	4...20 mA	400 mm		1101-7122-0089-900
TM65-I 400mm LCD	4...20 mA	400 mm	■	1101-7122-2089-900
TM 65-A	* (3-wire AOS)			IP 67
TM65-A 50mm	0-10 V / 4...20 mA	50 mm		1101-712E-0019-900
TM65-A 50mm LCD	0-10 V / 4...20 mA	50 mm	■	1101-712E-2019-900
TM65-A 100mm	0-10 V / 4...20 mA	100 mm		1101-712E-0029-900
TM65-A 100mm LCD	0-10 V / 4...20 mA	100 mm	■	1101-712E-2029-900
TM65-A 150mm	0-10 V / 4...20 mA	150 mm		1101-712E-0039-900
TM65-A 150mm LCD	0-10 V / 4...20 mA	150 mm	■	1101-712E-2039-900
TM65-A 200mm	0-10 V / 4...20 mA	200 mm		1101-712E-0049-900
TM65-A 200mm LCD	0-10 V / 4...20 mA	200 mm	■	1101-712E-2049-900
TM65-A 250mm	0-10 V / 4...20 mA	250 mm		1101-712E-0059-900
TM65-A 250mm LCD	0-10 V / 4...20 mA	250 mm	■	1101-712E-2059-900
TM65-A 300mm	0-10 V / 4...20 mA	300 mm		1101-712E-0069-900
TM65-A 300mm LCD	0-10 V / 4...20 mA	300 mm	■	1101-712E-2069-900
TM65-A 400mm	0-10 V / 4...20 mA	400 mm		1101-712E-0089-900
TM65-A 400mm LCD	0-10 V / 4...20 mA	400 mm	■	1101-712E-2089-900
Automatic Output Switching: * patented analogue interface (patent no. DE 10 2015 015 941 B4) Unit automatically detects the required output type 0-10 V or 4...20 mA.				
Extra charge:	Cable connection with M12 connector according to DIN EN 61076-2-101			on request

One basic device in four variants ...



PATENTED

DE 10 2012 017 500.0

**TMxx +
TH08-MS/xx**

Immersion / screw-in
temperature sensor
with immersion sleeve, brass,
nickel-plated / galvanised

**TMxx +
TH08-VA/xx**

Immersion / screw-in
temperature sensor
with immersion sleeve,
stainless steel, V4A

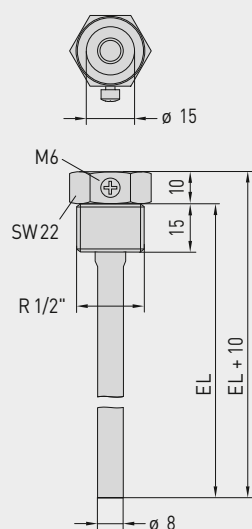
**TMxx +
TH08-VA/xx/90**

Immersion / screw-in
temperature sensor with
immersion sleeve with neck
tube, stainless steel, V4A

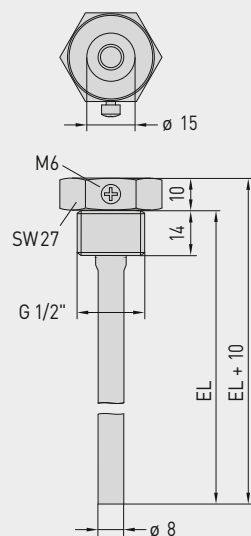
**TMxx +
MF-15-K**

Duct temperature sensor
with mounting flange, plastic

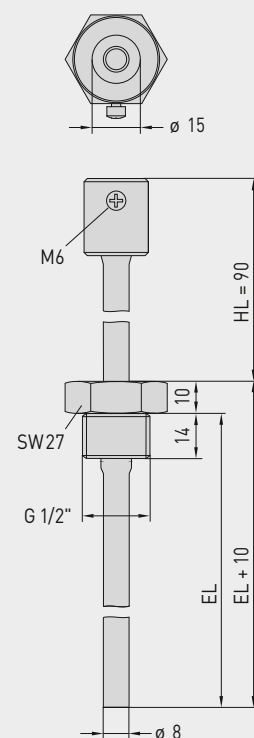
Dimensional drawing
TH08-MS/xx
[mm]



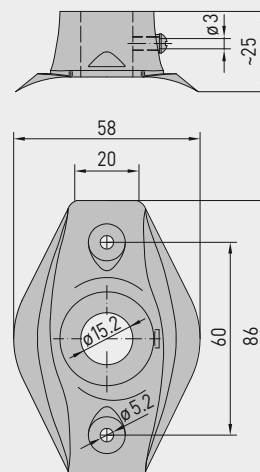
Dimensional drawing
TH08-VA/xx
[mm]



Dimensional drawing
TH08-VA/xx/90
[mm]



Dimensional drawing
MF-15-K
[mm]





S+S REGELTECHNIK

THERMASGARD® TM 43
THERMASGARD® TM 65

Immersion / screw-in / duct temperature measuring transducer,
calibratable, with multi-range switching
and active output (Automatic Output Switching)

...through combination with accessories:



TH08-MS/xx

Immersion sleeve,
brass, nickel-plated / galvanised,
thread-sealing, conical,
according to DIN 10226



TH08-VA/xx

Immersion sleeve,
stainless steel, V4A,
flat-sealing, cylindrical,
according to DIN 228



TH08-VA/xx/90

Immersion sleeve with neck tube,
stainless steel, V4A,
flat-sealing, cylindrical,
according to DIN 228



MF-15-K

Mounting flange,
plastic

THERMASGARD® TH08 Immersion sleeve Ø 8 mm (Accessories)				
Type / WG01B	p _{max} (static)	T _{max}	Inserted Length (EL)	Item No.
TH08-MS / xx	Brass nickel-plated / galvanised			without neck tube
TH08-MS 50MM	10 bar	+150 °C	50 mm	7100-0011-0010-132
TH08-MS 100MM	10 bar	+150 °C	100 mm	7100-0011-0020-132
TH08-MS 150MM	10 bar	+150 °C	150 mm	7100-0011-0030-132
TH08-MS 200MM	10 bar	+150 °C	200 mm	7100-0011-0040-132
TH08-MS 250MM	10 bar	+150 °C	250 mm	7100-0011-0050-132
TH08-MS 300MM	10 bar	+150 °C	300 mm	7100-0011-0060-132
TH08-MS 350MM	10 bar	+150 °C	350 mm	7100-0011-0070-132
TH08-MS 400MM	10 bar	+150 °C	400 mm	7100-0011-0080-132
TH08-VA / xx	Stainless steel, V4A (1.4571)			without neck tube
TH08-VA 50MM	40 bar	+600 °C	50 mm	7100-0012-0010-132
TH08-VA 100MM	40 bar	+600 °C	100 mm	7100-0012-0020-132
TH08-VA 150MM	40 bar	+600 °C	150 mm	7100-0012-0030-132
TH08-VA 200MM	40 bar	+600 °C	200 mm	7100-0012-0040-132
TH08-VA 250MM	40 bar	+600 °C	250 mm	7100-0012-0050-132
TH08-VA 300MM	40 bar	+600 °C	300 mm	7100-0012-0060-132
TH08-VA 350MM	40 bar	+600 °C	350 mm	7100-0012-0070-132
TH08-VA 400MM	40 bar	+600 °C	400 mm	7100-0012-0080-132
TH08-VA / xx / 90	Stainless steel, V4A (1.4571)			with neck tube (90 mm)
TH08-VA 50/90MM	40 bar	+600 °C	50 mm	7100-0012-0012-132
TH08-VA 100/90MM	40 bar	+600 °C	100 mm	7100-0012-0022-132
TH08-VA 150/90MM	40 bar	+600 °C	150 mm	7100-0012-0032-132
TH08-VA 200/90MM	40 bar	+600 °C	200 mm	7100-0012-0042-132
TH08-VA 250/90MM	40 bar	+600 °C	250 mm	7100-0012-0052-132
TH08-VA 300/90MM	40 bar	+600 °C	300 mm	7100-0012-0062-132
Note:	inner diameter of socket 15.0 mm For further information see last chapter!			
Mounting flange (Accessories)				
Type / WG01B			T _{max}	Item No.
MF				
MF-15-K	Mounting flange, plastic, 56.8x84.3 mm, Ø 15.2 mm tube gland		+100 °C	7100-0032-0000-000
Note:	For further information see last chapter!			