MODBUS/BACNET

TEMPERATURFØLERE

NEWTRONIC

HYGRASGARD® RFTF-Modbus-xx

Roomoperating humidity and temperature sensor (± 2.0 %), on-wall,
for temperature, relative / absolute humidity, dew point, mixture ratio, enthalpy,
calibratable, with Modbus connection

The calibratable room sensor **HYGRASGARD® RFTF-Modbus** with Modbus connection, with/without optional display in an elegant housing (Baldur 2) measures the relative humidity and temperature of the room air. These measurands are used to internally calculate various parameters. The Modbus can be used to retrieve the following parameters: relative humidity [% r. H.], absolute humidity [g/m³], mixture ratio [g/kg], dew point temperature [°C], enthalpy [kJ/kg] (ignoring atmospheric air pressure) and room temperature [°C].
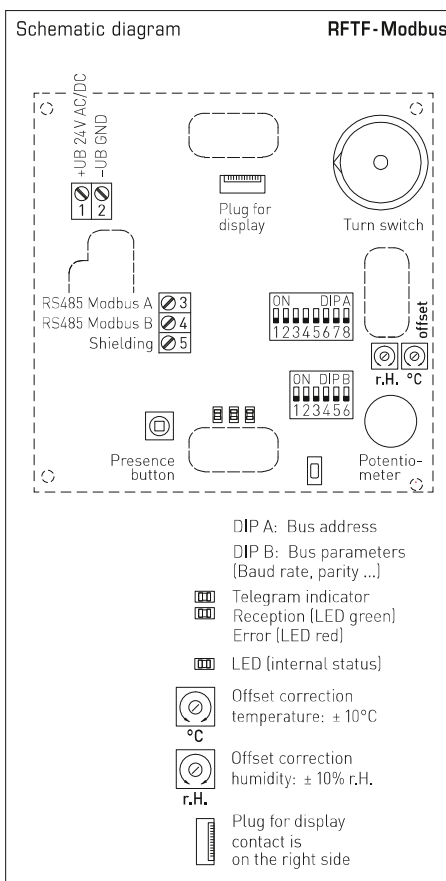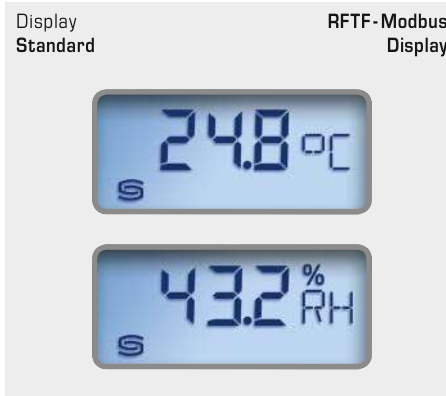
As operating element you can chooce between a potentiometer, a 5-pole rotary switch or a presence button. For the temperature / relative humidity / absolute humidity / dew point / mixture ratio / enthalpy or setpoint output devices with LCD display are optionally available for displaying readings. Operating status can be displayed via a maximum of 5 multi-coloured LEDs. These displays (LCDs), as well as the retrieval of measurement and control values, are controlled via the Modbus interface.

RFTF-Modbus-PTD5 5L
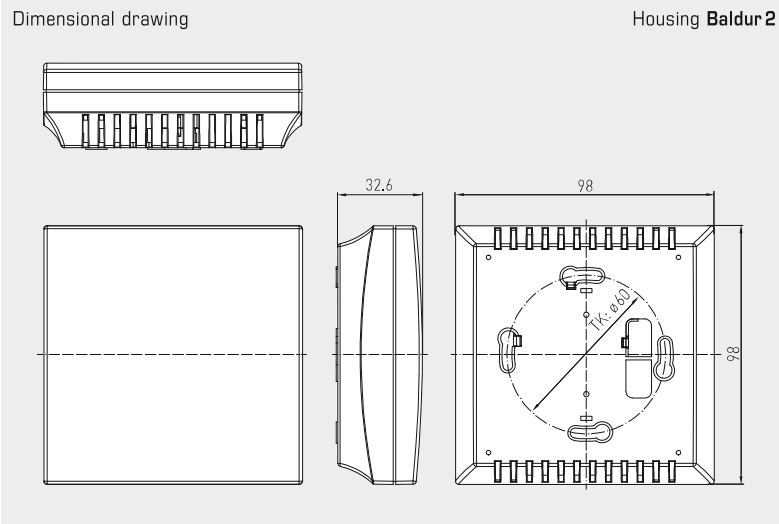with potentiometer, push-buttons,
rotary switches and LED display

Display **RFTF-Modbus**
Standard **Display**

TECHNICAL DATA

Power supply:	24 V AC (± 20 %) and 15…36 V DC
Power consumption:	< 1 VA / 24 V DC, < 2.2 VA / 24 V AC
Sensor:	**Digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
Data points:	Temperature, relative humidity, absolute humidity, dew point, mixture ratio, enthalpy and setpoint potentiometer, rotary switch and presence button
Measuring range:	0…100 % r.H. (humidity) 0…+50 °C (temperature)
Deviation, humidity:	typically **± 2.0** % (20…80 % r. H.) at +25 °C, otherwise ± 3.0 %
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 % r.H. (humidity) ± 10 °C (temperature) adjustable using potentiometer
Ambient temperature:	Storage −35…+85 °C; Operation 0…+50 °C
Medium:	clean air and other **non-aggressive**, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0…**247** selectable, LEDs colour-programmable
Signal filtering:	4 s / 32 s
Housing:	plastic, material ABS, colour pure white (similar to RAL 9010)
Dimensions:	98 x 98 x 33 mm (Baldur 2)
Installation:	wall mounting or on in-wall flush box, Ø 55 mm, base with 4 holes, for attachment to vertically or horizontally installed in-wall flush boxes for rear cable entry, with predetermined breaking point for cable entry from top / bottom in case of plain on-wall installation
Long-term stability:	± 1 % / year
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 30 (according to EN 60 529)
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU, according to EN 61 326
Features:	**Display with illumination,** two-line, programmable, cutout approx. 36 x 15 mm (W x H), to display actual humidity and temperature or a selectable parameter or an individually programmable display value
ACCESSORIES	see table

Schematic diagram **RFTF-Modbus**

DIP A: Bus address
DIP B: Bus parameters
(Baud rate, parity …)

Telegram indicator
Reception (LED green)
Error (LED red)

LED (internal status)

Offset correction
temperature: ± 10°C

Offset correction
humidity: ± 10% r.H.

Plug for display
contact is
on the right side

S+S REGELTECHNIK

Roomoperating humidity and temperature sensor (± 2.0 %), on-wall,
for temperature, relative / absolute humidity, dew point, mixture ratio, enthalpy,
calibratable, with Modbus connection

Dimensional drawing   Housing **Baldur 2**

32.6   98

RFTF-Modbus-P T 5L
with display, potentiometer,
push-buttons and LED display

Stufe I
Stufe II
Stufe III
Heizung
Störung

22.0 °C

Display
alternative output variables

**RFTF-Modbus
Display**

24.8 ₁ °C   50 ₂ %   13.8 ₃ °C   43.2 ₄ %RH

72.8 ₅ g/m³   55.4 ₆ g/kg   81.3 ₇ kJ/kg   8.8:8.8.%

By default, the display alternates between the **actual temperature** and the **actual humidity** (relative humidity). For improved legibility, backlighting is provided.

The Modbus interface allows the display to be **individually** configured both in the 7-segment area and in the dot-matrix area.

The **Modbus configuration** can be used to program an alternative output variable instead of the standard display.
In this case, the first line displays the value and index while the second line displays the corresponding unit.
The index identifies the display type:

Index 1 = temperature in **°C**
Index 2 = setpoint potentiometer in **%**
Index 3 = dew point in **°C**
Index 4 = relative humidity in **% r.H.**
Index 5 = absolute humidity in **g/m³**
Index 6 = mixture ratio in **g/kg**
Index 7 = enthalpy in **kJ/kg**

HYGRASGARD® **RFTF-Modbus**	Roomoperating humidity and temperature sensor					
Type / WG01	**Measuring Range / Readout** Humidity (switchable)	Temperature	**Output**	**Display**	**Item No.**	**Price**
RFTF-Modbus-xx						
RFTF-Modbus **P**	0...100 % r. H. 0...80 g/kg 0...80 g/m³ 0...85 kJ/kg −20...+80 °C	(default) (MR) (A.H.) (ENT.) (DP)	0...+50 °C	Modbus		1201-42B6-6001-005	**190,95 €**
RFTF-Modbus **P LCD**	(5 x as above)		(1 x as above)	Modbus	■	1201-42B6-7001-005	**227,32 €**
RFTF-Modbus **P 5L**	(5 x as above)		(1 x as above)	Modbus		1201-42B6-6119-005	**246,23 €**
RFTF-Modbus **P 5L LCD**	(5 x as above)		(1 x as above)	Modbus	■	1201-42B6-7119-005	**282,60 €**
RFTF-Modbus **P D5**	(5 x as above)		(1 x as above)	Modbus		1201-42B6-6012-841	**219,75 €**
RFTF-Modbus **P D5 5L**	(5 x as above)		(1 x as above)	Modbus		1201-42B6-6120-841	**277,33 €**
RFTF-Modbus **P T D5 5L**	(5 x as above)		(1 x as above)	Modbus		1201-42B6-6121-841	**291,16 €**
RFTF-Modbus **P T**	(5 x as above)		(1 x as above)	Modbus		1201-42B6-6047-005	**202,47 €**
RFTF-Modbus **P T LCD**	(5 x as above)		(1 x as above)	Modbus	■	1201-42B6-7047-005	**238,84 €**
RFTF-Modbus **P T 5L**	(5 x as above)		(1 x as above)	Modbus		1201-42B6-6051-005	**260,05 €**
RFTF-Modbus **P T 5L LCD**	(5 x as above)		(1 x as above)	Modbus	■	1201-42B6-7051-005	**296,42 €**
Equipment:	**P** = Potentiometer (setpoint setter) **T** = Presence push-buttons		**D5** = Rotary switch, 5-step **5L** = LED display, multi-colour (5x)			

ACCESSORIES				
KA2-Modbus	**Communication adapter** (USB/RS485)		1906-1200-0000-100	**203,80 €**

THERMASGARD® RTM1-Modbus

**Room operating temperature sensor (± 2.0 %), on-wall,
for temperature, relative humidity, dew point,
calibratable, with Modbus connection**

S+S REGELTECHNIK

Calibratable room temperature measuring transducer **THERM**ASGARD® **RTM1- Modbus** with Modbus connection, with /without optional display for displaying the actual temperature, in an elegant housing made of plastic, with snap-on lid, base with 4-hole attachment, for installation on vertically or horizontally installed in-wall flush boxes, with predetermined breaking point for on-wall cable entry.
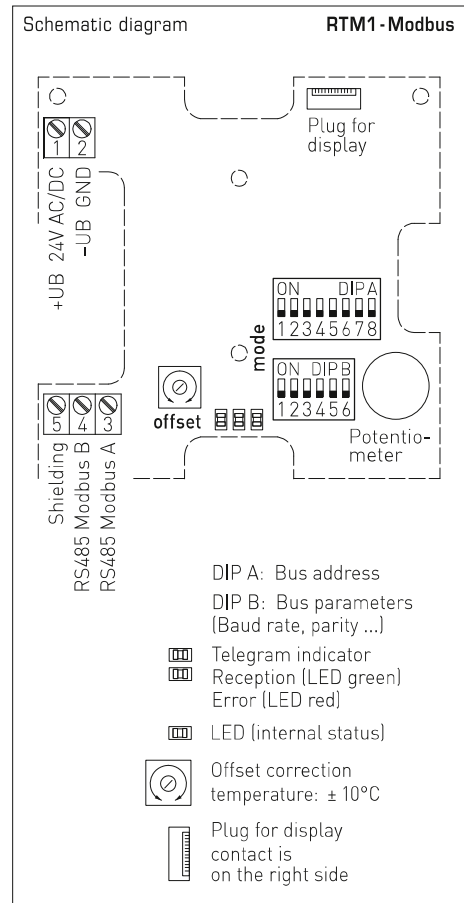
The calibrateable room operating sensor measures the temperature of non-aggressive gases, particularly air. In this case, a setpoint potentiometer is available as an operating element. For temperature/humidity/dew point or setpoint readings, optional devices with LCD displays for displaying readings are available. The displays (LCD), as well as the retrieval of measurement and control values, are triggered via the Modbus interface.
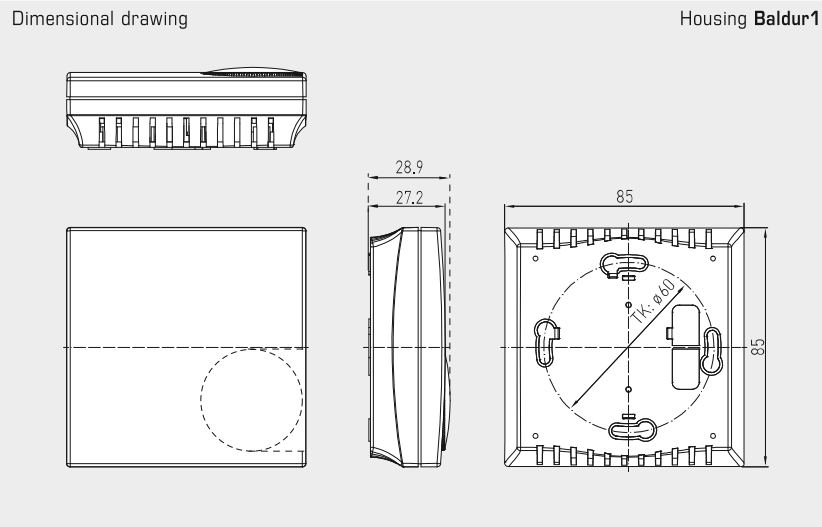
RTM1 - Modbus
Standard

TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15…36 V DC
Power consumption:	< 1.0 VA / 24 V DC < 2.2 VA / 24 V AC
Sensor:	**digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
Data points:	temperature, relative humidity, dew point, setpoint potentiometer
Measuring range:	0…+50 °C
Deviation, humidity:	typically **± 2.0** % (20…80 % r. H.) at +25 °C, otherwise ± 3.0 %
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C, adjustable by potentiometer
Ambient temperature:	storage −35…+85 °C; operation 0…+50 °C
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0…**247** selectable
Signal filtering:	4 s / 32 s
Process connection:	by screws
Housing:	plastic, material ABS, colour pure white (similar to RAL 9010)
Dimensions:	85 x 85 x 27 mm (Baldur 1)
Installation:	wall mounting or on in-wall flush box, Ø 55 mm, base with 4 holes, for attachment to vertically or horizontally installed in-wall flush boxes for rear cable entry, with predetermined breaking point for cable entry from top /bottom in case of plain on-wall installation
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**IP 30** (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Optional:	two-line **display with illumination**, programmable, cutout approx. 36 x 15 mm (W x H), for displaying the actual temperature or an individually programmable display value (The Modbus interface allows the display to be individually configured in the 7-segment area and in the dot-matrix area.)
ACCESSORIES	see table

Programmable
display

RTM1 - Modbus

Schematic diagram

RTM1 - Modbus

+UB 24V AC/DC
−UB GND

Plug for
display

Shielding
RS485 Modbus B
RS485 Modbus A

ON   DIP A
1 2 3 4 5 6 7 8

mode

ON DIP B
1 2 3 4 5 6

offset

Potentio-
meter

DIP A: Bus address
DIP B: Bus parameters
(Baud rate, parity …)

Telegram indicator
Reception (LED green)
Error (LED red)

LED (internal status)

Offset correction
temperature: ± 10°C

Plug for display
contact is
on the right side

Room operating temperature sensor (± 2.0 %), on-wall,
for temperature, relative humidity, dew point,
calibratable, with Modbus connection

Dimensional drawing   Housing **Baldur1**

28.9
27.2
85
85

RTM1-Modbus
with display

RTM1-Modbus
with display

RTM1-Modbus-P
with display and
potentiometer

RTM1-Modbus
without display

RTM1-Modbus-P
with potentiometer

THERMASGARD® RTM 1 - Modbus   Room operating temperature sensor

Type / WG01	Sensor	Output	Equipment	Display	Item No.	Price
RTM 1 - Modbus					IP 30	
RTM1-Modbus	digital	Modbus	–		1101-42A6-0000-000	**109,73 €**
RTM1-Modbus **LCD**	digital	Modbus	–	■	1101-42A6-2000-000	**162,48 €**
RTM 1 - P - Modbus					IP 30	
RTM1-Modbus P	digital	Modbus	potentiometer		1101-42A6-0001-005	**144,28 €**
RTM1-Modbus P **LCD**	digital	Modbus	potentiometer	■	1101-42A6-2001-005	**259,83 €**
ACCESSORIES						
KA2 -Modbus	Communication adapter (USB/RS485) for system connection				1906-1200-0000-100	**203,80 €**
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination				1906-1300-0000-100	**76,01 €**

THERMASGARD® ATM 2 - Modbus - T3

**Outside temperature / wet room
temperature measuring transducers, calibratable,
with Modbus connection**

Calibratable outside temperature measurement transducer **THERM**ASGARD®
ATM 2 - Modbus - T3 with Modbus connection, in an impact-resistant plastic housing
with quick-locking screws, optionally with / without display.

The on-wall sensor is used to detect the temperature in gaseous media. It is used outside
or in wet rooms, in cold storage buildings and greenhouses, in the industrial sector and in
agriculture. Installation on outside walls is preferably performed on the north side or in a
protected place. In case of direct solar irradiation, we recommend using our sun and
ball-impact protection hood **WS 01** or **WS 04** (accessories).

Innovative Modbus sensor with galvanically separated RS485 Modbus interface, selectable
bus termination resistance, DIP switch for setting the bus parameters and bus address in
current-free state, LEDs for telegram status display, two separate push-in terminals and
large three-line display (illuminated,
with customised programming in the 7-segment range and dot-matrix range). Uses **internal
diagnostics** to detect sensor breakage or sensor short circuit as errors. The error messages
can be retrieved via Modbus and are shown on the display. The sensor is factory-calibrated;
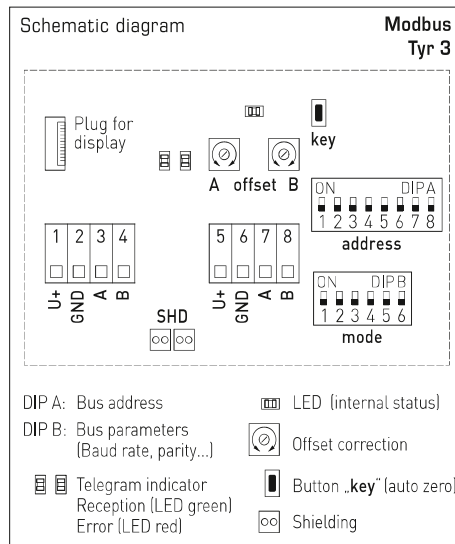an environmental precision adjustment by an expert is possible.

ATM 2 - Modbus - T3

Device variant
with **M12 connector**
(optional on request)
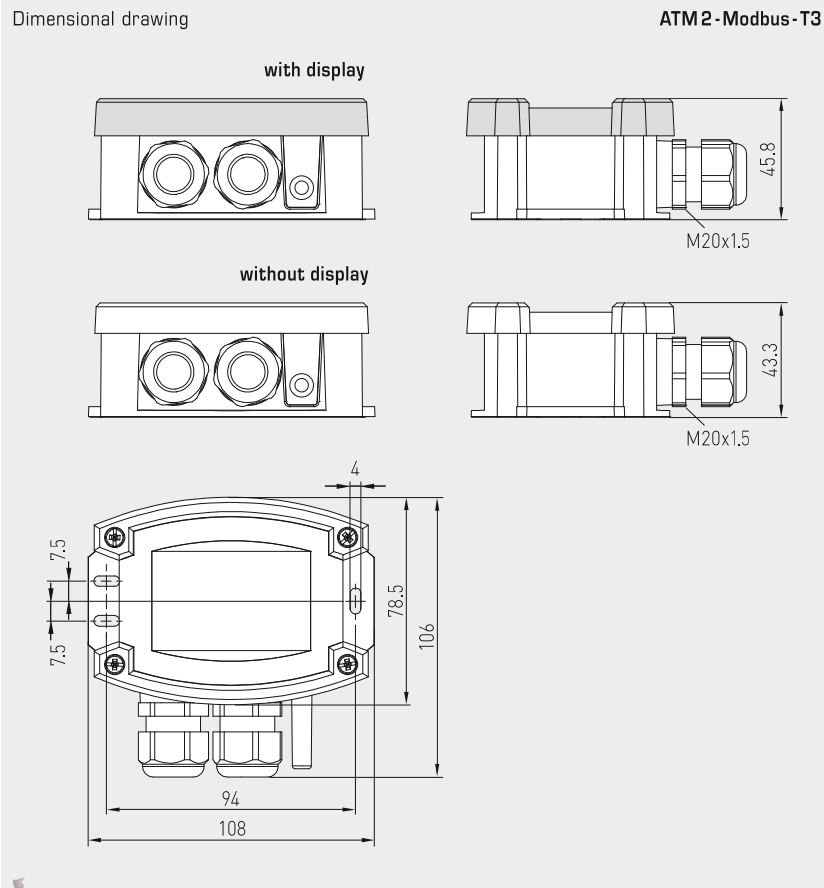
TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B
Measuring range:	−50...+150 °C
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Ambient temperature:	Measuring transducer −30...+70 °C
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Signal filtering:	0.3 s / 1 s / 10 s
Process connection:	by screws
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:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Equipment:	**Display with illumination**, three-line, programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature or an individually programmable display value
Internal diagnostics:	**Error 1** at sensor breakage **Error 2** at sensor short circuit
ACCESSORIES	see table

Schematic diagram | Modbus Tyr 3

Plug for display
key
A offset B
ON DIP A
1 2 3 4 5 6 7 8
address

1 2 3 4   5 6 7 8
U+ GND A B   U+ GND A B
SHD

ON DIP B
1 2 3 4 5 6
mode

DIP A: Bus address
DIP B: Bus parameters
(Baud rate, parity...)

Telegram indicator
Reception (LED green)
Error (LED red)

LED (internal status)
Offset correction
Button „key" (auto zero)
Shielding

Programmable
display screen | Modbus Tyr 3

THERMASGARD® **ATM 2 - Modbus - T3**

Outside temperature / wet room
temperature measuring transducers, calibratable,
with Modbus connection

Dimensional drawing ATM 2 - Modbus - T3

with display

without display

ATM 2 - Modbus - T3
with display

THERMASGARD® ATM 2 - Modbus - T3 Outside temperature / wet room temperature measuring transducers					
Type / WG01	Sensor	Output	Display	Item No.	Price
ATM 2 - Modbus - T3					
ATM2-Modbus-T3	Pt1000	Modbus		1101-12C6-0000-000	**122,34 €**
ATM2-Modbus-T3 **LCD**	Pt1000	Modbus	■	1101-12C6-4000-000	**173,97 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101			on request	

ACCESSORIES			
KA2 - Modbus	**Communication adapter** (with USB and RS485 interface) for system connection (incl. quick-start software)	1906-1200-0000-100	**203,80 €**
LA - Modbus	**Line termination device** (with terminating resistor) as an active bus termination of RS485 networks	1906-1300-0000-100	**76,01 €**
WS - 01	**Sun and ball-impact protection hood,** 184 x 180 x 80 mm, stainless steel **V2A** (1.4301)	7100-0040-2000-000	**30,26 €**
WS - 04	**Weather and sun protection hood,** 130 x 180 x 135 mm, stainless steel **V2A** (1.4301)	7100-0040-7000-000	**35,70 €**
	For further information, see last chapter Accessories!		

THERMASGARD® TM 65 - Modbus - T3

Immersion / screw-in / duct temperature measuring transducer, calibratable, with Modbus connection

Patented quality product (Immersion sensor patent no. DE 10 2012 017 500.0)

Calibratable temperature measuring transducer with sensor tube **THERM**ASGARD® **TM 65 - Modbus - T3** with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, optionally with / without display, stainless steel-protective tube (50–400 mm).

The duct sensor is used to detect the temperature in liquid or gaseous media. Use the stainless steel immersion sleeves for aggressive media. It is used in heating engineering, ventilation and air conditioning ducts, pipes, storage systems, compact district heating stations, warm and cold water systems, oil and lubrication cycle systems, machine and systems engineering and the entire industry sector.

Innovative Modbus sensor with galvanically separated RS485 Modbus interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated, with customised programming in the 7-segment range and dot-matrix range). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The error messages can be retrieved via Modbus and are shown on the display. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.
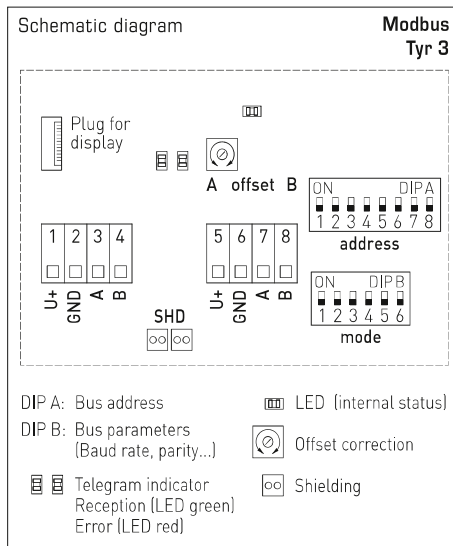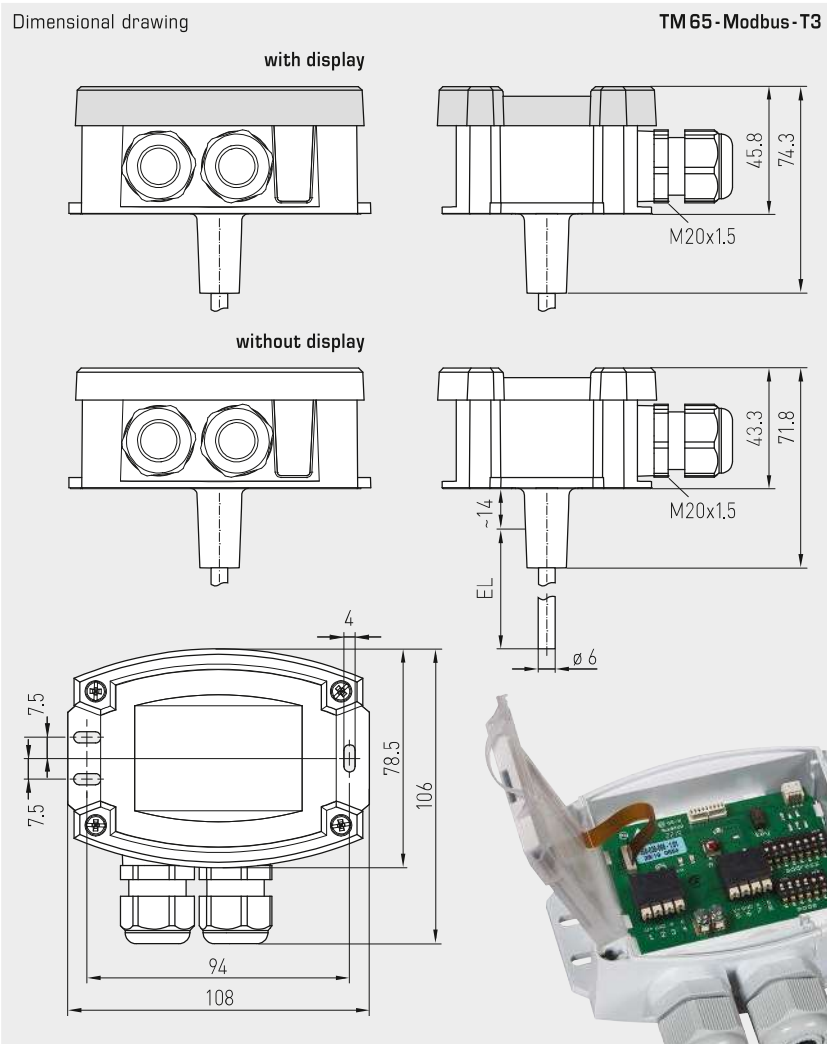
Device version
with **M12 connector**
(optional on request)

TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B (**Perfect Sensor Protection**)
Measuring range:	− 50...+150 °C
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Ambient temperature:	Measuring transducer − 30...+70 °C
Medium:	depending on selected immersion sleeve
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Signal filtering:	0.3 s / 1 s / 10 s
Protective tube:	stainless steel, **V4A** (1.4571), Ø = 6 mm, inserted length (EL) = 50 - 400 mm (see table)
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:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Equipment:	**Display with illumination**, three-line, programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature or an individually programmable display value
Internal diagnostics:	**Error 1** at sensor breakage **Error 2** at sensor short circuit
ACCESSORIES	see table

Schematic diagram — **Modbus Tyr 3**

Plug for display

A offset B

ON   DIP A
1 2 3 4 5 6 7 8
address

ON   DIP B
1 2 3 4 5 6
mode

1 2 3 4 U+ GND A B   5 6 7 8 U+ GND A B

SHD

DIP A: Bus address
DIP B: Bus parameters (Baud rate, parity...)

Telegram indicator Reception (LED green) Error (LED red)

LED (internal status)
Offset correction
Shielding

Programmable display screen — **Modbus Tyr 3**

S+S REGELTECHNIK

Immersion / screw-in / duct temperature measuring transducer, calibratable, with Modbus connection

Dimensional drawing   TM 65 - Modbus - T3

with display

without display

M20x1.5

45.8
74.3

43.3
71.8

~14
EL
ø 6

M20x1.5

4
7.5
78.5
106
7.5
94
108

TM 65 - Modbus - T3
with display

High-performance encapsulation against vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

THERMASGARD® **TM 65 - Modbus - T3** Temperature sensor (basic device)					
Type / WG01	Output	Inserted Length (EL)	Display	Item No.	Price
TM65 - Modbus - T3					
TM65-Modbus-T3 50mm	Modbus	50 mm		1101-7236-0010-000	**122,01 €**
TM65-Modbus-T3 50mm **LCD**	Modbus	50 mm	■	1101-7236-4010-000	**173,62 €**
TM65-Modbus-T3 100mm	Modbus	100 mm		1101-7236-0020-000	**122,28 €**
TM65-Modbus-T3 100mm **LCD**	Modbus	100 mm	■	1101-7236-4020-000	**173,89 €**
TM65-Modbus-T3 150mm	Modbus	150 mm		1101-7236-0030-000	**122,49 €**
TM65-Modbus-T3 150mm **LCD**	Modbus	150 mm	■	1101-7236-4030-000	**174,14 €**
TM65-Modbus-T3 200mm	Modbus	200 mm		1101-7236-0040-000	**122,71 €**
TM65-Modbus-T3 200mm **LCD**	Modbus	200 mm	■	1101-7236-4040-000	**174,33 €**
TM65-Modbus-T3 250mm	Modbus	250 mm		1101-7236-0050-000	**123,01 €**
TM65-Modbus-T3 250mm **LCD**	Modbus	250 mm	■	1101-7236-4050-000	**174,65 €**
TM65-Modbus-T3 300mm	Modbus	300 mm		1101-7236-0060-000	**123,77 €**
TM65-Modbus-T3 300mm **LCD**	Modbus	300 mm	■	1101-7236-4060-000	**175,38 €**
TM65-Modbus-T3 350mm	Modbus	350 mm		1101-7236-0070-000	**124,76 €**
TM65-Modbus-T3 350mm **LCD**	Modbus	350 mm	■	1101-7236-4070-000	**176,41 €**
TM65-Modbus-T3 400mm	Modbus	400 mm		1101-7236-0080-000	**125,77 €**
TM65-Modbus-T3 400mm **LCD**	Modbus	400 mm	■	1101-7236-4080-000	**177,43 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101			on request	
ACCESSORIES					
KA2 - Modbus	Communication adapter (USB/RS485) for system connection			1906-1200-0000-100	**203,80 €**
LA - Modbus	Line termination device (with terminating resistor) as an active bus termination			1906-1300-0000-100	**76,01 €**

Immersion / screw-in / duct temperature measuring transducer,
calibratable, with Modbus connection

S+S REGELTECHNIK

One basic device in four variants ...

PATENTED

**TM 65 - Modbus - T3 +
TH 08 - ms / xx**

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

**TM 65 - Modbus - T3 +
TH 08 - VA / xx**

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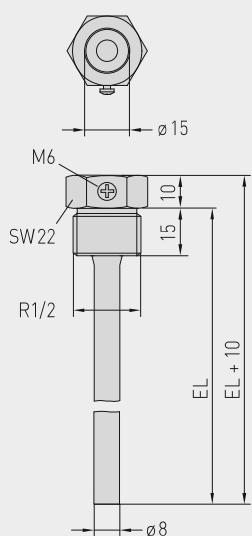with immersion sleeve,
stainless steel, V4A

**TM 65 - Modbus - T3 +
TH 08 - VA / xx / 90**

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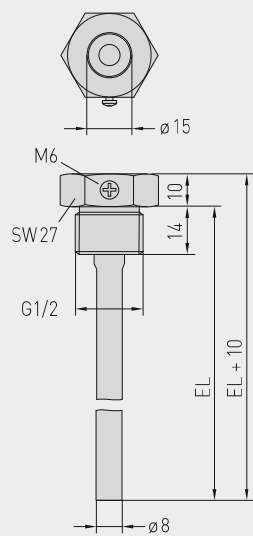immersion sleeve with neck
tube, stainless steel, V4A

**TM 65 - Modbus - T3 +
MF - 15 - K**

Duct temperature sensor
with mounting flange, plastic

Dimensional drawing
TH 08 - ms / xx

ø 15
M6
SW 22
R1/2
10
15
EL
EL + 10
ø 8

Dimensional drawing
TH 08 - VA / xx

ø 15
M6
SW 27
G1/2
10
14
EL
EL + 10
ø 8

Dimensional drawing
TH 08 - VA / xx / 90

ø 15
M6
SW 27
G1/2
HL = 90
10
14
EL
EL + 10
ø 8

Dimensional drawing
MF - 15 - K

ø 3
~25
58
20
ø15,2
60
86
ø5,2

... through combination with accessories:

TH 08 - ms / xx
Immersion sleeve,
brass, nickel-plated,
thread-sealing, conical,
according to DIN 10226

TH 08 - VA / xx
Immersion sleeve,
stainless steel, V4A,
flat-sealing, cylindrical,
according to DIN 228

TH 08 - 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® TH 08 Immersion sleeve Ø 8 mm (Accessories)

Type / WG01B	p max (static)	T max	Inserted Length (EL)	Item No.	Price
TH 08 - ms / xx	**Brass nickel-plated**			without neck tube	
TH08-MS 50MM	10 bar	+150 °C	50 mm	7100-0011-0010-132	8,87 €
TH08-MS 100MM	10 bar	+150 °C	100 mm	7100-0011-0020-132	10,10 €
TH08-MS 150MM	10 bar	+150 °C	150 mm	7100-0011-0030-132	10,67 €
TH08-MS 200MM	10 bar	+150 °C	200 mm	7100-0011-0040-132	11,01 €
TH08-MS 250MM	10 bar	+150 °C	250 mm	7100-0011-0050-132	12,75 €
TH08-MS 300MM	10 bar	+150 °C	300 mm	7100-0011-0060-132	13,10 €
TH08-MS 350MM	10 bar	+150 °C	350 mm	7100-0011-0070-132	13,21 €
TH08-MS 400MM	10 bar	+150 °C	400 mm	7100-0011-0080-132	13,33 €
TH 08 - VA / xx	**Stainless steel V4A** (1.4571)			without neck tube	
TH08-VA 50MM	40 bar	+600 °C	50 mm	7100-0012-0010-132	19,31 €
TH08-VA 100MM	40 bar	+600 °C	100 mm	7100-0012-0020-132	21,34 €
TH08-VA 150MM	40 bar	+600 °C	150 mm	7100-0012-0030-132	22,93 €
TH08-VA 200MM	40 bar	+600 °C	200 mm	7100-0012-0040-132	24,17 €
TH08-VA 250MM	40 bar	+600 °C	250 mm	7100-0012-0050-132	30,05 €
TH08-VA 300MM	40 bar	+600 °C	300 mm	7100-0012-0060-132	31,40 €
TH08-VA 350MM	40 bar	+600 °C	350 mm	7100-0012-0070-132	31,61 €
TH08-VA 400MM	40 bar	+600 °C	400 mm	7100-0012-0080-132	32,17 €
TH 08 - 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	27,66 €
TH08-VA 100/90MM	40 bar	+600 °C	100 mm	7100-0012-0022-132	28,90 €
TH08-VA 150/90MM	40 bar	+600 °C	150 mm	7100-0012-0032-132	30,32 €
TH08-VA 200/90MM	40 bar	+600 °C	200 mm	7100-0012-0042-132	31,61 €
TH08-VA 250/90MM	40 bar	+600 °C	250 mm	7100-0012-0052-132	33,13 €
TH08-VA 300/90MM	40 bar	+600 °C	300 mm	7100-0012-0062-132	35,91 €
Note:	inner diameter of socket 15.0 mm				
	For further information see last chapter!				

Mounting flange (Accessories)

Type / WG01B		Item No.	Price
MF			
MF - 15 - K	Mounting flange, plastic, 56.8 x 84.3 mm, Ø 15.2 mm tube gland, T max +100°C	7100-0032-0000-000	5,83 €
Note:	For information see last chapter!		

THERMASGARD® MWTM-Modbus-T3

**Mean value temperature measuring transducers,
incl. mounting flange, calibratable,
with Modbus connection**

Calibratable mean value temperature measuring transducer THERMASGARD® **MWTM-Modbus-T3** with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, optionally with / without display, with flexible sensor rod (0.4...20m, fully active) in a robust protective plastic-coated copper tube, incl. mounting flange.

The rod sensor is used to detect the mean temperature (mean value) in gaseous media. It is used in ventilation and air conditioning ducts over the entire cross-section or on a defined length (laid along a meandering route, it uniformly detects the surrounding temperature). For proper mounting of the rod, mounting clamps **MK-05-M** (accessories) are available.

Innovative Modbus sensor with galvanically separated RS485 Modbus interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated, with customised programming in the 7-segment range and dot-matrix range). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The error messages can be retrieved via Modbus and are shown on the display. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.
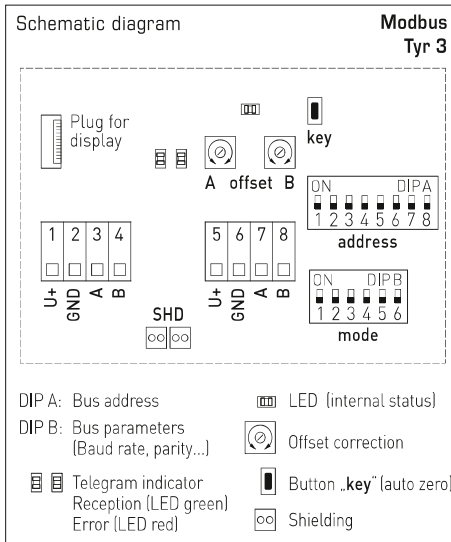
MWTM-Modbus-T3
Rod length
3 m / 6 m

Device version
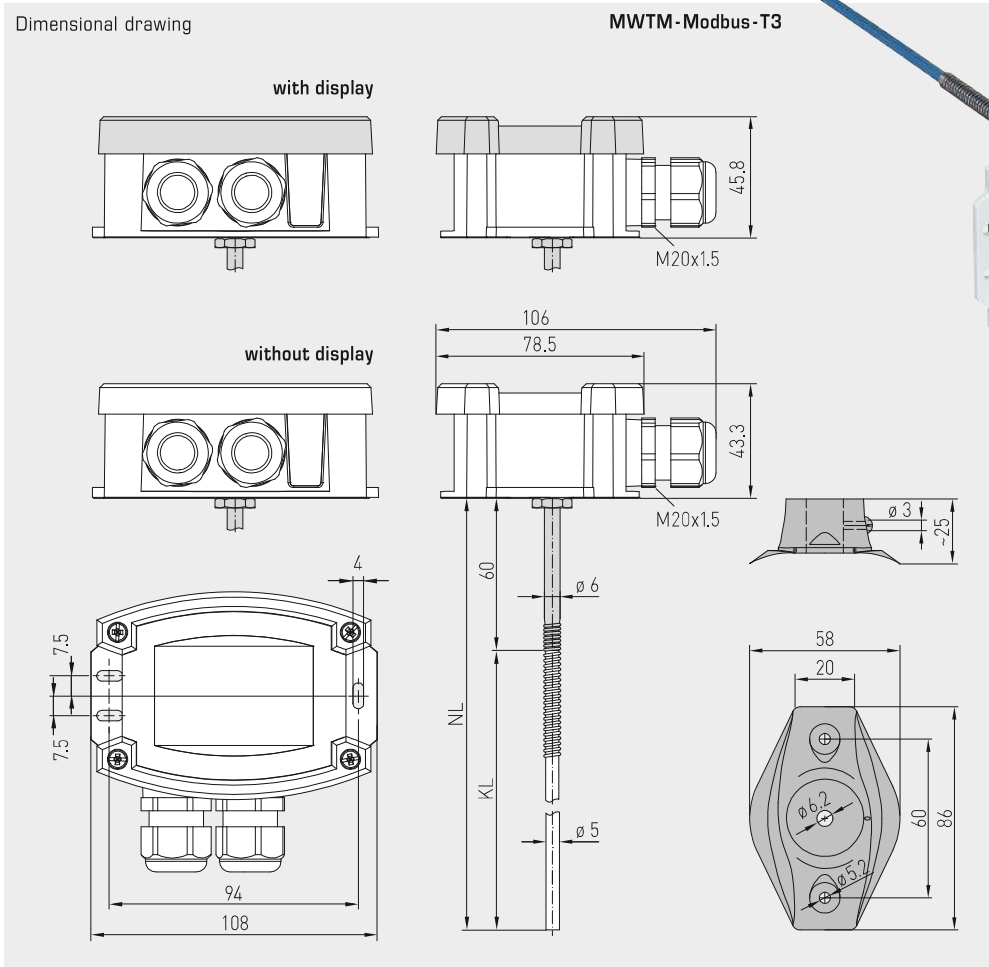with **M12 connector**
(optional on request)

TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B
Measuring range:	− 50...+ 150 °C ; T_{min} **–50 °C**, T_{max} **+ 80 °C**
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Signal filtering:	0.3 s / 1 s / 10 s
Sensors:	active across the entire length (averaging)
Rod material:	**protective tube made from copper, plastic-coated,** with anti-kink spring and sleeve, stainless steel V4A (1.4571)
Rod dimensions:	Ø = 5.0 mm, nominal length (NL) = 0.4 m / 3 m / 6 m (nominal length optional up to max. 20 m)
Rod laying:	Bending radius: **> 35 mm** Vibration load: **≤ 0.5 g** Tensile load: **< 480 N**
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:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Process connection:	by mounting flange, plastic (galvanised steel optional, see accessories) and mounting clamps **MK-05-M**
Ambient temperature:	Measuring transducer − 30...+ 70 °C
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Equipment:	**Display with illumination**, three-line**,** programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value
Internal diagnostics:	**Error 1** at sensor breakage **Error 2** at sensor short circuit
ACCESSORIES	see table

Schematic diagram — Modbus Tyr 3

Plug for display

key

A offset B

ON DIP A
1 2 3 4 5 6 7 8
address

ON DIP B
1 2 3 4 5 6
mode

1 2 3 4
U+ GND A B

5 6 7 8
U+ GND A B

SHD

DIP A: Bus address
DIP B: Bus parameters (Baud rate, parity...)

Telegram indicator Reception (LED green) Error (LED red)

LED (internal status)

Offset correction

Button „key" (auto zero)

Shielding

Programmable display screen — Modbus Tyr 3

Mean value temperature measuring transducers,
incl. mounting flange, calibratable,
with Modbus connection

Dimensional drawing   MWTM - Modbus - T3

with display

without display

MWTM - Modbus - T3
Rod length
0.4 m

106
78.5
45.8
43.3
M20x1.5

ø 3
~25

60
NL
KL
ø 6
ø 5

4
7.5
7.5

94
108

58
20
ø 6.2
60
86
ø 5.2

MF - 06 - K
Mounting flange,
plastic
(included in the
scope of delivery)

MK - 05 - M
Galvanised steel
mounting clamps
(optional)

MF - 06 - M
Mounting flange,
metal
(optional)

KRD - 04
Capillary tube
gland bracket, plastic
(optional)

THERMASGARD® MWTM - Modbus - T3   Mean value temperature measuring transducers

Type / WG01	Sensor	Output	Rod length (NL)	Display	Item No.	Price
MWTM - Modbus - T3					IP 65	
MWTM-Modbus-T3 0,4m	Pt1000	Modbus	**0,4 m**		1101-3266-0080-000	**191,82 €**
MWTM-Modbus-T3 0,4m **LCD**	Pt1000	Modbus	**0,4 m**	■	1101-3266-4080-000	**243,02 €**
MWTM-Modbus-T3 3m	Pt1000	Modbus	**3,0 m**		1101-3266-0230-000	**242,27 €**
MWTM-Modbus-T3 3m **LCD**	Pt1000	Modbus	**3,0 m**	■	1101-3266-4230-000	**293,98 €**
MWTM-Modbus-T3 6m	Pt1000	Modbus	**6,0 m**		1101-3266-0260-000	**278,49 €**
MWTM-Modbus-T3 6m **LCD**	Pt1000	Modbus	**6,0 m**	■	1101-3266-4260-000	**330,52 €**
Extra charge:	Per meter sensor cable (from 6 m to max. 20 m)				on request	
	Cable connection with **M12 connector** according to DIN EN 61076-2-101				on request	
ACCESSORIES						
KA2 - Modbus	**Communication adapter** (USB/RS485) for system connection				1906-1200-0000-100	**203,80 €**
LA - Modbus	**Line termination device** (with terminating resistor) as an active bus termination				1906-1300-0000-100	**76,01 €**
MF - 06 - K	**Mounting flange,** plastic (included in the scope of delivery)				7100-0030-1000-000	**5,83 €**
MF - 06 - M	**Mounting flange,** metal, galvanised steel, Ø = 35 mm				7100-0030-5000-100	**9,10 €**
KRD - 04	**Capillary tube gland bracket,** plastic				7100-0030-7000-000	**8,49 €**
MK - 05 - M	Galvanised steel **mounting clamps** (6 pieces)				7100-0034-0000-000	**9,41 €**
	For further information, see last chapter Accessories!					

S+S REGELTECHNIK

Sleeve sensor with temperature measuring transducer,
calibratable, with Modbus connection

Calibratable sleeve temperature measuring transducer **THERM**ASGARD® **HFTM - Modbus - T3** with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, optionally with /without display, cable sensor with a stainless steel sleeve.

The sleeve sensor is used to detect the temperature in liquid and gaseous media. It is used as a duct sensor or, if installed in immersion sleeve **THE** (accessories), as an immersion and screw-in sensor in liquids.

Innovative Modbus sensor with galvanically separated RS485 Modbus interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated, with customised programming in the 7-segment range and dot-matrix range). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The error messages can be retrieved via Modbus and are shown on the display. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.
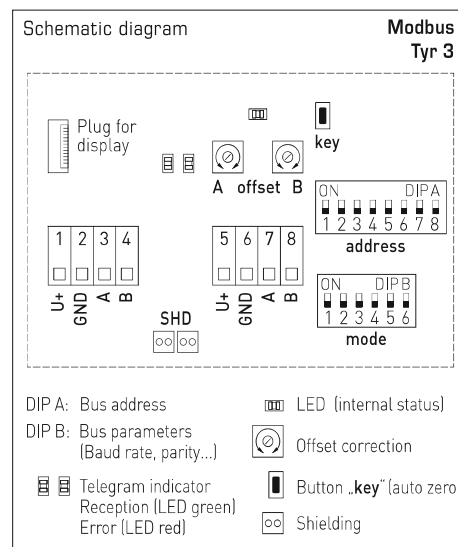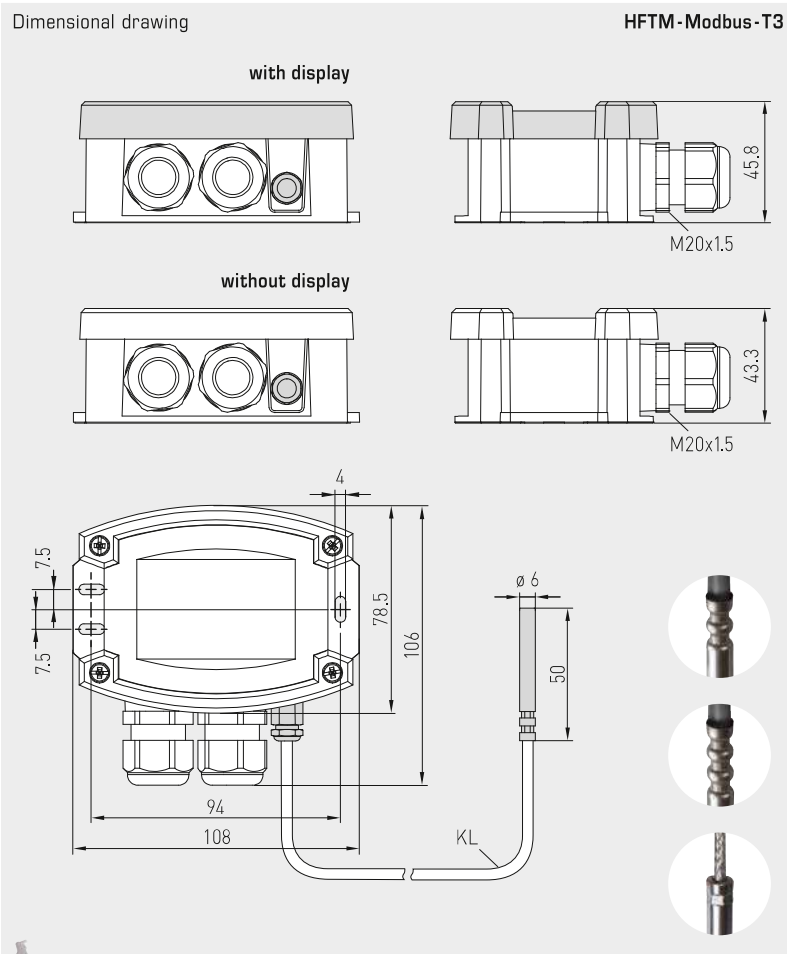
HFTM - Modbus - T3

Device version
with **M12 connector**
(optional on request)

TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B (**Perfect Sensor Protection** with IP68)
Measuring range:	− 50...+ 150 °C
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Signal filtering:	0.3 s / 1 s / 10 s
Medium:	clean air and non-aggressive, non-combustible gases; liquids depending on selected immersion sleeve (accessory)
Sensor protection:	Sensor sleeve made from stainless steel V4A (1.4571), Ø = 6 mm, nominal length (NL) = 50 mm (optional 30...400 mm)
Sensor cable:	silicone, SiHF, 2 x 0.25 mm², cable length (KL) = 1.5 m (other lengths and range limits optional, e.g. PTFE leads up to + 250 °C or glass fibre with steel wire mesh up to + 350°C)
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:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Ambient temperature:	Measuring transducer − 30...+ 70 °C
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type housing:	**IP 65** (according to EN 60 529)
Protection type sensor:	**IP 65** (according to EN 60 529) **sleeve** humidity-tight (standard) **IP 68** (according to EN 60 529) **sleeve** water-tight (optional) **IP 54** (according to EN 60 529) with **glass fibre** cable (optional)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Equipment:	**Display with illumination**, three-line, programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value
Internal diagnostics:	**Error 1** at sensor breakage **Error 2** at sensor short circuit
ACCESSORIES	see table

Schematic diagram — Modbus Tyr 3

Plug for display

key

A offset B

1	2	3	4
U+	GND	A	B

SHD

5	6	7	8
U+	GND	A	B

ON   DIP A
1 2 3 4 5 6 7 8
address

ON   DIP B
1 2 3 4 5 6
mode

DIP A: Bus address
DIP B: Bus parameters (Baud rate, parity...)

LED (internal status)

Offset correction

Telegram indicator Reception (LED green) Error (LED red)

Button „**key**" (auto zero)

Shielding

Programmable display screen — Modbus Tyr 3

Sleeve sensor with temperature measuring transducer, calibratable, with Modbus connection

Dimensional drawing   HFTM - Modbus - T3

HFTM - Modbus - T3
with display

with display

45.8

M20x1.5

without display

43.3

M20x1.5

4

7.5
7.5
7.5

78.5
106

ø 6

50

94
108

KL

IP 65 (standard)
humidity-tight

IP 68 (optional)
water-tight
Perfect Sensor Protection

IP 54 (optional)
with **glass fibre** cable

High-performance encapsulation against
vibration, mechanical stress and humidity

S+ PS-PROTECTION
PERFECT SENSOR PROTECTION

THERMASGARD® HFTM - Modbus - T3   Sleeve sensor with temperature measuring transducer

Type / WG01	Sensor	Output	Type	Display	Item No.	Price
HFTM - Modbus - T3						
HFTM-Modbus-T3	Pt1000	Modbus	Remote sensor		1101-62A6-0210-000	**126,25 €**
HFTM-Modbus-T3 **LCD**	Pt1000	Modbus	Remote sensor	■	1101-62A6-4210-000	**177,93 €**
Extra charge:	Protection type **IP 68** (sensor sleeve watertight compound-filled)					**3,24 €**
	per running metre of connecting lead (**silicone** / **PTFE** / **glass fibre**)				on request	
	other protection sleeve lengths optional				on request	
	Cable connection with **M12 connector** according to DIN EN 61076-2-101				on request	
ACCESSORIES						
KA2-Modbus	**Communication adapter** (USB/RS485) for system connection				1906-1200-0000-100	**203,80 €**
LA-Modbus	**Line termination device** (with terminating resistor) as an active bus termination				1906-1300-0000-100	**76,01 €**
THE-xx	**Immersion sleeve**, stainless steel **V4A** (1.4571) or nickel-plated brass, Ø = 9 mm, inner diameter of socket 5.2 mm, with **adjusting screw** M12 x 1.5					
	For further information, see last chapter Accessories!					

THERMASGARD® ALTM1-Modbus-T3

Surface contact temperature / tube contact temperature measuring transducers, incl. strap, compact variant, calibratable, with Modbus connection

S+S REGELTECHNIK

Calibratable surface-contact temperature measuring transducer (compact variant) THERMASGARD® **ALTM1-Modbus-T3** with Modbus connection, 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.

Innovative Modbus sensor with galvanically separated RS485 Modbus interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated, with customised programming in the 7-segment range and dot-matrix range). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The error messages can be retrieved via Modbus and are shown on the display. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.
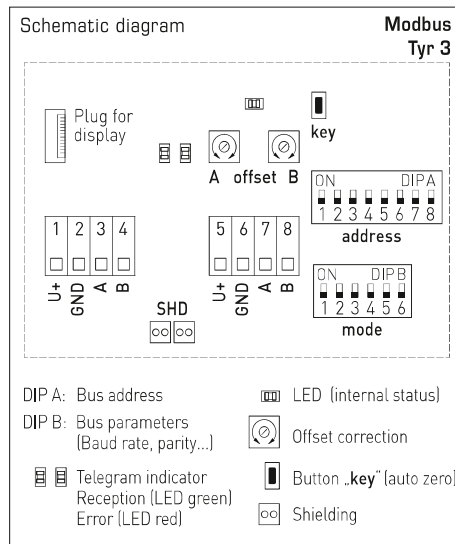
ALTM 1 - Modbus - T3

Device version with **M12 connector** (optional on request)
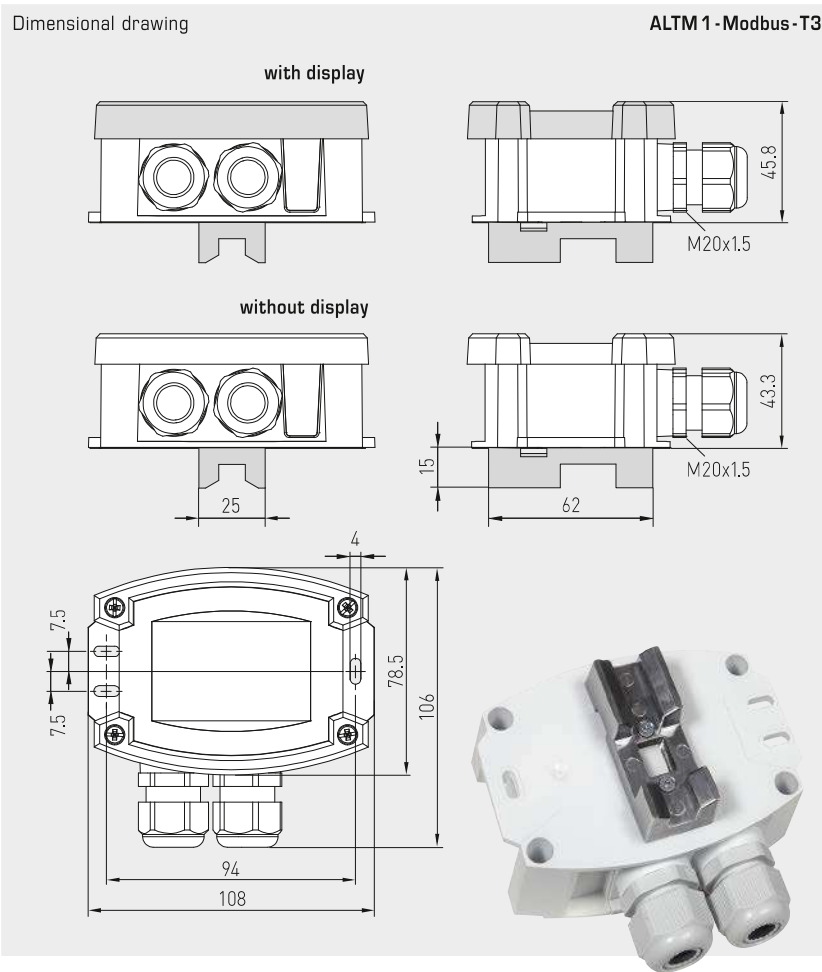
TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B
Measuring range:	−50...+150 °C T_{max} **up to +100 °C** (compact variant)
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Signal filtering:	0.3 s / 1 s / 10 s
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:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Process connection:	Endless strap with metal tightener (included in scope of delivery) Ø = 13 - 92 mm (¼ - 3"), L = 300 mm
Ambient temperature:	Measuring transducer −30...+70 °C
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Equipment:	**Display with illumination**, three-line**,** programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value
Internal diagnostics:	**Error 1** at sensor breakage **Error 2** at sensor short circuit
ACCESSORIES	see table

Schematic diagram — Modbus Tyr 3

DIP A: Bus address
DIP B: Bus parameters
(Baud rate, parity...)

Telegram indicator
Reception (LED green)
Error (LED red)

LED (internal status)
Offset correction
Button „key" (auto zero)
Shielding

Programmable display screen — Modbus Tyr 3

Surface contact temperature / tube contact temperature measuring transducers, incl. strap, compact variant, calibratable, with Modbus connection

Dimensional drawing   ALTM 1 - Modbus - T3

ALTM 1 - Modbus - T3
with display

with display

45.8
M20x1.5

without display

43.3
15
25
62
M20x1.5

4
7.5
78.5
106
7.5
94
108

THERMASGARD® ALTM 1 - Modbus - T3   Surface contact temperature / tube contact temperature measuring transducers

Type / WG01	Sensor	Output	Type	Display	Item No.	Price
ALTM 1 - Modbus - T3						
ALTM1-Modbus-T3	Pt1000	Modbus	Compact		1101-12B6-0000-000	**126,76 €**
ALTM1-Modbus-T3 **LCD**	Pt1000	Modbus	Compact	■	1101-12B6-4000-000	**179,63 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101				on request	

ACCESSORIES			
KA2 -Modbus	Communication adapter (USB/RS485) for system connection	1906-1200-0000-100	**203,80 €**
LA - Modbus	Line termination device (with terminating resistor) as an active bus termination	1906-1300-0000-100	**76,01 €**
WLP-1	Heat-conductive paste, silicone-free	7100-0060-1000-000	**3,22 €**
	For further information, see last chapter Accessories!		

THERMASGARD® ALTM 2 - Modbus - T3

Surface contact temperature / tube contact temperature measuring transducers, incl. strap, with detached sensor head, calibratable, with Modbus connection

S+S REGELTECHNIK

Calibratable surface-contact temperature measuring transducer (detached variant) THERMASGARD® **ALTM2-Modbus-T3** with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, optionally with / without display, cable sensor with a pipe feeder, incl. strap.

The pipe 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.

Innovative Modbus sensor with galvanically separated RS485 Modbus interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated, with customised programming in the 7-segment range and dot-matrix range). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The error messages can be retrieved via Modbus and are shown on the display. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.
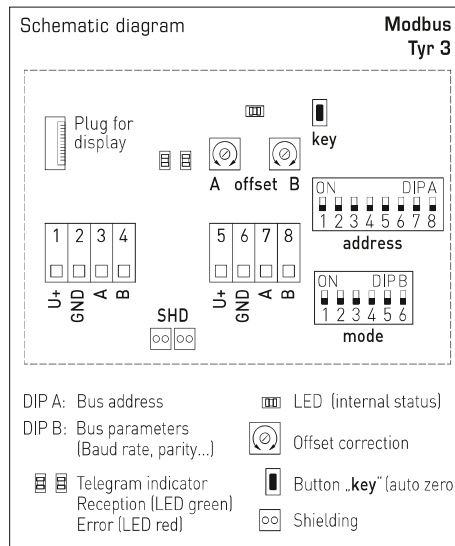
ALTM 2 - Modbus - T3

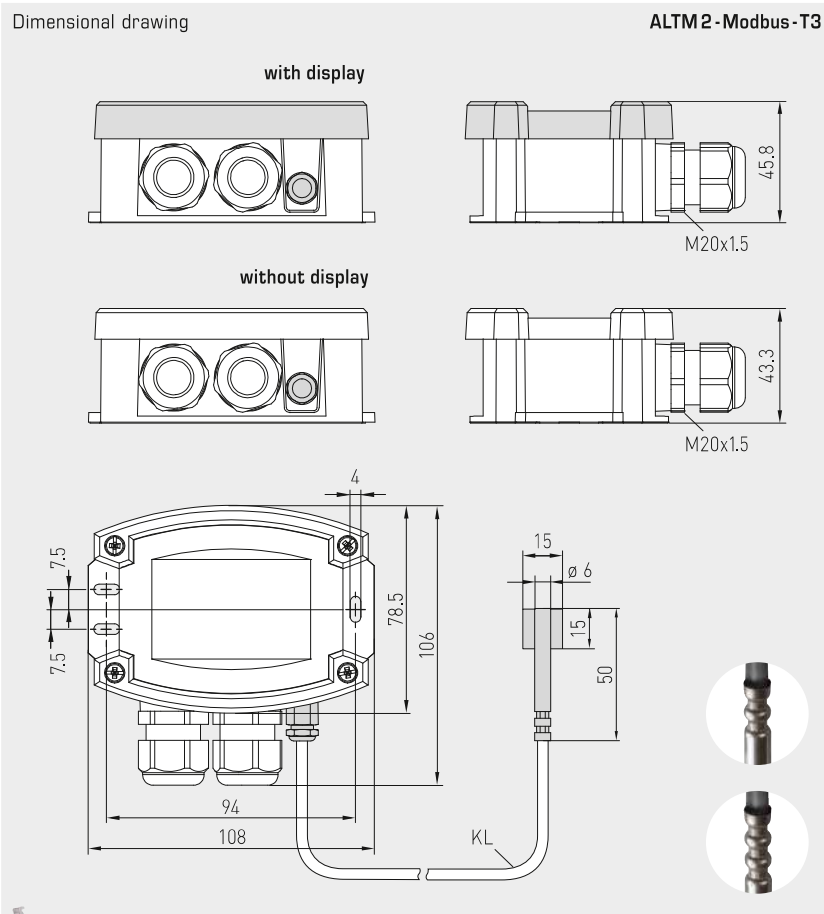Device version with **M12 connector** (optional on request)

TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B (**Perfect Sensor Protection** with IP68)
Measuring range:	−50...+150 °C, T_{max} **to +150 °C** (detached sensor variant)
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Signal filtering:	0.3 s / 1 s / 10 s
Medium:	clean air and non-aggressive, non-combustible gases
Sensor protection:	pipe feeder made of stainless steel **V4A** (1.4571), Ø = 6 mm, L = 50 mm
Sensor cable:	silicone, SiHF, 2 x 0.25 mm², cable length (KL) = 1.5 m (other lengths and range limits optional, e.g. PTFE leads up to + 250 °C or glass fibre with steel wire mesh up to + 350°C)
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:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Process connection:	Endless strap with metal tightener (included in scope of delivery) Ø = 13 - 92 mm (¼ - 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 60 730)
Protection type housing:	**IP 65** (according to EN 60 529)
Protection type sensor:	**IP 65** (according to EN 60 529) **sleeve** humidity-tight (standard) **IP 68** (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
Equipment:	**Display with illumination**, three-line, programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value
Internal diagnostics:	**Error 1** at sensor breakage **Error 2** at sensor short circuit
ACCESSORIES	see table

Schematic diagram — Modbus Tyr 3

Plug for display
key
A offset B
ON .... DIP A
1 2 3 4 5 6 7 8
address
1 2 3 4 — U+ GND A B
5 6 7 8 — U+ GND A B
SHD
ON DIP B
1 2 3 4 5 6
mode

DIP A: Bus address
DIP B: Bus parameters (Baud rate, parity...)
Telegram indicator Reception (LED green) Error (LED red)
LED (internal status)
Offset correction
Button „key" (auto zero)
Shielding

Programmable display screen — Modbus Tyr 3

Surface contact temperature / tube contact temperature measuring transducers,
incl. strap, with detached sensor head, calibratable,
with Modbus connection

Dimensional drawing   ALTM 2 - Modbus - T3

with display

without display

ALTM 2 - Modbus - T3
with display

M20x1.5

M20x1.5

KL

IP 65 (standard)
humidity-tight

IP 68 (optional)
water-tight
Perfect Sensor Protection

High-performance encapsulation against
vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

THERMASGARD® ALTM 2 - Modbus - T3   Surface contact temperature / tube contact temperature measuring transducers

Type / WG01	Sensor	Output	Type	Display	Item No.	Price
ALTM 2 - Modbus - T3						
ALTM2-Modbus-T3	Pt1000	Modbus	Remote sensor		1101-62B6-0210-000	**133,63 €**
ALTM2-Modbus-T3 **LCD**	Pt1000	Modbus	Remote sensor	■	1101-62B6-4210-000	**185,36 €**
Extra charge:	Protection type **IP 68** (sensor sleeve watertight compound-filled)					**3,24 €**
	per running metre of connecting lead (**silicone / PTFE / glass fibre**)					on request
	Cable connection with **M12 connector** according to DIN EN 61076-2-101					on request

ACCESSORIES				
KA2 -Modbus	**Communication adapter** (USB/RS485) for system connection		1906-1200-0000-100	**203,80 €**
LA -Modbus	**Line termination device** (with terminating resistor) as an active bus termination		1906-1300-0000-100	**76,01 €**
WLP-1	**Heat-conductive paste**, silicone-free		7100-0060-1000-000	**3,22 €**
	For further information, see last chapter Accessories!			

THERMASGARD® RPTM1-Modbus-T3

**Pendulum room temperature measuring transducer,
(with stainless steel sleeve), calibratable,
with Modbus connection**

S+S REGELTECHNIK

Calibratable room pendulum temperature measuring transducer (with sleeve) THERMASGARD® **RPTM1-Modbus-T3** with Modbus connection, 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.

Innovative Modbus sensor with galvanically separated RS485 Modbus interface, selectable us termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated, with customised programming in the 7-segment range and dot-matrix range). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The error messages can be retrieved via Modbus and are shown on the display. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.
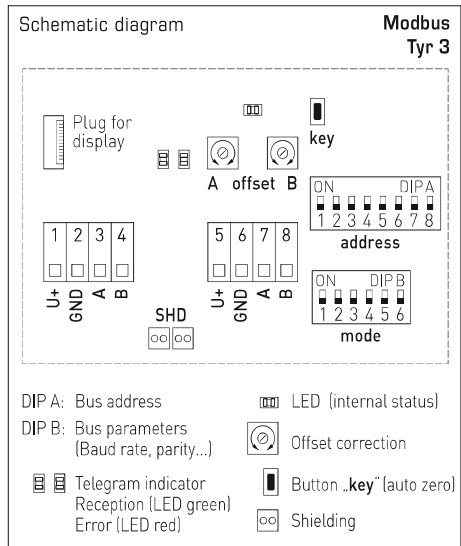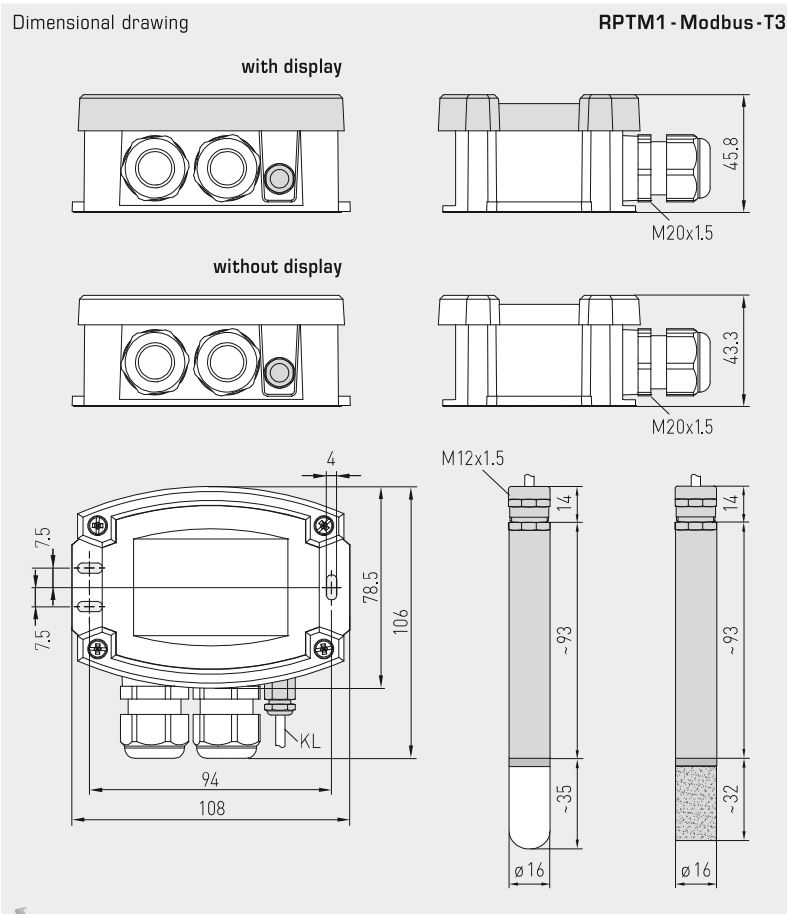
RPTM1-Modbus-T3

Device version
with **M12 connector**
(optional on request)

TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B
Sensor protection:	**plastic** sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional **metal** sinter filter, Ø 16 mm, L = 32 mm)
Measuring range:	−50...+150 °C
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Ambient temperature:	Measuring transducer −30...+70 °C
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Signal filtering:	0.3 s / 1 s / 10 s
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:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Connection cable:	PVC, H03VV-F, 2 x 0.5 mm², cable length (KL) = approx. 1.5 m (other lengths optional)
Protective tube:	stainless steel **V2A** (1.4301), Ø =16 mm, NL = 142 mm
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Equipment:	**Display with illumination**, three-line**,** programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value
Internal diagnostics:	**Error 1** at sensor breakage **Error 2** at sensor short circuit
ACCESSORIES	see table

Schematic diagram — Modbus Tyr 3

DIP A: Bus address
DIP B: Bus parameters
(Baud rate, parity...)

LED (internal status)

Offset correction

Telegram indicator
Reception (LED green)
Error (LED red)

Button „**key**" (auto zero)

Shielding

Programmable display screen — Modbus Tyr 3

Pendulum room temperature measuring transducer,
(with stainless steel sleeve), calibratable,
with Modbus connection

Dimensional drawing   **RPTM1 - Modbus - T3**

with display

M20x1.5

without display

M20x1.5

M12x1.5

ø 16   ø 16

RPTM1 - Modbus - T3
with display

MF - 16 - K
Mounting flange,
plastic (optional)

SF-K
with plastic sinter filter
(standard)

SF-M
with metal sinter filter
(optional)

THERMASGARD® **RPTM 1 - Modbus - T3** Pendulum room temperature measuring transducer (with stainless steel sleeve)						
Type / WG01	Sensor	Output	Type	Display	Item No.	Price
RPTM 1 - Modbus - T3						
RPTM1-Modbus-T3	Pt1000	Modbus	Remote sensor		1101-6286-0210-000	**167,36 €**
RPTM1-Modbus-T3 **LCD**	Pt1000	Modbus	Remote sensor	■	1101-6286-4210-000	**219,52 €**
Extra charge:	per running metre of connecting lead (**PVC**)				on request	
	Cable connection with **M12 connector** according to DIN EN 61076-2-101				on request	

ACCESSORIES			
KA2 -Modbus	**Communication adapter** (USB/RS485) for system connection	1906-1200-0000-100	**203,80 €**
LA -Modbus	**Line termination device** (with terminating resistor) as an active bus termination	1906-1300-0000-100	**76,01 €**
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
MF-16-K	**Mounting flange** plastic (optional)	7100-0030-0000-000	**9,10 €**
	For further information, see last chapter Accessories!		

Pendulum room temperature measuring transducer,
(with globe), calibratable,
with Modbus connection

S+S REGELTECHNIK

Calibratable room pendulum temperature measuring transducer (with globe) **THERM**ASGARD® **RPTM2-Modbus-T3** with Modbus connection, 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%.

Innovative Modbus sensor with galvanically separated RS485 Modbus interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated, with customised programming in the 7-segment range and dot-matrix range). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The error messages can be retrieved via Modbus and are shown on the display. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.
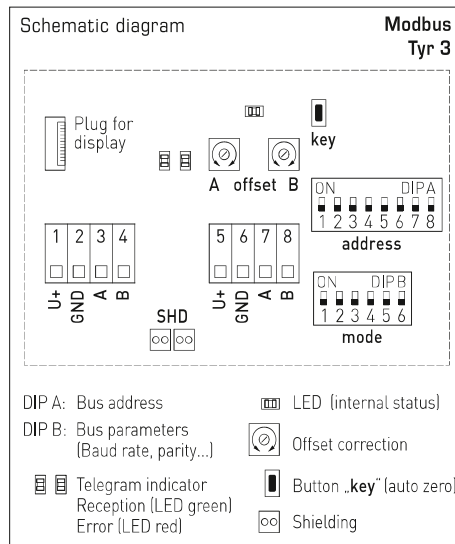
RPTM2-Modbus-T3

Device version
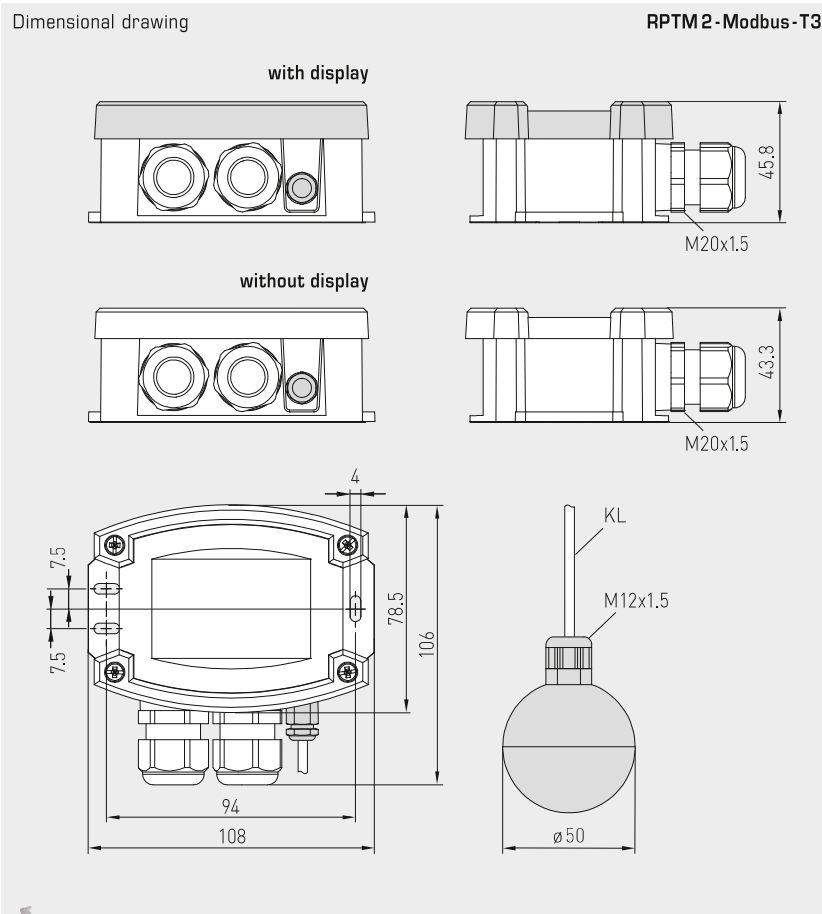with **M12 connector**
(optional on request)

TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Sensor:	Pt1000, DIN EN 60751, class B
Measuring range:	−50...+150 °C T_{min} **−50 °C, T_{max} + 80 °C**
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Ambient temperature:	Measuring transducer −30...+70 °C
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Signal filtering:	0.3 s / 1 s / 10 s
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:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Connection cable:	PVC, H03VV-F, 2 x 0.5 mm², cable length (KL) = approx. 1.5 m (other lengths optional)
Globe:	plastic, colour black, Ø = 50 mm
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60730)
Protection type:	**IP 65** (according to EN 60529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Equipment:	**Display with illumination**, three-line**,** programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value
Internal diagnostics:	**Error 1** at sensor breakage **Error 2** at sensor short circuit
ACCESSORIES	see table

Schematic diagram — Modbus Tyr 3

Plug for display

key

A offset B

ON   DIP A
1 2 3 4 5 6 7 8
address

1 2 3 4 | 5 6 7 8

U+ GND A B   SHD   U+ GND A B

ON   DIP B
1 2 3 4 5 6
mode

DIP A: Bus address
DIP B: Bus parameters
(Baud rate, parity...)

LED (internal status)

Offset correction

Telegram indicator
Reception (LED green)
Error (LED red)

Button „**key**" (auto zero)

Shielding

Programmable
display screen — Modbus Tyr 3

Pendulum room temperature measuring transducer,
(with globe), calibratable,
with Modbus connection

Dimensional drawing   RPTM 2 - Modbus - T3

RPTM 2 - Modbus - T3
with display

with display

45.8

M20x1.5

without display

43.3

M20x1.5

4

7.5

7.5

78.5

106

KL

M12x1.5

94

108

ø 50

THERMASGARD® **RPTM 2 - Modbus - T3**	Pendulum room temperature measuring transducer (with globe)					
Type / WG01	Sensor	Output	Type	Display	Item No.	Price
RPTM 2 - Modbus - T3						
RPTM2-Modbus-T3	Pt1000	Modbus	Remote sensor		1101-6296-0210-000	**173,58 €**
RPTM2-Modbus-T3 **LCD**	Pt1000	Modbus	Remote sensor	■	1101-6296-4210-000	**225,83 €**
Extra charge:	per running metre of connecting lead (**PVC**)				on request	
	Cable connection with **M12 connector** according to DIN EN 61076-2-101				on request	

ACCESSORIES			
KA2 - Modbus	Communication adapter (with USB and RS485 interface) for system connection (incl. quick-start software)	1906-1200-0000-100	**203,80 €**
LA - Modbus	Line termination device (with terminating resistor) as an active bus termination of RS485 networks	1906-1300-0000-100	**76,01 €**

VORES PRODUKTSORTIMENT INKLUDERER:

TRÅDLØS - UDEFØLERE

TEMP. AKTIV - UDEFØLERE

TEMP. AKTIV - RUMFØLERE

TEMP. PASSIV - RUMFØLERE

MODBUS/BACNET

TEMPERATURCONTROLLERE

VI FØRER PRODUKTER INDENFOR KATEGORIERNE:

AUTOMATIK

ELVARME

KØLEPROFILER