



Temperature

THERMASGARD® passive sensors – tracking the perceived temperature

Our passive temperature sensors have proven themselves countless times in all temperature measurement applications. Technology and quality for precise measurement results you can rely on.

The units are available in a wide range of designs and individual variants to suit your requirements.

Application Areas

- Hospitals, museums, schools, hotels and administration buildings
- Power plants and district heating facilities
- Pharmaceutical and food industry
- Production plants
- Heating systems





THERMASGARD®

PASSIVE TEMPERATURE SENSORS



Room sensors

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Temperature

THERMASGARD® & THERMASREG®

Sensor technology for heat and cold

Broad Spectrum

Our passive temperature sensors have a proven fit in countless applications across all areas of temperature measurement. Technology for best measuring results you can rely on. Available in various different models and individual versions to meet your precise requirements.

Optimum Precision

The devices are calibrated in-house in climate cabinets and are tested according to the latest criteria. Each sensor is precisely re-adjustable using offset potentiometers. Take advantage of our experience, our development, manufacturing and product know-how and order these products directly from the manufacturer.

Tested safety and certified quality



RoHS conforming materials



ESD compliant manufacturing



DIN tested / certified devices



CE conformity



UKCA conformity (UK Conformity Assessed)



EAC certified



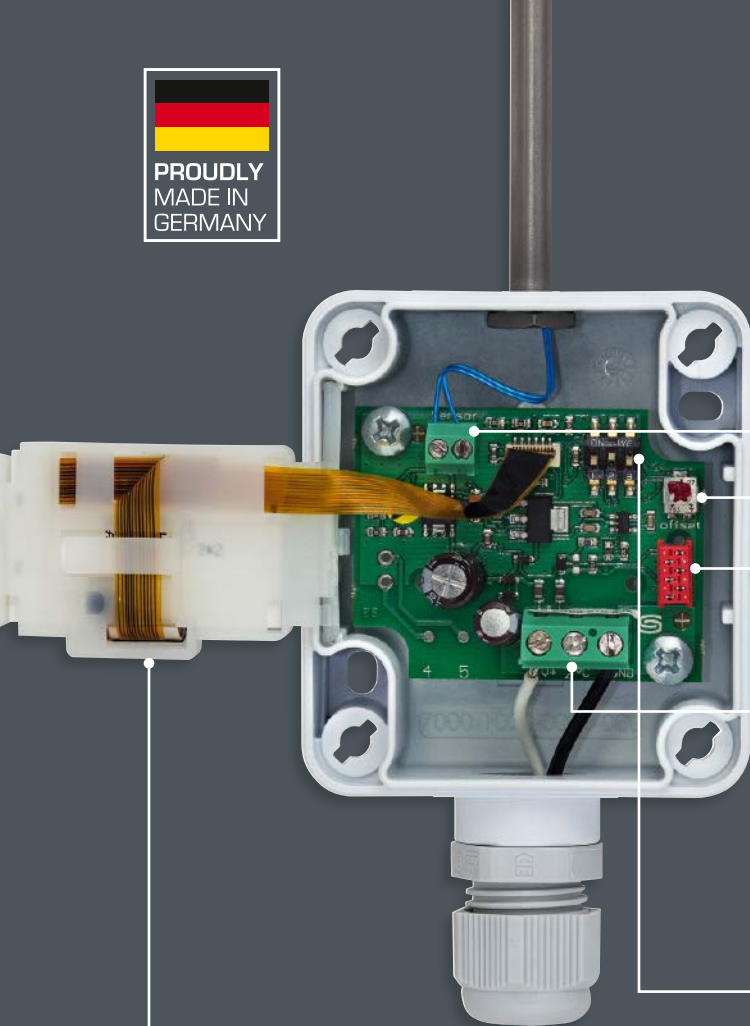
GOST certified



Development, production and sales are certified by TÜV Thüringen according to DIN EN ISO 9001:2015 (quality management) and ISO 14001:2015 (environmental management).

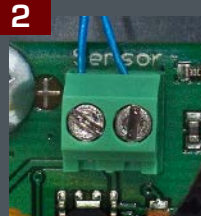
The **THERMASGARD® 1101-I** with current output (Test No. 69871-01939-1) and the **THERMASGARD® 1101-U** with voltage output (Test No. 69871-01940-1) are tested and certified according to DIN EN 61326-1:2006 and EN 61326-2-3:2006 by TÜV SÜD.

THERMASREG® ETR and **KTR** are tested and certified according to DIN EN 14597:2015-01.



Illuminated Display

With backlighting as well as display of range violation, sensor breakage, sensor short circuit and physical units



Sensors

Internal sensors / external sensors



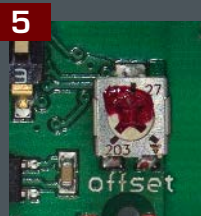
Screw Terminals

Active output signals 0-10 V, 4...20 mA or switched as well as passive outputs (e.g. Pt1000, Ni1000 etc.)



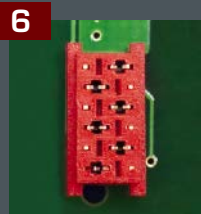
DIP Switches

For multi-range toggling and setting of measuring ranges



Offset Potentiometer

For fine adjustment (zero point offset) and readjustment upon recalibration



Quality Assurance

Calibration and balancing are done by means of the bus system in climate cabinets





Configuration variants

Room temperature sensors and measuring transducers,
on-wall, device series Baldur

The room temperature sensors/measuring transducers serve for temperature measurement (in non-precipitating air), setpoint adjustment, presence detection or as a control panel with push-buttons, switches, potentiometers, status indicators (LED) in residential rooms, workshops, office and business facilities, and in the industrial sector.

Technical details for temperature measuring transducers see chapter "Temperature sensor active".

Here is a selection of equipment versions for room temperature sensors
Special versions can be custom-made upon request.

DEVICE SERIES

Baldur 1 (85 x 85 x 27 mm)

Baldur 2 (98 x 98 x 33 mm)

Baldur lying



Baldur 1
without operating elements



Baldur 1
with display



Baldur 1
with display and potentiometer



Baldur 1 with potentiometer,
push-button and LED



Baldur 1 with potentiometer
and rocker switch



Baldur 1 with potentiometer
and push-buttons



Baldur 1 with potentiometer
and LEDs



Baldur 1 with potentiometer
and LEDs



Baldur 1 with potentiometer
and LEDs





S+S REGELTECHNIK

THERMASGARD® RTF / RTM

Configuration variants

Room temperature sensors and measuring transducers,
on-wall, device series Baldur



Baldur2
without operating elements



Baldur2
with display



Baldur2 with display,
potentiometer and LEDs



Baldur2
with LEDs and push-buttons



Baldur2
with LEDs and push-buttons



Baldur2 with potentiometer,
turn switch and LEDs



Baldur2 with potentiometer,
turn switch and LEDs



Baldur2 with potentiometer,
push-buttons, LEDs and rocker switch



Baldur2 with potentiometer, turn switch,
LEDs and rocker switch



Baldur2 with potentiometer
and turn switch



Baldur2 with potentiometer,
turn switch, LEDs and push-buttons

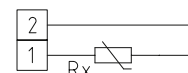


Baldur2 with potentiometer,
turn switch, LEDs and push-buttons

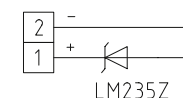


S+S BEGEITECHNIK

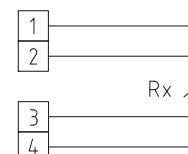
1x two-wire connection
standard



1x two-wire connection
LM235Z (KP10)



1x four-wire connection
(optional)



Measuring range:	−30...+70 °C
Sensor / output:	passive, see table
Switching type:	2-wire connection (4-wire connection for Pt100/Pt1000A, optional for other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Housing:	plastic, flame retardant (UL 94 V-0), PC/ABS material, colour white (similar to RAL 9016) optionally in stainless steel V2A (1.4301)
Dimension:	85 x 85 x 27 mm (Baldur 1) 75 x 75 x 25 mm (stainless steel V2A 1.4301)
Mounting:	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 top / bottom cable entry for surface-mounted installation
Electrical connection:	0.14–1.5 mm², via screw terminals, secured against unscrewing, only with safety extra-low voltage, max. 24 V DC
Process connection:	via screws
Permitted humidity:	max. 90 % RH, non-condensing air
Protection class:	III (according to EN 60 730)
Protection type:	IP 30 (according to EN 60 529)

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S+S REGELTECHNIK

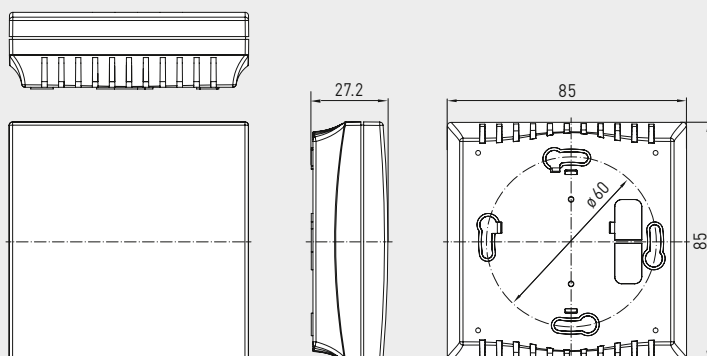
THERMASGARD® RTF 1
THERMASGARD® RTF xx

Room temperature sensors /
room control unit in different versions,
on-wall, with passive output



Dimensional drawing
[mm]

Housing **Baldur 1**



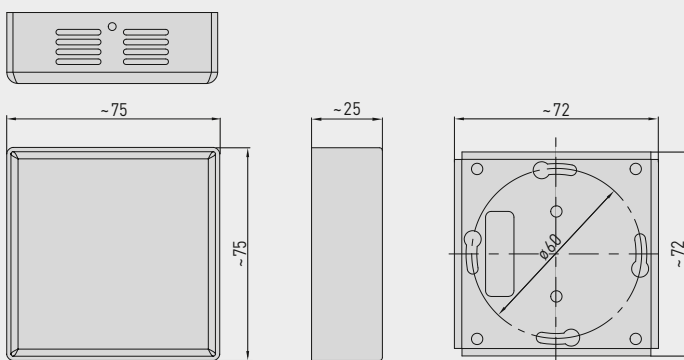
RTF 1
(Baldur 1)



RTF 1
(stainless steel)

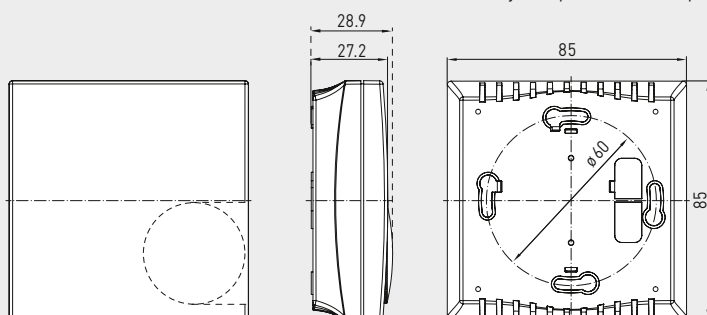


Housing **stainless steel**



Dimensional drawing
[mm]

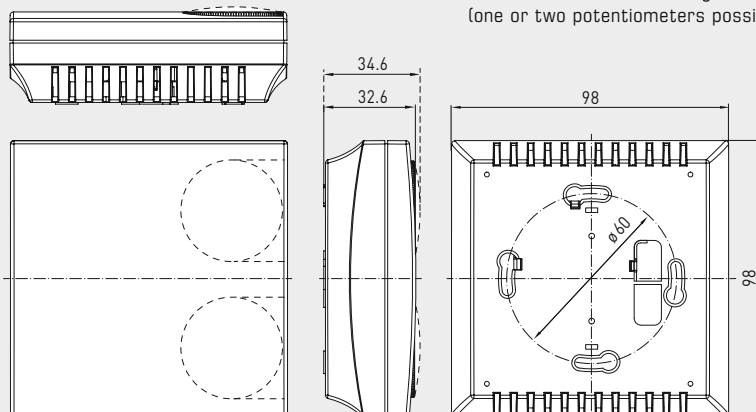
Housing **Baldur 1**
(only one potentiometer possible)



RTF xx
(Baldur 1)



Housing **Baldur 2**
(one or two potentiometers possible)



RTF xx
(Baldur 2)



**Room temperature sensors /
room control unit in different versions,
on-wall, with passive output**

Room temperature sensor **THERMASGARD® RTF xx** with passive output, in attractive plastic housing (Baldur 1 / Baldur 2) with snap-on enclosure cover, base with 4-hole attachment, for mounting on vertically or horizontally installed in-wall flush boxes, with predetermined breaking point for on-wall cable entry. Available as a room control unit in various type versions with **control elements** such as setpoint potentiometer (%), rotary switch (max. 5-step), rocker switch, push-button or coloured **LEDs** for displaying the operating states.

This residential room temperature sensor is used to detect/display the temperature (–30...+70 °C) in closed, dry rooms, in apartments, in cinemas, supermarkets, storage rooms, office and business facilities.

TECHNICAL DATA

Measuring range:	–30...+70 °C
Sensor / output:	passive, see table
Switching type:	depending on type, see connection diagram
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Potentiometer:	Standard 1 kOhm, max. 0.1 W (other values optionally available upon request, e.g. 100 Ohm, 2.5 kOhm, 5 kOhm, 10 kOhm – units with active potentiometer RTM xx), with angle of rotation limiter
Rotary switch:	max. 24 V AC/DC, max. 130 mA, up to 5 switching speeds (0, Auto, I, II, III), with angle of rotation limiter
Rocker switch:	max. 24 V AC/DC, max. 130 mA
Push-button:	NO contact, max. 24 VDC, max. 10 mA
LED:	max. 24 VDC (optionally max. 24 VAC), standard green and red (optionally red, yellow or two-tone)
Housing:	plastic, material ABS, colour pure white (similar to RAL 9010)
Dimension:	85 x 85 x 27 mm (Baldur 1) 98 x 98 x 33 mm (Baldur 2)
Mounting:	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 top/ bottom cable entry for surface-mounted installation
Electrical connection:	0.14–1.5 mm², via screw terminals, only with safety extra-low voltage, max. 24 V DC
Process connection:	via screws
Permitted humidity:	max. 90 % RH, non-condensing air
Protection class:	III (according to EN 60 730)
Protection type:	IP 30 (according to EN 60 529)

RTF xx

Potentiometer / rotary switch
with angle of rotation limiter
(Fig. without rotary knob)



The standard **print** is
a swelling arrow with
centre position unfilled (1)
optionally wedge-shaped and unfilled (2)
or with marking points ±3K...+3K (3)

THERMASGARD® RTF xx

Room temperature sensor
Baldur 1 / Baldur 2)

RTF xx various equipment versions
see type tables

Please specify
with special orders: **Ohm value** of potentiometer (standard is 1 kOhm;
optionally 100 Ohm, 2.5 kOhm, 5 kOhm, 10 kOhm)
Swelling arrow type (standard print is filled with centre position;
optionally wedge-shaped or with marking points –3K...+3K)
deviating **wiring requests** (available upon request)

Extra charge: **unique special print** – see "Accessories" chapter

Note: Unit versions with **active** potentiometer, see **RTM xx** –
special versions available upon request



S+S REGELTECHNIK

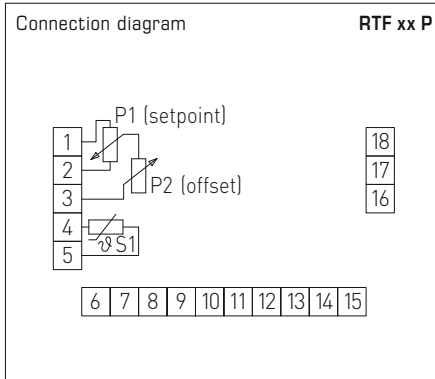
THERMASGARD® RTF xx

Room temperature sensors /
room control unit in different versions,
on-wall, with passive output



RTF xx P
(Baldur 1)

Version with sensor and
potentiometer (1 kOhm, max. 0.1 W)



THERMASGARD® RTF xx P

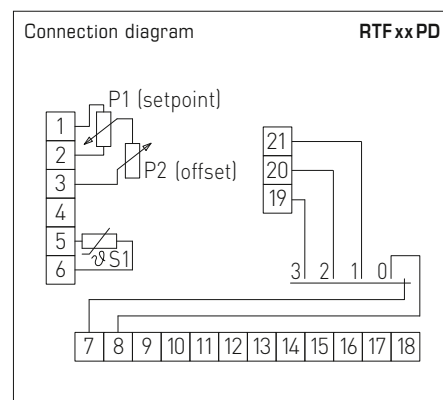
Room temperature sensor
with potentiometer

Type/WG01	Sensor / Output	Display	Item No.
RTF xx P			Baldur 1
RTF Pt100 P	Pt100 (according to DIN EN 60 751, class B)		1101-40A0-1001-345
RTF Pt1000 P	Pt1000 (according to DIN EN 60 751, class B)		1101-40A0-5001-345
RTF Ni1000 P	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)		1101-40A0-9001-345
RTF NiTK P	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000		1101-40A1-0001-345
RTF LM235Z P	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10		1101-40A2-1001-345
RTF NTC1,8K P	NTC 1,8K		1101-40A1-2001-345
RTF NTC10K P	NTC 10K		1101-40A1-5001-345
RTF NTC20K P	NTC 20K		1101-40A1-6001-345
Note:	Unit versions with active potentiometer, see RTMxx		



RTF xx PD
(Baldur 2)

Version with sensor,
potentiometer (1 kOhm, max. 0.1 W) and
turn switch (max. 24 V AC/DC, max. 130 mA)



THERMASGARD® RTF xx PD

Room temperature sensor
with potentiometer and rotary switch

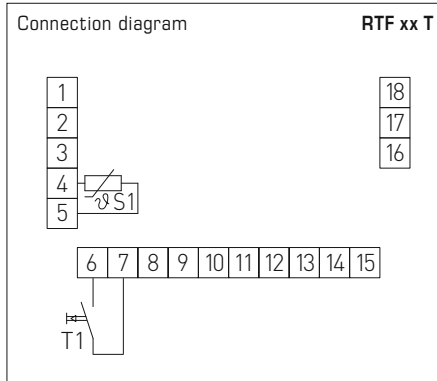
Type/WG01	Sensor / Output	Item No.
RTF xx PD		Baldur 2
RTF Pt100 P D4	Pt100 (according to DIN EN 60 751, class B)	1101-40B0-1007-349
RTF Pt1000 P D4	Pt1000 (according to DIN EN 60 751, class B)	1101-40B0-5007-349
RTF Ni1000 P D4	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-40B0-9007-349
RTF NiTK P D4	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-40B1-0007-349
RTF LM235Z P D4	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-40B2-1007-349
RTF NTC1,8K P D4	NTC 1,8K	1101-40B1-2007-349
RTF NTC10K P D4	NTC 10K	1101-40B1-5007-349
RTF NTC20K P D4	NTC 20K	1101-40B1-6007-349
Note:	Special versions available upon request	

Room temperature sensors /
room control unit in different versions,
on-wall, with passive output



RTF xx T
(Baldur 1)

Version with sensor and
push-button (max. 24 V DC, max. 10 mA)



THERMASGARD® RTF xx T

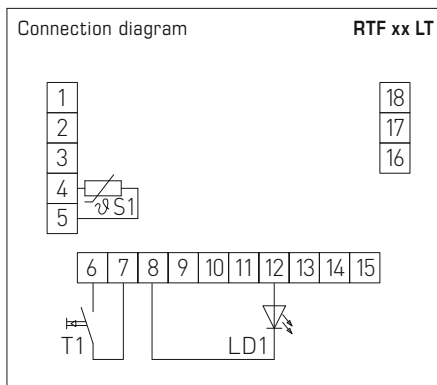
Room temperature sensor
with push-button

Type /WG01	Sensor / Output	Item No.
RTF xx T		Baldur 1
RTF Pt100 T	Pt100 (according to DIN EN 60 751, class B)	1101-40A0-1617-000
RTF Pt1000 T	Pt1000 (according to DIN EN 60 751, class B)	1101-40A0-5617-000
RTF Ni1000 T	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-40A0-9617-000
RTF NiTK T	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-40A1-0617-000
RTF LM235Z T	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-40A2-1617-000
RTF NTC1,8K T	NTC 1,8K	1101-40A1-2617-000
RTF NTC10K T	NTC 10K	1101-40A1-5617-000
RTF NTC20K T	NTC 20K	1101-40A1-6617-000
Note:	Special versions available upon request	



RTF xx LT
(Baldur 1)

Version with sensor, LED (green) and
push-button (max. 24 V DC, max. 10 mA)



THERMASGARD® RTF xx LT

Room temperature sensor
with LED and push-button

Type /WG01	Sensor / Output	Item No.
RTF xx LT		Baldur 1
RTF Pt100 L T	Pt100 (according to DIN EN 60 751, class B)	1101-40A0-1593-002
RTF Pt1000 L T	Pt1000 (according to DIN EN 60 751, class B)	1101-40A0-5593-002
RTF Ni1000 L T	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-40A0-9593-002
RTF NiTK L T	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-40A1-0593-002
RTF LM235Z L T	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-40A2-1593-002
RTF NTC1,8K L T	NTC 1,8K	1101-40A1-2593-002
RTF NTC10K L T	NTC 10K	1101-40A1-5593-002
RTF NTC20K L T	NTC 20K	1101-40A1-6593-002
Note:	Special versions available upon request	



S+S REGELTECHNIK

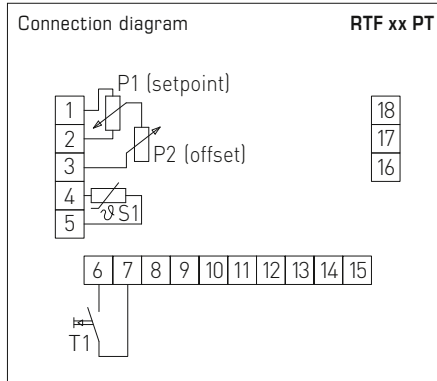
THERMASGARD® RTF xx

Room temperature sensors /
room control unit in different versions,
on-wall, with passive output



RTF xx PT
(Baldur 1)

Version with sensor,
potentiometer (1 kOhm, max. 0.1 W) and
push-button (max. 24 V DC, max. 10 mA)



THERMASGARD® RTF xx PT

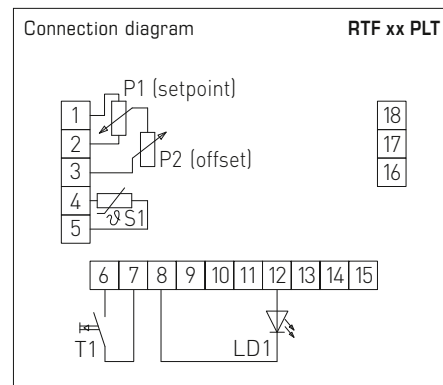
Room temperature sensor
with potentiometer and push-button

Type /WG01	Sensor /Output	Item No.
RTF xx PT		Baldur 1
RTF Pt100 P T	Pt100 (according to DIN EN 60 751, class B)	1101-40A0-1021-345
RTF Pt1000 P T	Pt1000 (according to DIN EN 60 751, class B)	1101-40A0-5021-345
RTF Ni1000 P T	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-40A0-9021-345
RTF NiTK P T	Ni1000 TK5000 (TCR = 5000 ppm / K), LG- Ni1000	1101-40A1-0021-345
RTF LM235Z P T	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-40A2-1021-345
RTF NTC1,8K P T	NTC 1,8K	1101-40A1-2021-345
RTF NTC10K P T	NTC 10K	1101-40A1-5021-345
RTF NTC20K P T	NTC 20K	1101-40A1-6021-345
Note:	Special versions available upon request	



RTF xx PLT
(Baldur 1)

Version with sensor,
potentiometer (1 kOhm, max. 0.1 W),
LED (green) and
push-button (max. 24 V DC, max. 10 mA)



THERMASGARD® RTF xx PLT

Room temperature sensor
with potentiometer, LED and push-button

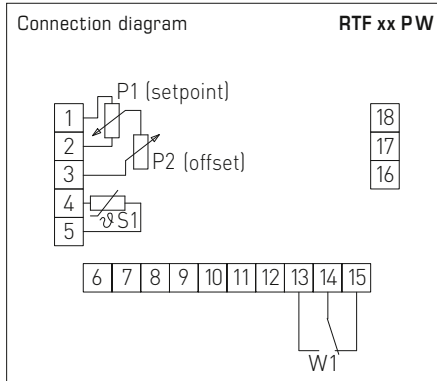
Type /WG01	Sensor /Output	Item No.
RTF xx PLT		Baldur 1
RTF Pt100 P L T	Pt100 (according to DIN EN 60 751, class B)	1101-40A0-1663-347
RTF Pt1000 P L T	Pt1000 (according to DIN EN 60 751, class B)	1101-40A0-5663-347
RTF Ni1000 P L T	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-40A0-9663-347
RTF NiTK P L T	Ni1000 TK5000 (TCR = 5000 ppm / K), LG- Ni1000	1101-40A1-0663-347
RTF LM235Z P L T	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-40A2-1663-347
RTF NTC1,8K P L T	NTC 1,8K	1101-40A1-2663-347
RTF NTC10K P L T	NTC 10K	1101-40A1-5663-347
RTF NTC20K P L T	NTC 20K	1101-40A1-6663-347
Note:	Special versions available upon request	

Room temperature sensors /
room control unit in different versions,
on-wall, with passive output



RTF xx PW (Baldur 1)

Version with sensor,
potentiometer (1 kOhm, max. 0.1 W) and
rocker switch (max. 24 V AC/DC, max. 130 mA)



THERMASGARD® RTF xx PW

Room temperature sensor
with potentiometer and rocker switch

Type / WG01	Sensor / Output	Item No.
RTF xx PW		Baldur 1
RTF Pt100 P W	Pt100 (according to DIN EN 60 751, class B)	1101-40A0-1061-348
RTF Pt1000 P W	Pt1000 (according to DIN EN 60 751, class B)	1101-40A0-5061-348
RTF Ni1000 P W	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-40A0-9061-348
RTF NiTK P W	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-40A1-0061-348
RTF LM235Z P W	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-40A2-1061-348
RTF NTC1,8K P W	NTC 1,8K	1101-40A1-2061-348
RTF NTC10K P W	NTC 10K	1101-40A1-5061-348
RTF NTC20K P W	NTC 20K	1101-40A1-6061-348
Note:	Special versions available upon request	



Operating elements Baldur 1	Possible combinations	1	2	3	4	5	6
Sensor 1		●	●	●	●	●	●
Sensor 2		●		●			
Sensor 3 LM235Z with calibrating pot (4-wire)		●			●	●	
Potentiometer 1 with / without series resistor		●	●	●	●		
Potentiometer 2 with calibrating pot						●	●
LED 1 (max. one LED)							
LED 2 (max. two LEDs)							
LED 3 (max. three LEDs)							
LED 4 (max. four LEDs)		●	●	●	●	●	●
Rocker switch			●	●			●
Push-button 1 (max. one button)		●		●		●	●
Push-button 2 (max. two buttons)			●		●		

With 4-conductor-circuitry, Sensor 3 is used, thus a maximum of 3 LEDs is possible.

LM235Z with calibrating pot = calibration of sensor output signal.

Satchwell switching possible with sensor 2.

Turn switches are not possible with Baldur 1!

Please specify in your order:

Ohm rating of potentiometer

(e. g. 100 Ohm, 1 kOhm, 2.5 kOhm, 5 kOhm, 10 kOhm)

Colour of LED

(e. g. green, red, yellow)

Printing, form of swelling arrow

(wedge-shaped or with central position, points or numerical scale)

Requested features regarding

operating and / or display elements and wiring

We offer special designs on request in written form including approval drawing.

Special printing:

See last chapter

"Accessories"

Operating elements Baldur 2	Possible combinations	1	2	3	4	5	6	7	8	9	10
Sensor 1		●	●	●	●	●	●	●	●	●	●
Sensor 2 LM235Z with calibrating pot		●						●			
Sensor 3 with heat sink (4-wire)											
Potentiometer 1 (at bottom) with / without series resistor		●	●		●		●	●	●		●
Potentiometer 2 (at top)			●						●		
Key switch (at bottom)				●						●	
Turn switch 1 (at top) with / without series resistor					●						●
Turn switch 2 (at bottom)						●					
LED 1 (max. one LED)											
LED 2 (max. two LEDs)											
LED 3 (max. three LEDs)			●						●		
LED 4 (max. four LEDs)					●						●
LED 5 (max. five LEDs)		●		●		●		●		●	
LED 6 (max. six LEDs)							●				
Rocker switch		●	●	●	●	●	●				
Push-button 1 (max. one button)											
Push-button 2 (max. two buttons)		●	●	●		●	●				●
Push-button 3 (max. three buttons)											
Push-button 4 (max. four buttons)								●	●	●	

Sensor 3 can also be used instead of sensor 1.

LM235Z with calibrating pot = calibration of sensor output signal.

In the case cascade connections with turn switch 1, LEDs are not possible!

With the Baldur 2 housing, only one operating element is possible at each of the positions "(at bottom)" and "(at top)"!

Room temperature sensors

in-wall, panel switch programme, general

A room temperature sensor **THERMASGARD® FSTF** is used for air temperature measurement or setpoint adjustment, for presence detection or as room control and operating panel with temperature sensor, push-buttons, potentiometers, status indicators (LEDs).

The in-wall sensor is mounted in high-quality panel switch programmes, ideally of the brands Gira, Berker, Merten, Jung, Siemens or Busch-Jaeger (using in-wall adapters) either individually or in combination with light switches, socket outlets, etc.

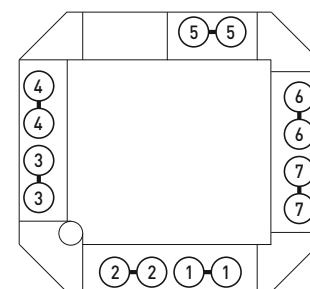
It is used in non-aggressive, dust-free environments, in refrigeration, air conditioning and clean room technology, and in interior rooms, such as living rooms, offices, hotels, etc.

TECHNICAL DATA

Measuring ranges:	−30...+60 °C
Sensor / output:	see table, assembled on board, passive
Range suppression:	in the button
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Potentiometers:	standard 1 kΩ, max. 0.1 W (other ratings optional on request, e. g. 100 Ω, 2.5 kΩ, 5 kΩ, 10 kΩ optional 0-10 V linear)
Turn switches:	max. 24 V AC / DC, max. 130 mA, max. 5 steps (0, Auto, I, II, III)
Rocker switch:	max. 24 V AC / DC, max. 130 mA
Push-buttons:	normally open contact, max. 24 V DC / 10 mA
LEDs:	max. 24 V DC (optional max. 24 V AC), standard green (red, yellow or two-colour optional)
Installation:	in in-wall flush box Ø 55 mm
Electrical connection:	FSTF-1 via screw terminals 0.14 - 1.5 mm ² , FSTFxx via plug terminals 1.0 - 2.5 mm ²
Humidity:	max. 90% RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 20 (according to EN 60 529)
SWITCH PROGRAMMES	
Manufacturer:	GIRA System 55 Standard (other switch programmes, manufacturers, and prices upon request)
Housing:	plastic, colour pure white glossy (similar to RAL 9010) (other colours are possible on request with colour variants depending on the respective switch programme)

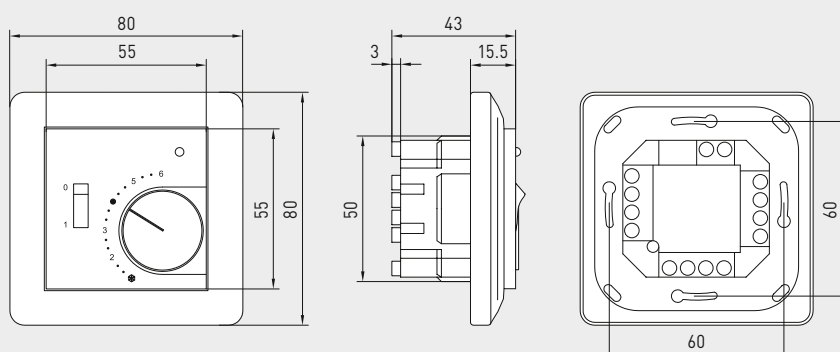
Circuit diagram

FSTF -xx



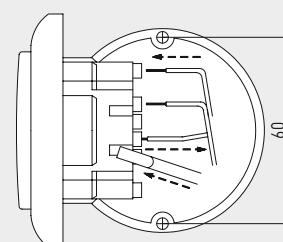
Dimensional drawing

FSTF -xx



Installation scheme

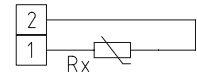
FSTF -xx



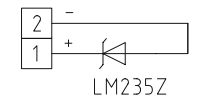


FSTF 1
Standard version
with sensor

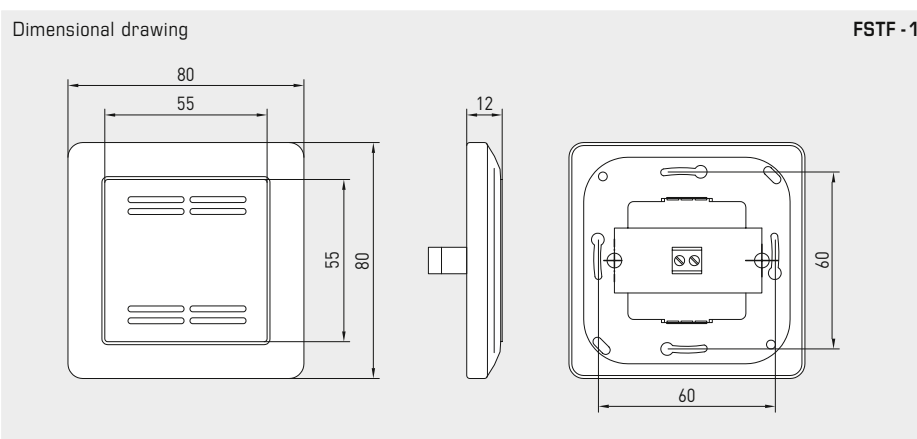
1x two-wire connection
Standard



1x two-wire connection
LM235Z (KP10)



THERMASGARD® FSTF 1 Room temperature sensors		
Type / WG01	Sensor / Output	Item No.
FSTF1	passive	IP20 (-30...+60 °C)
FSTF1 Pt100	Pt100 (according to DIN EN 60 751, class B)	1101-5020-1000-162
FSTF1 Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-5020-5000-162
FSTF1 Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-5020-9000-162
FSTF1 NiTK	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-5021-0000-162
FSTF1 LM235Z	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-5022-1000-162
FSTF1 NTC1,8K	NTC 1.8 K	1101-5021-2000-162
FSTF1 NTC10K	NTC 10K	1101-5021-5000-162
FSTF1 NTC20K	NTC 20K	1101-5021-6000-162

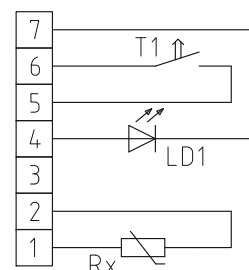


Room temperature sensors
in-wall, panel switch programme,
different versions

**FSTFxxLT**

Version with sensor,
LED (green), and push-button
(max. 24 V DC, max. 10 mA)

Connecting diagram

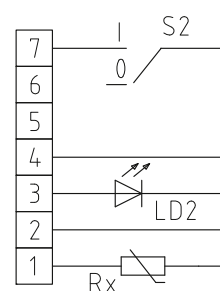
FSTFxxLT**THERMASGARD® FSTFxxLT** Room temperature sensors

Type/WG01	Sensor/Output	Item No.
FSTFxxLT	passive	IP 20 (-30...+60 °C)
FSTF Pt100 L T	Pt100 (according to DIN EN 60 751, class B)	1101-5020-1593-350
FSTF Pt1000 L T	Pt1000 (according to DIN EN 60 751, class B)	1101-5020-5593-350
FSTF Ni1000 L T	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm/K)	1101-5020-9593-350
FSTF NiTK L T	Ni1000 TK5000 (TCR = 5000 ppm/K), LG-Ni1000	1101-5021-0593-350
FSTF LM235Z L T	LM235Z (TCR = 10 mV/K; 2.73 V at 0 °C), KP10	1101-5022-1593-350
FSTF NTC1,8K L T	NTC 1.8K	1101-5021-2593-350
FSTF NTC10K L T	NTC 10K	1101-5021-5593-350
FSTF NTC20K L T	NTC 20K	1101-5021-6593-350

**FSTFxxLD2**

Version with sensor,
LED (green), and turn switch (2-step)
(max. 24 V AC/DC, max. 130 mA)

Connecting diagram

FSTFxxLD2**THERMASGARD® FSTFxxLD2** Room temperature sensors

Type/WG01	Sensor/Output	Item No.
FSTFxxLD2	passive	IP 20 (-30...+60 °C)
FSTF Pt100 D2 L	Pt100 (according to DIN EN 60 751, class B)	1101-5020-1631-351
FSTF Pt1000 D2 L	Pt1000 (according to DIN EN 60 751, class B)	1101-5020-5631-351
FSTF Ni1000 D2 L	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm/K)	1101-5020-9631-351
FSTF NiTK D2 L	Ni1000 TK5000 (TCR = 5000 ppm/K), LG-Ni1000	1101-5021-0631-351
FSTF LM235Z D2 L	LM235Z (TCR = 10 mV/K; 2.73 V at 0 °C), KP10	1101-5022-1631-351
FSTF NTC1,8K D2 L	NTC 1.8K	1101-5021-2631-351
FSTF NTC10K D2 L	NTC 10K	1101-5021-5631-351
FSTF NTC20K D2 L	NTC 20K	1101-5021-6631-351



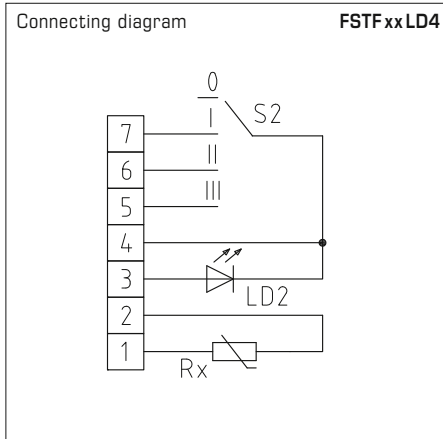
S+S REGELTECHNIK

THERMASGARD® FSTF xx

Room temperature sensors
in-wall, panel switch programme,
different versions



FSTFxxLD4
Version with sensor,
LED (green) and turn switch (4-step)
(max. 24 V AC / DC, max. 130 mA)

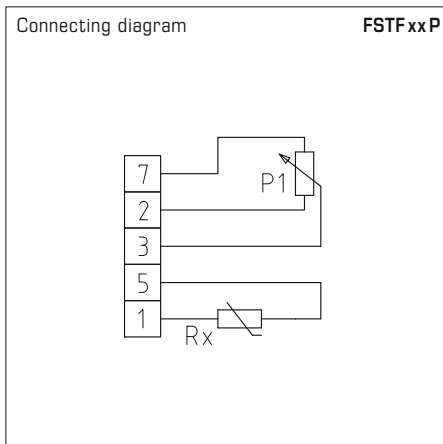


THERMASGARD® FSTFxxLD4 Room temperature sensors

Type / WG01	Sensor / Output	Item No.
FSTFxxLD4	passive	IP20 (-30...+60 °C)
FSTF Pt100 D4 L	Pt100 (according to DIN EN 60751, class B)	1101-5020-1643-352
FSTF Pt1000 D4 L	Pt1000 (according to DIN EN 60751, class B)	1101-5020-5643-352
FSTF Ni1000 D4 L	Ni1000 (according to DIN EN 43760, class B, TCR = 6180 ppm / K)	1101-5020-9643-352
FSTF NiTK D4 L	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-5021-0643-352
FSTF LM235Z D4 L	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-5022-1643-352
FSTF NTC1,8K D4 L	NTC 1.8K	1101-5021-2643-352
FSTF NTC10K D4 L	NTC 10K	1101-5021-5643-352
FSTF NTC20K D4 L	NTC 20K	1101-5021-6643-352



FSTFxxP
Version with sensor
and potentiometer
(1 kOhm, max. 0.1 W)



THERMASGARD® FSTFxxP Room temperature sensors

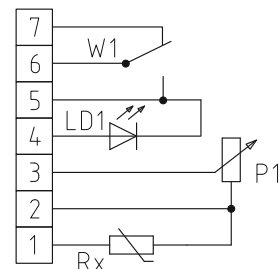
Type / WG01	Sensor / Output	Item No.
FSTFxxP	passive	IP20 (-30...+60 °C)
FSTF Pt100 P	Pt100 (according to DIN EN 60751, class B)	1101-5020-1001-282
FSTF Pt1000 P	Pt1000 (according to DIN EN 60751, class B)	1101-5020-5001-162
FSTF Ni1000 P	Ni1000 (according to DIN EN 43760, class B, TCR = 6180 ppm / K)	1101-5020-9001-162
FSTF NiTK P	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-5021-0001-162
FSTF LM235Z P	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-5022-1001-162
FSTF NTC1,8K P	NTC 1.8K	1101-5021-2001-162
FSTF NTC10K P	NTC 10K	1101-5021-5001-162
FSTF NTC20K P	NTC 20K	1101-5021-6001-162

Room temperature sensors
in-wall, panel switch programme,
different versions

**FSTFxxPLW**

Version with sensor,
potentiometer (1 kOhm, max. 0.1 W),
LED (green), and rocker switch
(max. 24 V AC/DC, max. 130 mA)

Connecting diagram

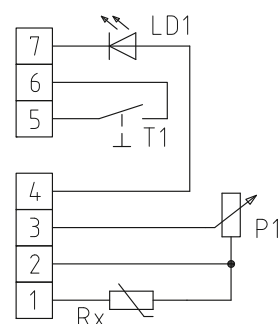
FSTFxxPLW**THERMASGARD® FSTFxxPLW** Room temperature sensors

Type/WG01	Sensor/Output	Item No.
FSTFxxPLW	passive	IP 20 (-30...+60 °C)
FSTF Pt100 P L W	Pt100 (according to DIN EN 60 751, class B)	1101-5020-1655-353
FSTF Pt1000 P L W	Pt1000 (according to DIN EN 60 751, class B)	1101-5020-5655-353
FSTF Ni1000 P L W	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm/K)	1101-5020-9655-353
FSTF NiTK P L W	Ni1000 TK5000 (TCR = 5000 ppm/K), LG-Ni1000	1101-5021-0655-353
FSTF LM235Z P L W	LM235Z (TCR = 10 mV/K; 2.73 V at 0 °C), KP10	1101-5022-1655-353
FSTF NTC1,8K P L W	NTC 1.8K	1101-5021-2655-353
FSTF NTC10K P L W	NTC 10K	1101-5021-5655-353
FSTF NTC20K P L W	NTC 20K	1101-5021-6655-353

**FSTFxxPLT**

Version with sensor,
potentiometer (1 kOhm, max. 0.1 W),
LED (green), and push-button
(max. 24 V DC, max. 10 mA)

Connecting diagram

FSTFxxPLT**THERMASGARD® FSTFxxPLT** Room temperature sensors

Type/WG01	Sensor/Output	Item No.
FSTFxxPLT	passive	IP 20 (-30...+60 °C)
FSTF Pt100 P L T	Pt100 (according to DIN EN 60 751, class B)	1101-5020-1663-162
FSTF Pt1000 P L T	Pt1000 (according to DIN EN 60 751, class B)	1101-5020-5663-162
FSTF Ni1000 P L T	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm/K)	1101-5020-9663-350
FSTF NiTK P L T	Ni1000 TK5000 (TCR = 5000 ppm/K), LG-Ni1000	1101-5021-0663-350
FSTF LM235Z P L T	LM235Z (TCR = 10 mV/K; 2.73 V at 0 °C), KP10	1101-5022-1663-350
FSTF NTC1,8K P L T	NTC 1.8K	1101-5021-2663-350
FSTF NTC10K P L T	NTC 10K	1101-5021-5663-350
FSTF NTC20K P L T	NTC 20K	1101-5021-6663-350



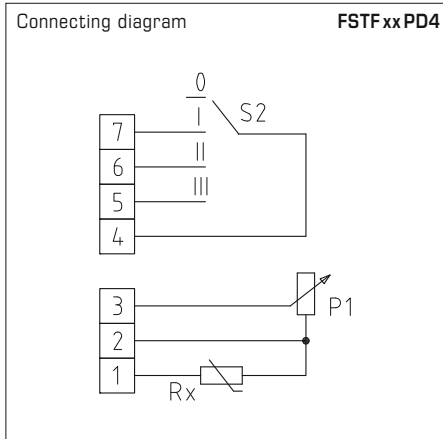
S+S REGELTECHNIK

THERMASGARD® FSTF xx

Room temperature sensors
in-wall, panel switch programme,
different versions



FSTFxxPD4
Version with sensor,
potentiometer (1 kOhm, max. 0.1 W)
and turn switch
(max. 24 V AC / DC, max. 130 mA)

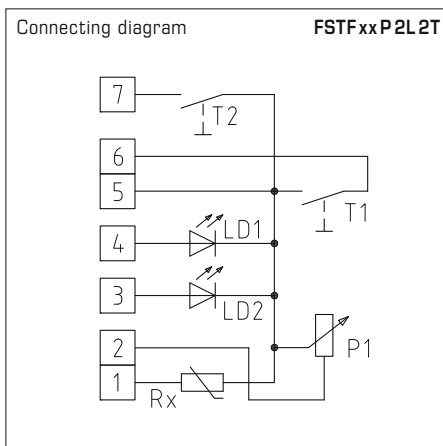


THERMASGARD® FSTF xx PD4 Room temperature sensors

Type / WG01	Sensor / Output	Item No.
FSTF xx PD4	passive	IP20 (-30...+60 °C)
FSTF Pt100 P D4	Pt100 (according to DIN EN 60751, class B)	1101-5020-1007-354
FSTF Pt1000 P D4	Pt1000 (according to DIN EN 60751, class B)	1101-5020-5007-354
FSTF Ni1000 P D4	Ni1000 (according to DIN EN 43760, class B, TCR = 6180 ppm / K)	1101-5020-9007-354
FSTF NiTK P D4	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-5021-0007-354
FSTF LM235Z P D4	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-5022-1007-354
FSTF NTC1,8K P D4	NTC 1.8K	1101-5021-2007-354
FSTF NTC10K P D4	NTC 10K	1101-5021-5007-354
FSTF NTC20K P D4	NTC 20K	1101-5021-6007-354



FSTF xx P2L2T
Version with sensor,
potentiometer (1 kOhm, max. 0.1 W),
2 LEDs (green, red), and 2 push-buttons (max.
24 V DC, max. 10 mA)



THERMASGARD® FSTF xx P2L2T Room temperature sensors

Type / WG01	Sensor / Output	Item No.
FSTF xx P2L2T	passive	IP20 (-30...+60 °C)
FSTF Pt100 P 2L 2T	Pt100 (according to DIN EN 60751, class B)	1101-5020-1672-256
FSTF Pt1000 P 2L 2T	Pt1000 (according to DIN EN 60751, class B)	1101-5020-5672-256
FSTF Ni1000 P 2L 2T	Ni1000 (according to DIN EN 43760, class B, TCR = 6180 ppm / K)	1101-5020-9672-256
FSTF NiTK P2L2T	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-5021-0672-256
FSTF LM235Z P 2L 2T	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-5022-1672-256
FSTF NTC1,8K P 2L 2T	NTC 1.8K	1101-5021-2672-256
FSTF NTC10K P 2L 2T	NTC 10K	1101-5021-5672-256
FSTF NTC20K P 2L 2T	NTC 20K	1101-5021-6672-256

In-ceiling temperature sensors with passive output

THERMASGARD® DTF is a small in-ceiling resistance thermometer with passive output for in-wall installation, e.g. in plasterboard walls or suspended ceilings. The in-ceiling temperature sensor DTF is preferably installed in ceilings and walls, blends in seamlessly with the overall architectural design and detects the temperature at the surface. The connecting head is pluggable for quick, easy mounting.

TECHNICAL DATA

Measuring range:	−20...+90 °C
Sensors / output:	see table, passive
Connection type:	4-wire connection terminal 1 / 2: + (marked red, wire colours: yellow, brown) terminal 3 / 4: − (marked black, wire colours: white, green)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Connecting head:	plastic, material polycarbonate (PC), colour white (can be painted as an option), pluggable
Connecting cable:	PVC, LiYY, 4 x 0.14 mm², KL = approx. 2 m
Process connection:	inside suspended ceiling, ceiling cutout Ø = 30 mm, cover Ø = < 35 mm
Insulating resistance:	≥ 100 MΩ, at +20 °C (500V DC)
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 30 (according EN 60 529) Sensor in the built-in state

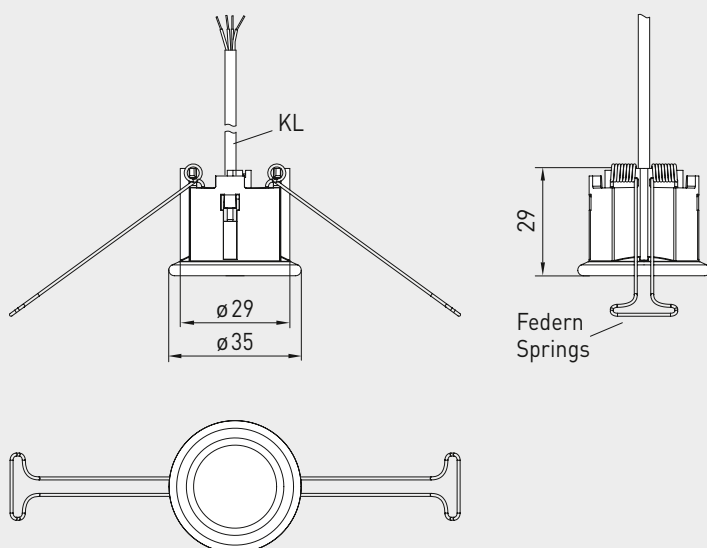
DTF

Connecting head,
pluggable

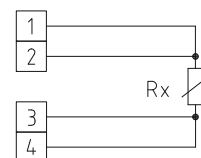


Dimensional drawing

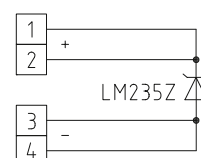
DTF



1x four-wire connection standard

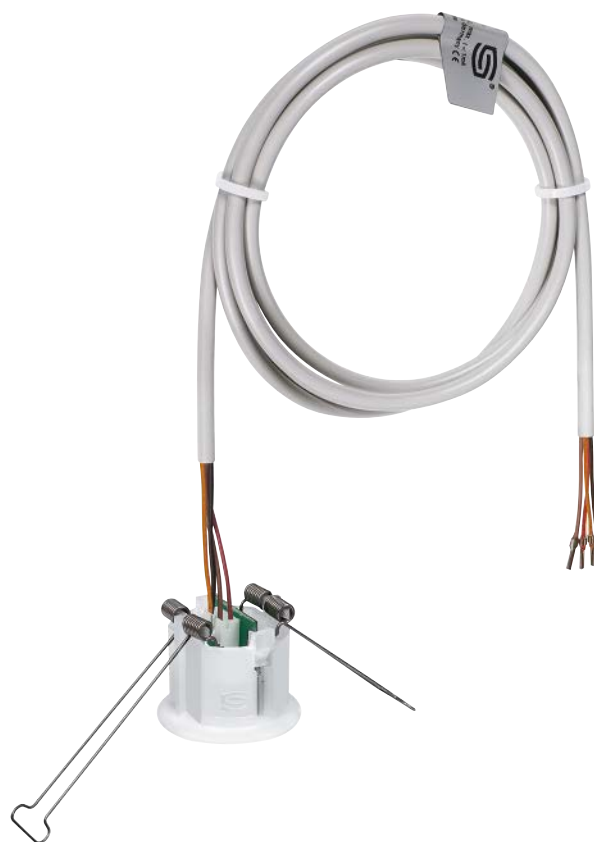


1x four-wire connection LM235Z (KP 10)





DTF



THERMASGARD® DTF In-ceiling temperature sensors		
Type / WG03	Sensor / Output	Item No.
DTF		IP30
DTF Pt100	Pt100 (according to DIN EN 60 751, class B)	1101-60C0-1003-000
DTF Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-60C0-5003-000
DTF Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-60C0-9003-000
DTF NiTK	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-60C1-0003-000
DTF LM235Z	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-60C2-1003-000
DTF NTC1,8K	NTC 1.8K	1101-60C1-2003-000
DTF NTC10K	NTC 10K	1101-60C1-5003-000
DTF NTC20K	NTC 20K	1101-60C1-6003-000
Note:	Other sensors optional	on request

**Outside temperature sensors / wet room temperature sensors
with passive output**

Outside wall resistance thermometer / weather sensor **THERMASGARD® ATF 1** (internal sensor) with passive output, housing made of impact-resistant plastic and quick-locking screws.

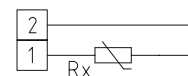
Outside wall resistance thermometer / weather sensor **THERMASGARD® ATF 01** (internal sensor) with passive output, housing made of impact-resistant plastic and snap-on lid.

It is used to measure outside temperatures, temperatures in wet room areas, e.g. as an outdoor sensor, weather sensor for installation on outside walls, in cold storage buildings and greenhouses, in halls, in the industrial sector and in agriculture. Installation in outdoor areas preferably at the north side of a building or in a protected place. In cases of direct solar irradiation, we recommend the use of our **WS01** or **WS04** sun protection hood (accessory).

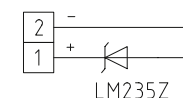
TECHNICAL DATA

Measuring range:	-50...+90 °C
Sensors / output:	passive (see table), sensors internal
Connection type:	2-wire connection (4-wire connection on PT100/PT1000A, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Housing:	plastic, UV-resistant, material polyamide, 30% glass-globe reinforced, colour traffic white (similar to RAL 9016), ATF01 with snap-on lid, ATF 1 with quick-locking screws (slotted / Phillips head combination)
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1 / Tyr 01)
Cable connection:	cable gland , plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) or M12 connector according to DIN EN 61076-2-101
Electrical connection:	0.14 - 1.5 mm ² , via terminal screws
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	ATF01 IP 54 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713160960A (Tyr 01) ATF 1 IP 67 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)

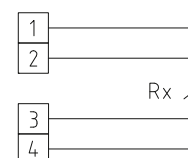
1x two-wire connection
standard



1x two-wire connection
LM235Z (KP 10)



1x four-wire connection
(optional)

**THERMASGARD® ATF 01** Outside temperature sensors / wet room temperature sensors, *Standard*
with snap-on lid

Type / WG03	Sensor / Output	Item No.
ATF 01		IP 54
ATF01 Pt100	Pt100 (according to DIN EN 60 751, class B)	1101-1030-1003-000
ATF01 Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-1030-5001-000
ATF01 Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-1030-9001-000
ATF01 NiTK	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-1031-0001-000
ATF01 LM235Z	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-1032-1001-000
ATF01 NTC1,8K	NTC 1.8K	1101-1031-2001-000
ATF01 NTC10K	NTC 10K	1101-1031-5001-000
ATF01 NTC20K	NTC 20K	1101-1031-6001-000
Extra charge:	Other sensors optional Cable connection with M12 connector according to DIN EN 61076-2-101	on request on request
ACCESSORIES		
WS-01	Sun and ball-impact protection hood , 184 x 180 x 80 mm, stainless steel V2A (1.4301)	7100-0040-2000-000
WS-04	Weather and sun protection hood , 130 x 180 x 135 mm, stainless steel V2A (1.4301)	7100-0040-7000-000

For further information see last chapter!



S+S REGELTECHNIK

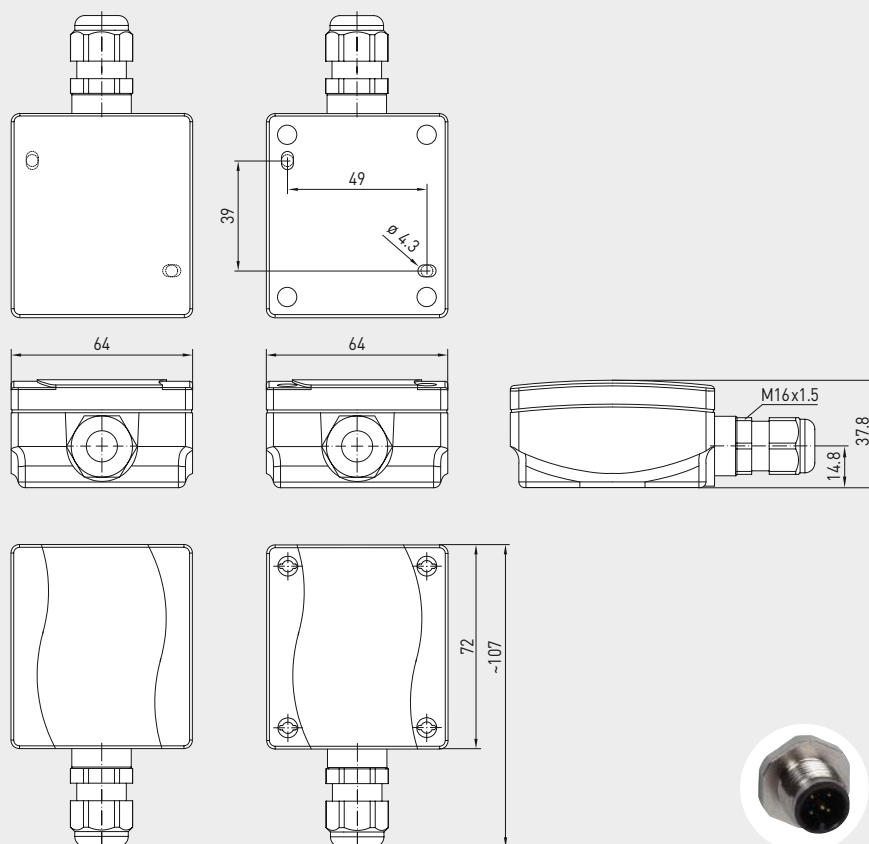
THERMASGARD® ATF 1
THERMASGARD® ATF 01

Outside temperature sensors / wet room temperature sensors
with passive output



Dimensional drawing

ATF 1
ATF01



with snap-on lid

with quick-locking screws

M12 connector
(optional on request)

ATF 01
with snap-on lid
(IP54)



ATF 1
with quick-locking screws
(IP67)



THERMASGARD® ATF 1 Outside temperature sensors / wet room temperature sensors, Premium with quick-locking screws

Type / WG03	Sensor / Output	Item No.
ATF 1		IP67
ATF1 Pt100	Pt100 (according to DIN EN 60 751, class B)	1101-1040-1003-000
ATF1 Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-1040-5001-000
ATF1 Pt1000A	Pt1000 (according to VDI/VDE 3512, class A-TGA)	1101-1040-6003-000
ATF1 Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-1040-9001-000
ATF1 NiTK	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-1041-0001-000
ATF1 LM235Z	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-1042-1001-000
ATF1 NTC1,8K	NTC 1.8 K	1101-1041-2001-000
ATF1 NTC10K	NTC 10K	1101-1041-5001-000
ATF1 NTC20K	NTC 20K	1101-1041-6001-000
Extra charge::	Other sensors optional Cable connection with M12 connector according to DIN EN 61076-2-101	on request on request
ACCESSORIES		
WS-01	Sun and ball-impact protection hood , 184 x 180 x 80 mm, stainless steel V2A (1.4301)	7100-0040-2000-000
WS-04	Weather and sun protection hood , 130 x 180 x 135 mm, stainless steel V2A (1.4301)	7100-0040-7000-000

For further information see last chapter!

Outside temperature sensors / wet room temperature sensors with passive output

Outside wall resistance thermometers / weather sensors **THERMASGARD® ATF 2** (external sensor) with passive output and housing made of impact-resistant plastic and with quick-locking screws.

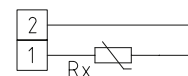
It is used to measure outside temperatures, temperatures in wet room areas, e.g. as a weather sensor, for installation on outside walls, in cold storage buildings and greenhouses, in halls, in the industrial sector and in agriculture. Outdoor installation should preferably be performed at the north side of a building or in a protected place.

In cases of direct solar irradiation, we recommend the use of our **WS01** or **WS04** sun protection hood (accessory) or the device version with installed sun protection hood **SS02** (available upon request).

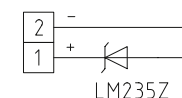
TECHNICAL DATA

Measuring range:	-50...+90 °C
Sensors / output:	passive (see table), sensor inside external sensor tube, stainless steel V4A (1.4571) (Perfect Sensor Protection)
Connection type:	2-wire connection (4-wire connection on PT100/PT1000A, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
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 dimensions:	72 x 64 x 37.8 mm (Tyr 1)
Cable connection:	cable gland , plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) or M12 connector according to DIN EN 61076-2-101
Electrical connection:	0.14 - 1.5 mm ² via terminal screws
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Permissible humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP65 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)
Optional:	with sun protection hood SS02 (available on request)

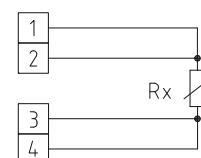
1x two-wire connection
standard



1x two-wire connection
LM235Z (KP 10)



1x four-wire connection
(optional)

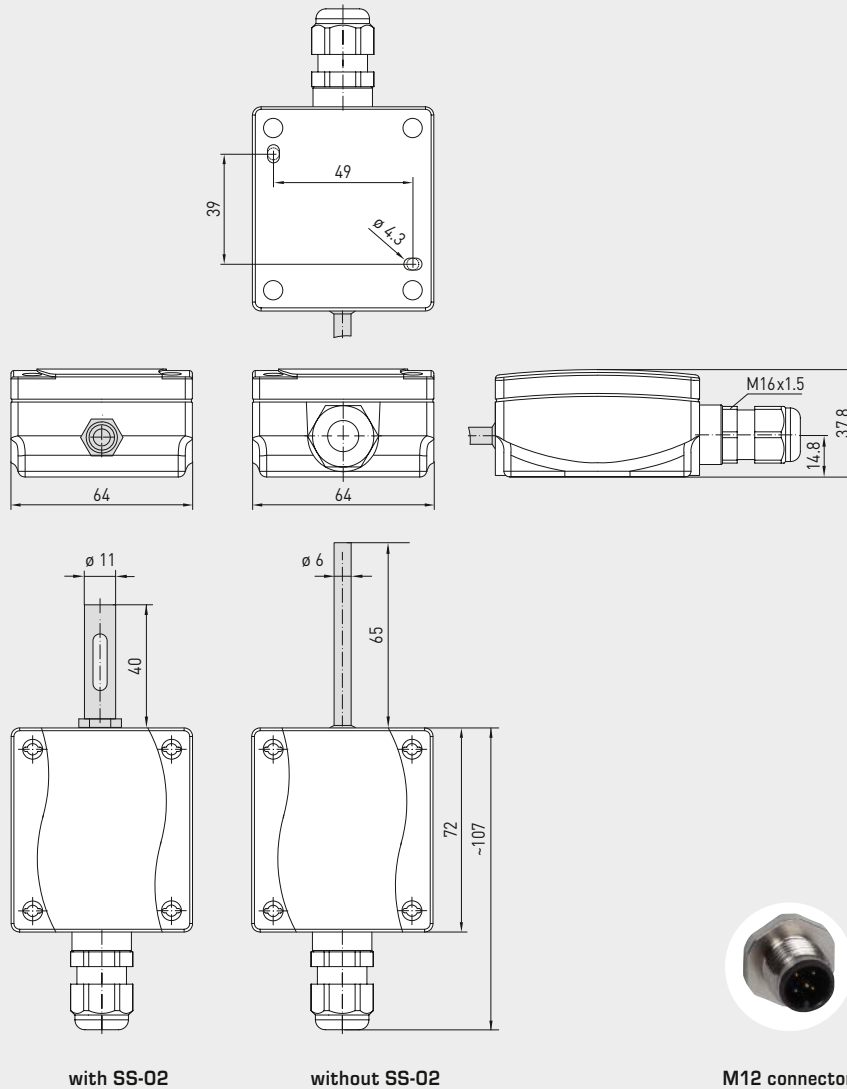


High-performance encapsulation against
vibration, mechanical stress and humidity



Dimensional drawing

ATF 2



with SS-02

without SS-02

M12 connector
(optional on request)

ATF 2


ATF 2
with SS-02


THERMASGARD® ATF 2 Outside temperature sensors / wet room temperature sensors

Type / WG03	Sensor / Output	Item No.
ATF 2		
ATF2 Pt100	Pt100 (according to DIN EN 60 751, class B)	1101-1050-1003-000
ATF2 Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-1050-5001-000
ATF2 Pt1000A	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-1050-6003-000
ATF2 Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-1050-9001-000
ATF2 NiTK	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-1051-0001-000
ATF2 LM235Z	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-1052-1001-000
ATF2 NTC1,8K	NTC 1.8 K	1101-1051-2001-000
ATF2 NTC10K	NTC 10K	1101-1051-5001-000
ATF2 NTC20K	NTC 20K	1101-1051-6001-000
Extra charge:	Other sensors optional	on request
	with sun protection hood SS02	on request
	Cable connection with M12 connector according to DIN EN 61076-2-101	on request
ACCESSORIES		
WS-01	Sun and ball-impact protection hood, 184 x 180 x 80 mm, stainless steel V2A (1.4301)	7100-0040-2000-000
WS-04	Weather and sun protection hood, 130 x 180 x 135 mm, stainless steel V2A (1.4301)	7100-0040-7000-000
For further information see last chapter!		

**Immersion / screw-in / duct temperature sensors
with passive output**

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

THERMASGARD® TF 43 is a resistance thermometer with a passive output, housing made from impact-resistant plastic with snap-on lid, and straight protective tube.

THERMASGARD® TF 65 is a resistance thermometer with a passive output, housing made from impact-resistant plastic with quick-locking screws, and straight protective tube.

These immersion / screw-in / duct temperature sensors are electric contact thermometers for temperature measurement in liquids and gases, which are installed for example in piping systems and vessels. For aggressive media, stainless steel immersion sleeves must be used.

Applications of these temperature sensors in piping systems, in heating technology, in storage tanks, in district heating compact stations, in hot and cold-water systems, in oil and lubricant circulation systems, in mechanical, apparatus and plant engineering as well as in the entire industrial sector.

TECHNICAL DATA

Measuring range:	−30...+150 °C (T _{max} NTC = +150 °C, T _{max} LM235Z = +125 °C)
Sensors / output:	see table, passive (Perfect Sensor Protection) (optional also with two sensors)
Connection type:	2-wire connection (4-wire connection on PT100/PT1000A, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Ambient temperature:	−20...+100 °C
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, colour traffic white (similar to RAL 9016) TF 43 with snap-on lid TF 65 with quick-locking screws (slotted / Phillips head combination)
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1 / Tyr 01)
Cable connection:	cable gland , plastic (M 16 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
Protective tube:	stainless steel, V4A (1.4571), Ø = 6 mm, inserted length (EL) = 50 - 400 mm (see table)
Permissible humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	TF 43 IP54 (according to EN 60 529)* Housing tested, TÜV SÜD, Report No. 713160960A (Tyr 01) TF 65 IP67 (according to EN 60 529)* Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1) * Housing in the built-in state

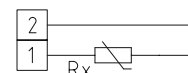
ACCESSORIES

MF-15-K	Mounting flange , plastic, 56.8 x 84.3 mm, Ø = 15.2 mm tube gland, T _{max} = +100 °C
TH08-MS-G/xx	Immersion sleeve, polished brass , Ø = 8 mm, T _{max} = +150 °C, p _{max} = 10 bar
TH08-VA/xx	Immersion sleeve, stainless steel, V4A (1.4571), Ø = 8 mm, T _{max} = +600 °C, p _{max} = 40 bar
TH08-VA/xx/90	Immersion sleeve, stainless steel, V4A (1.4571), with neck tube (90 mm), Ø = 8 mm, T _{max} = +600 °C, p _{max} = 40 bar

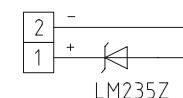
High-performance encapsulation against
vibration, mechanical stress and humidity



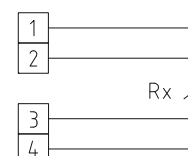
1x two-wire connection Standard



1x two-wire connection LM235Z (KP 10)



1x four-wire connection (optional)





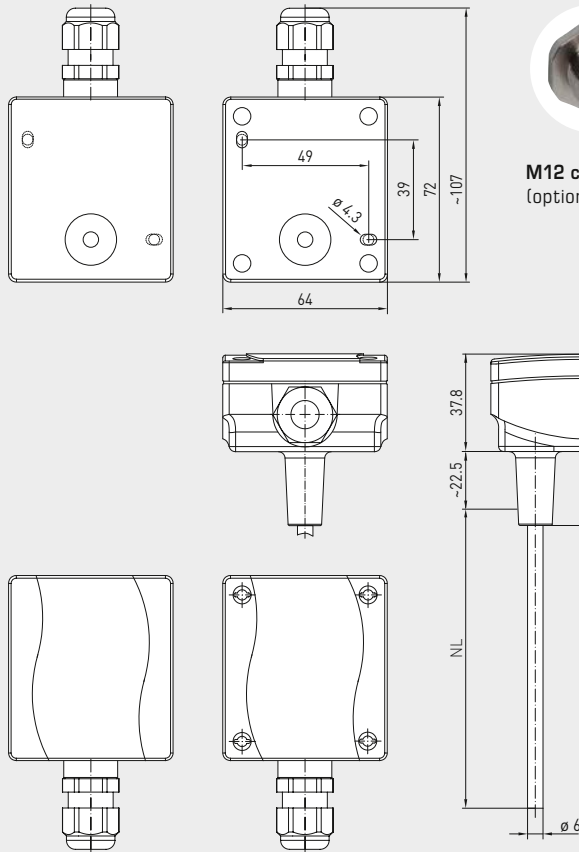
S+S REGELTECHNIK

THERMASGARD® TF 43
THERMASGARD® TF 65

Immersion / screw-in / duct temperature sensors
with passive output



Dimensional drawing



TF 43
TF 65

M12 connector
(optional on request)

with snap-on lid

with quick-locking
screws

TF 43
with snap-on lid
(IP 54)



TF 65
with quick-locking screws
(IP 67)



PATENTED



TFxx
Basic device
with accessories

THERMASGARD® TF 65 Temperature sensors (Basic device with quick-locking screws), *Premium*

Type / WG03 / EL	Sensor / Output	Item No.
TF65 PT100 xx	Pt100	IP 67
TF65 Pt100 50mm	Pt100 (according to DIN EN 60 751, class B)	1101-7020-1013-000
TF65 Pt100 100mm	Pt100 (according to DIN EN 60 751, class B)	1101-7020-1023-000
TF65 Pt100 150mm	Pt100 (according to DIN EN 60 751, class B)	1101-7020-1033-000
TF65 Pt100 200mm	Pt100 (according to DIN EN 60 751, class B)	1101-7020-1043-000
TF65 Pt100 250mm	Pt100 (according to DIN EN 60 751, class B)	1101-7020-1053-000
TF65 Pt100 300mm	Pt100 (according to DIN EN 60 751, class B)	1101-7020-1063-000
TF65 Pt100 350mm	Pt100 (according to DIN EN 60 751, class B)	1101-7020-1073-000
TF65 Pt100 400mm	Pt100 (according to DIN EN 60 751, class B)	1101-7020-1083-000
TF65 PT1000 xx	Pt1000	IP 67
TF65 Pt1000 50mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7020-5011-000
TF65 Pt1000 100mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7020-5021-000
TF65 Pt1000 150mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7020-5031-000
TF65 Pt1000 200mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7020-5041-000
TF65 Pt1000 250mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7020-5051-000
TF65 Pt1000 300mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7020-5061-000
TF65 Pt1000 350mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7020-5071-000
TF65 Pt1000 400mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7020-5081-000
TF65 PT1000A xx	Pt1000A	IP 67
TF65 Pt1000A 50mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7020-6013-000
TF65 Pt1000A 100mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7020-6023-000
TF65 Pt1000A 150mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7020-6033-000
TF65 Pt1000A 200mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7020-6043-000
TF65 Pt1000A 250mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7020-6053-000
TF65 Pt1000A 300mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7020-6063-000
TF65 Pt1000A 350mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7020-6073-000
TF65 Pt1000A 400mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7020-6083-000
TF65 Ni1000 xx	Ni1000	IP 67
TF65 Ni1000 50mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7020-9011-000
TF65 Ni1000 100mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7020-9021-000
TF65 Ni1000 150mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7020-9031-000
TF65 Ni1000 200mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7020-9041-000
TF65 Ni1000 250mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7020-9051-000
TF65 Ni1000 300mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7020-9061-000
TF65 Ni1000 350mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7020-9071-000
TF65 Ni1000 400mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7020-9081-000
TF65 NI1000TK xx	Ni1000 TK5000	IP 67
TF65 NiTK 50mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7021-0011-000
TF65 NiTK 100mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7021-0021-000
TF65 NiTK 150mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7021-0031-000
TF65 NiTK 200mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7021-0041-000
TF65 NiTK 250mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7021-0051-000
TF65 NiTK 300mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7021-0061-000
TF65 NiTK 350mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7021-0071-000
TF65 NiTK 400mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7021-0081-000

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High-performance encapsulation against
vibration, mechanical stress and humidity





THERMASGARD® TF 65 Temperature sensors (Basic device with quick-locking screws), <i>Premium</i>		
Type / WG03 / EL	Sensor / Output	Item No.
TF65 LM235Z xx	LM235Z	IP67
TF65 LM235Z 50mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7022-1011-000
TF65 LM235Z 100mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7022-1021-000
TF65 LM235Z 150mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7022-1031-000
TF65 LM235Z 200mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7022-1041-000
TF65 LM235Z 250mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7022-1051-000
TF65 LM235Z 300mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7022-1061-000
TF65 LM235Z 350mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7022-1071-000
TF65 LM235Z 400mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7022-1081-000
TF65 NTC 1.8K xx	NTC 1.8K	IP67
TF65 NTC1,8K 50mm	NTC 1.8K	1101-7021-2011-000
TF65 NTC1,8K 100mm	NTC 1.8K	1101-7021-2021-000
TF65 NTC1,8K 150mm	NTC 1.8K	1101-7021-2031-000
TF65 NTC1,8K 200mm	NTC 1.8K	1101-7021-2041-000
TF65 NTC1,8K 250mm	NTC 1.8K	1101-7021-2051-000
TF65 NTC1,8K 300mm	NTC 1.8K	1101-7021-2061-000
TF65 NTC1,8K 350mm	NTC 1.8K	1101-7021-2071-000
TF65 NTC1,8K 400mm	NTC 1.8K	1101-7021-2081-000
TF65 NTC10K xx	NTC 10K	IP67
TF65 NTC10K 50mm	NTC 10K	1101-7021-5011-000
TF65 NTC10K 100mm	NTC 10K	1101-7021-5021-000
TF65 NTC10K 150mm	NTC 10K	1101-7021-5031-000
TF65 NTC10K 200mm	NTC 10K	1101-7021-5041-000
TF65 NTC10K 250mm	NTC 10K	1101-7021-5051-000
TF65 NTC10K 300mm	NTC 10K	1101-7021-5061-000
TF65 NTC10K 350mm	NTC 10K	1101-7021-5071-000
TF65 NTC10K 400mm	NTC 10K	1101-7021-5081-000
TF65 NTC20K xx	NTC 20K	IP67
TF65 NTC20K 50mm	NTC 20K	1101-7021-6011-000
TF65 NTC20K 100mm	NTC 20K	1101-7021-6021-000
TF65 NTC20K 150mm	NTC 20K	1101-7021-6031-000
TF65 NTC20K 200mm	NTC 20K	1101-7021-6041-000
TF65 NTC20K 250mm	NTC 20K	1101-7021-6051-000
TF65 NTC20K 300mm	NTC 20K	1101-7021-6061-000
TF65 NTC20K 350mm	NTC 20K	1101-7021-6071-000
TF65 NTC20K 400mm	NTC 20K	1101-7021-6081-000
Note:	Other sensors optional	on request
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101	on request



THERMASGARD® TF 43 Temperature sensors (Basic device with snap-on lid), *Standard*

Type / WG03 / EL	Sensor / Output	Item No.
TF43 PT100 xx	Pt100	IP 54
TF43 Pt100 50mm	Pt100 (according to DIN EN 60 751, class B)	1101-7010-1013-000
TF43 Pt100 100mm	Pt100 (according to DIN EN 60 751, class B)	1101-7010-1023-000
TF43 Pt100 150mm	Pt100 (according to DIN EN 60 751, class B)	1101-7010-1033-000
TF43 Pt100 200mm	Pt100 (according to DIN EN 60 751, class B)	1101-7010-1043-000
TF43 Pt100 250mm	Pt100 (according to DIN EN 60 751, class B)	1101-7010-1053-000
TF43 Pt100 300mm	Pt100 (according to DIN EN 60 751, class B)	1101-7010-1063-000
TF43 Pt100 350mm	Pt100 (according to DIN EN 60 751, class B)	1101-7010-1073-000
TF43 Pt100 400mm	Pt100 (according to DIN EN 60 751, class B)	1101-7010-1083-000
TF43 PT1000 xx	Pt1000	IP 54
TF43 Pt1000 50mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7010-5011-000
TF43 Pt1000 100mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7010-5021-000
TF43 Pt1000 150mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7010-5031-000
TF43 Pt1000 200mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7010-5041-000
TF43 Pt1000 250mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7010-5051-000
TF43 Pt1000 300mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7010-5061-000
TF43 Pt1000 350mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7010-5071-000
TF43 Pt1000 400mm	Pt1000 (according to DIN EN 60 751, class B)	1101-7010-5081-000
TF43 PT1000A xx	Pt1000A	IP 54
TF43 Pt1000A 50mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7010-6013-000
TF43 Pt1000A 100mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7010-6023-000
TF43 Pt1000A 150mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7010-6033-000
TF43 Pt1000A 200mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7010-6043-000
TF43 Pt1000A 250mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7010-6053-000
TF43 Pt1000A 300mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7010-6063-000
TF43 Pt1000A 350mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7010-6073-000
TF43 Pt1000A 400mm	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-7010-6083-000
TF43 Ni1000 xx	Ni1000	IP 54
TF43 Ni1000 50mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7010-9011-000
TF43 Ni1000 100mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7010-9021-000
TF43 Ni1000 150mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7010-9031-000
TF43 Ni1000 200mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7010-9041-000
TF43 Ni1000 250mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7010-9051-000
TF43 Ni1000 300mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7010-9061-000
TF43 Ni1000 350mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7010-9071-000
TF43 Ni1000 400mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-7010-9081-000
TF43 NI1000TK xx	Ni1000 TK5000	IP 54
TF43 NiTK 50mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7011-0011-000
TF43 NiTK 100mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7011-0021-000
TF43 NiTK 150mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7011-0031-000
TF43 NiTK 200mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7011-0041-000
TF43 NiTK 250mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7011-0051-000
TF43 NiTK 300mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7011-0061-000
TF43 NiTK 350mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7011-0071-000
TF43 NiTK 400mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-7011-0081-000

Continued on next page...

High-performance encapsulation against
vibration, mechanical stress and humidity





THERMASGARD® TF 43 Temperature sensors (Basic device with snap-on lid), <i>Standard</i>		
Type / WG03 / EL	Sensor / Output	Item No.
TF43 LM235Z xx	LM235Z	IP54
TF43 LM235Z 50mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7012-1011-000
TF43 LM235Z 100mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7012-1021-000
TF43 LM235Z 150mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7012-1031-000
TF43 LM235Z 200mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7012-1041-000
TF43 LM235Z 250mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7012-1051-000
TF43 LM235Z 300mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7012-1061-000
TF43 LM235Z 350mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7012-1071-000
TF43 LM235Z 400mm	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-7012-1081-000
TF43 NTC 1.8K xx	NTC 1.8K	IP54
TF43 NTC1,8K 50mm	NTC 1.8K	1101-7011-2011-000
TF43 NTC1,8K 100mm	NTC 1.8K	1101-7011-2021-000
TF43 NTC1,8K 150mm	NTC 1.8K	1101-7011-2031-000
TF43 NTC1,8K 200mm	NTC 1.8K	1101-7011-2041-000
TF43 NTC1,8K 250mm	NTC 1.8K	1101-7011-2051-000
TF43 NTC1,8K 300mm	NTC 1.8K	1101-7011-2061-000
TF43 NTC1,8K 350mm	NTC 1.8K	1101-7011-2071-000
TF43 NTC1,8K 400mm	NTC 1.8K	1101-7011-2081-000
TF43 NTC10K xx	NTC 10K	IP54
TF43 NTC10K 50mm	NTC 10K	1101-7011-5011-000
TF43 NTC10K 100mm	NTC 10K	1101-7011-5021-000
TF43 NTC10K 150mm	NTC 10K	1101-7011-5031-000
TF43 NTC10K 200mm	NTC 10K	1101-7011-5041-000
TF43 NTC10K 250mm	NTC 10K	1101-7011-5051-000
TF43 NTC10K 300mm	NTC 10K	1101-7011-5061-000
TF43 NTC10K 350mm	NTC 10K	1101-7011-5071-000
TF43 NTC10K 400mm	NTC 10K	1101-7011-5081-000
TF43 NTC20K xx	NTC 20K	IP54
TF43 NTC20K 50mm	NTC 20K	1101-7011-6011-000
TF43 NTC20K 100mm	NTC 20K	1101-7011-6021-000
TF43 NTC20K 150mm	NTC 20K	1101-7011-6031-000
TF43 NTC20K 200mm	NTC 20K	1101-7011-6041-000
TF43 NTC20K 250mm	NTC 20K	1101-7011-6051-000
TF43 NTC20K 300mm	NTC 20K	1101-7011-6061-000
TF43 NTC20K 350mm	NTC 20K	1101-7011-6071-000
TF43 NTC20K 400mm	NTC 20K	1101-7011-6081-000
Note	Other sensors optional	on request
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101	on request

TF43
with snap-on lid
(IP54)

Immersion / screw-in / duct temperature sensors
with passive output

One basic device in four variants ...



PATENTED

DE 10 2012 017 500.0

**TFxx +
TH08-MS-G/xx**

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

**TFxx +
TH08-VA/xx**

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

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

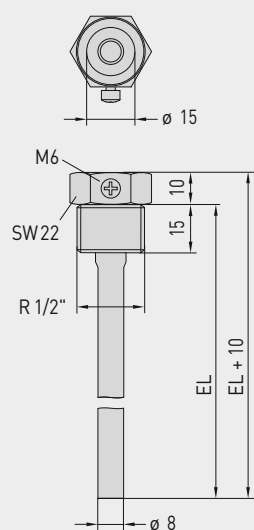
Immersion / screw-in
temperature sensor with
immersion sleeve with neck
tube, stainless steel, V4A

**TFxx +
MF-15-K**

Duct temperature sensor
with mounting flange, plastic

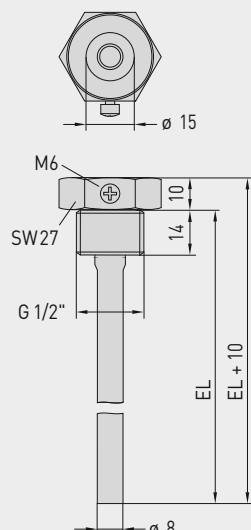
TH08-MS-G/xx

Dimensional drawing
[mm]



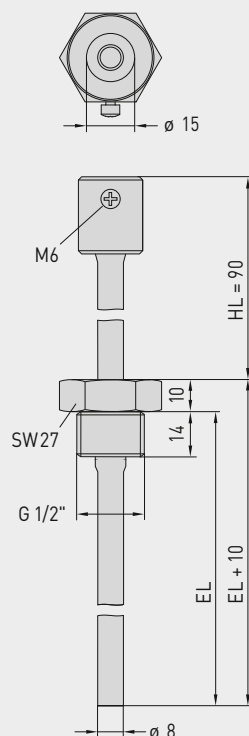
TH08-VA/xx

Dimensional drawing
[mm]



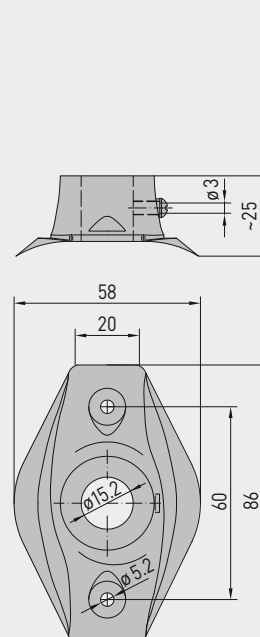
TH08-VA/xx/90

Dimensional drawing
[mm]



MF-15-K

Dimensional drawing
[mm]





S+S REGELTECHNIK

THERMASGARD® TF 43
THERMASGARD® TF 65

Immersion / screw-in / duct temperature sensors
with passive output



...through combination with accessories:



TH08-MS-G/xx

Immersion sleeve,
polished brass,
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-G xx	polished brass			without neck tube
TH08-MS-G 50MM	10 bar	+150 °C	50 mm	7100-0017-0010-132
TH08-MS-G 100MM	10 bar	+150 °C	100 mm	7100-0017-0020-132
TH08-MS-G 150MM	10 bar	+150 °C	150 mm	7100-0017-0030-132
TH08-MS-G 200MM	10 bar	+150 °C	200 mm	7100-0017-0040-132
TH08-MS-G 250MM	10 bar	+150 °C	250 mm	7100-0017-0050-132
TH08-MS-G 300MM	10 bar	+150 °C	300 mm	7100-0017-0060-132
TH08-MS-G 350MM	10 bar	+150 °C	350 mm	7100-0017-0070-132
TH08-MS-G 400MM	10 bar	+150 °C	400 mm	7100-0017-0080-132
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, 56.8 x 84.3 mm, Ø 15.2 mm tube gland	+100 °C	7100-0032-0000-000	
Note:	For further information see last chapter!			

**Mean value / rod / duct temperature sensor
including mounting flange, with passive output**

Mean-value temperature sensor **THERMASGARD® MWTF** (rod sensor 0.4...20 m) with passive output, in an impact-resistant plastic housing with quick-locking screws, with bendable sensor rod (fully active), protective tube made from copper, plastic-coated, and anti-kink spring, incl. mounting flange.

Mean-value temperature sensor **THERMASGARD® MWTF-SD** (rod sensor 3 m / 6 m) with passive output, in an impact-resistant plastic housing with snap-on lid, with bendable sensor rod (fully active), protective tube made from reinforced thermoplastic hose and anti-kink spring, incl. mounting flange.

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

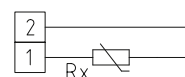
MWTF
Rod length 0,4 m
(IP 65)



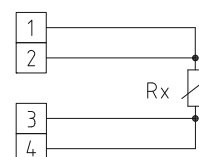
TECHNICAL DATA

Measuring range:	−30...+80 °C
Sensors / output:	see table, passive
Connection type:	2-wire connection (4-wire connection on PT100, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000)
Sensor:	active over the entire length (averaging)
Rod material:	protective tube made from copper, plastic-coated, (MWTF) (made from reinforced thermoplastic hose on the MWTF-SD , 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, see table (nominal length optionally up to max. 20 m)
Rod laying:	Observe the admissible values! Bending radius: > 35 mm Vibration load: ≤ 0.5 g Tensile load: < 480 N for the MWTF < 100 N for the MWTF-SD
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 dimensions:	72 x 64 x 37.8 mm (Tyr 1)
Cable connection:	cable gland , plastic (M 16 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 mm² via terminal screws
Process connection:	by mounting flange, plastic, (galvanised steel optional, see accessories) and mounting clamps MK-05-M
Ambient temperature:	−20...+80 °C
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 54 (according to EN 60 529) for the MWTF-SD IP 65 (according to EN 60 529) for the MWTF Housing tested, TÜV SÜD, report no. 713139052 (Tyr 1)
ACCESSORIES	see table

1x two-wire connection
standard



1x four-wire connection
(optional)





S+S REGELTECHNIK

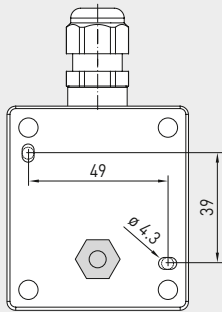
THERMASGARD® MWTF
THERMASGARD® MWTF-SD

Mean value / rod / duct temperature sensor
including mounting flange, with passive output

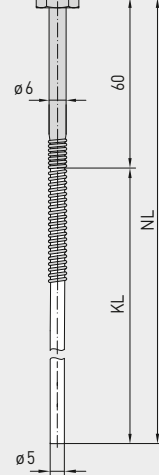
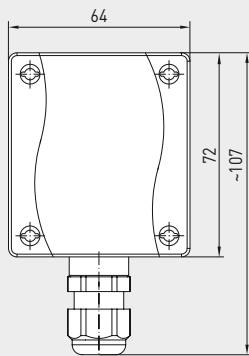
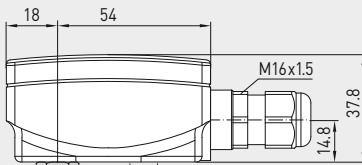
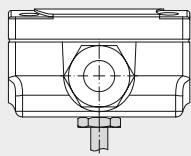


Dimensional drawing

MWTF



M12 connector
(optional on request)



MWTF

Rod length 3 m / 6 m
(IP 65)



MWTF-SD

Rod length 3 m / 6 m
(IP 54)

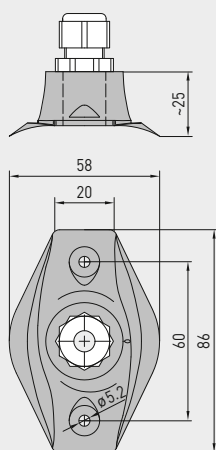


Mean value / rod / duct temperature sensor
 including mounting flange, with passive output

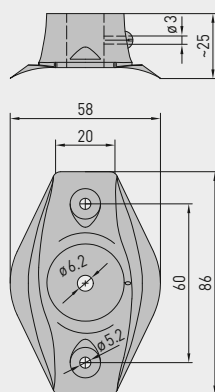
MWTF
 Rod length 0,4 m
 (IP 65)



Dimensional drawing **KRD-04**



Dimensional drawing **MF-06-K**



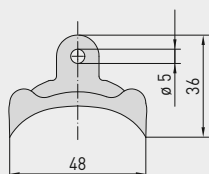
MF-06-K
 Mounting flange,
 plastic
 (Included in the
 scope of delivery)



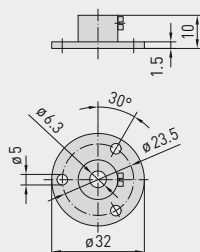
KRD-04
 Capillary tube
 bushing, plastic
 (optional)



Dimensional drawing **MK-05-M**



Dimensional drawing **MF-06-M**



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



MK-05-M
 Mounting clamps,
 galvanised steel
 (from 3m rod length,
 included in the scope
 of delivery)

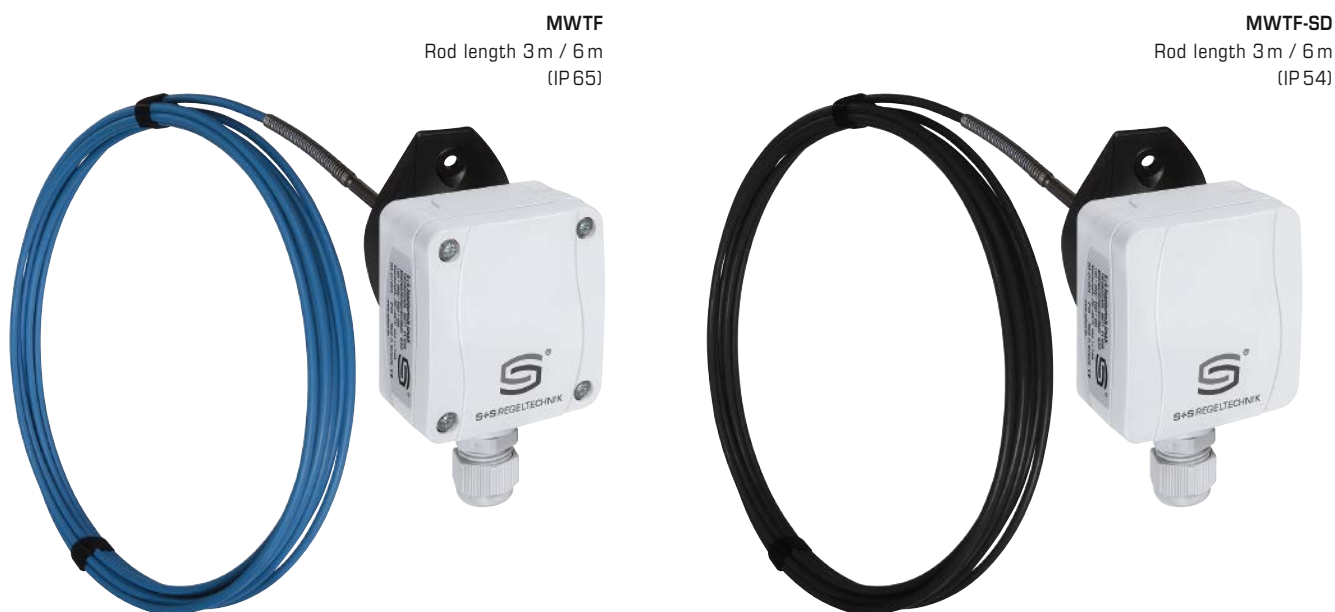




S+S REGELTECHNIK

THERMASGARD® MWTF
THERMASGARD® MWTF-SD

Mean value / rod / duct temperature sensor
including mounting flange, with passive output



THERMASGARD® MWTF-SD			
Mean-value temperature sensor with rod made from reinforced thermoplastic hose, <i>Standard</i>			
Type / WG03B	Sensor / Output	Rod length	Item No.
MWTF-SD	Pt 1000		IP 54
MWTF-SD Pt1000 3m	Pt1000 (according to DIN EN 60 751, class B)	3.0 m	1101-3050-5231-200
MWTF-SD Pt1000 6m	Pt1000 (according to DIN EN 60 751, class B)	6.0 m	1101-3050-5261-200
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101		on request

THERMASGARD® MWTF			
Mean-value temperature sensor with rod made from copper, plastic-coated, <i>Premium</i>			
Type / WG03	Sensor / Output	Rod length	Item No.
MWTF	Pt 100		IP 65
MWTF Pt100 0,4m	Pt100 (according to DIN EN 60 751, class B)	0.4 m	1101-3050-1083-000
MWTF Pt100 3m	Pt100 (according to DIN EN 60 751, class B)	3.0 m	1101-3050-1233-000
MWTF Pt100 6m	Pt100 (according to DIN EN 60 751, class B)	6.0 m	1101-3050-1263-000
MWTF	Pt 1000		IP 65
MWTF Pt1000 0,4m	Pt1000 (according to DIN EN 60 751, class B)	0.4 m	1101-3050-5081-000
MWTF Pt1000 3m	Pt1000 (according to DIN EN 60 751, class B)	3.0 m	1101-3050-5231-000
MWTF Pt1000 6m	Pt1000 (according to DIN EN 60 751, class B)	6.0 m	1101-3050-5261-000
MWTF	Ni 1000		IP 65
MWTF Ni1000 0,4m	Ni1000 (according to DIN EN 43 760, class B)	0.4 m	1101-3050-9081-000
MWTF Ni1000 3m	Ni1000 (according to DIN EN 43 760, class B)	3.0 m	1101-3050-9231-000
MWTF Ni1000 6m	Ni1000 (according to DIN EN 43 760, class B)	6.0 m	1101-3050-9261-000
Extra charge:	Per meter sensor cable (from 6 m to max. 20m)		on request
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101		on request

ACCESSORIES			
MF-06-K	Mounting flange, plastic (included in the scope of delivery)		7100-0030-1000-000
MF-06-M	Mounting flange, metal, galvanised steel, Ø = 35 mm		7100-0030-5000-100
KRD-04	Capillary tube gland bracket, plastic		7100-0030-7000-000
MK-05-M	Mounting clamps, galvanised steel (6 pieces) (from 3 m rod length, included in the scope of delivery)		7100-0034-0000-000
For further information see last chapter!			

**Screw-in / immersion temperature sensors
with neck tube (stepped once)
with passive output**

Very quickly responding screw-in resistance thermometer / immersion temperature sensor **THERMASGARD® ETF 7** with passive output, neck tube and a single-tapered stainless steel protective tube, housing cover with quick-locking screws, very short reaction time, particularly suitable for very quick temperature changes and control operations, e.g. in hydraulic systems.

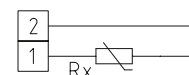
ETF 7

TECHNICAL DATA

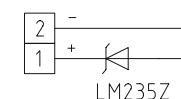
Measuring range:	−35...+150 °C
Sensors / output:	see table, passive (Perfect Sensor Protection)
Response times:	$t_{0.5} = 2.8 \text{ s}$ $t_{0.9} = 10 \text{ s}$ (for water at a flow rate of 2 m/s)
Connection type:	2-wire connection (4-wire connection on PT100, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Electrical connection:	0.14 - 1.5 mm ² via terminal screws
Cable connection:	cable gland , plastic (M 16 x 1.5; with strain relief, exchangeable, inner diameter 10.4 mm) or M12 connector according to DIN EN 61076-2-101
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 dimensions:	72 x 64 x 37.8 mm (Tyr 1)
Protective tube:	stainless steel V4A (1.4571), G ½" straight pipe thread, wrench size 27 mm, $p_{\text{max}} = 6 \text{ bar}$, $\varnothing = 6 \text{ mm}$, single-tapered to $\varnothing = 4 \text{ mm}$ (see dimensional drawing) length of neck tube (HL) = 25 mm inserted length (EL) = 100 - 250 mm (see table)
Process connection:	screwed socket with G ½" straight pipe thread
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP65 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)



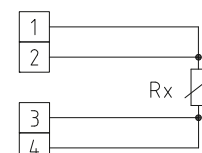
1x two-wire connection
standard



1x two-wire connection
LM235Z (KP 10)



1x four-wire connection
(optional)



High-performance encapsulation against
vibration, mechanical stress and humidity

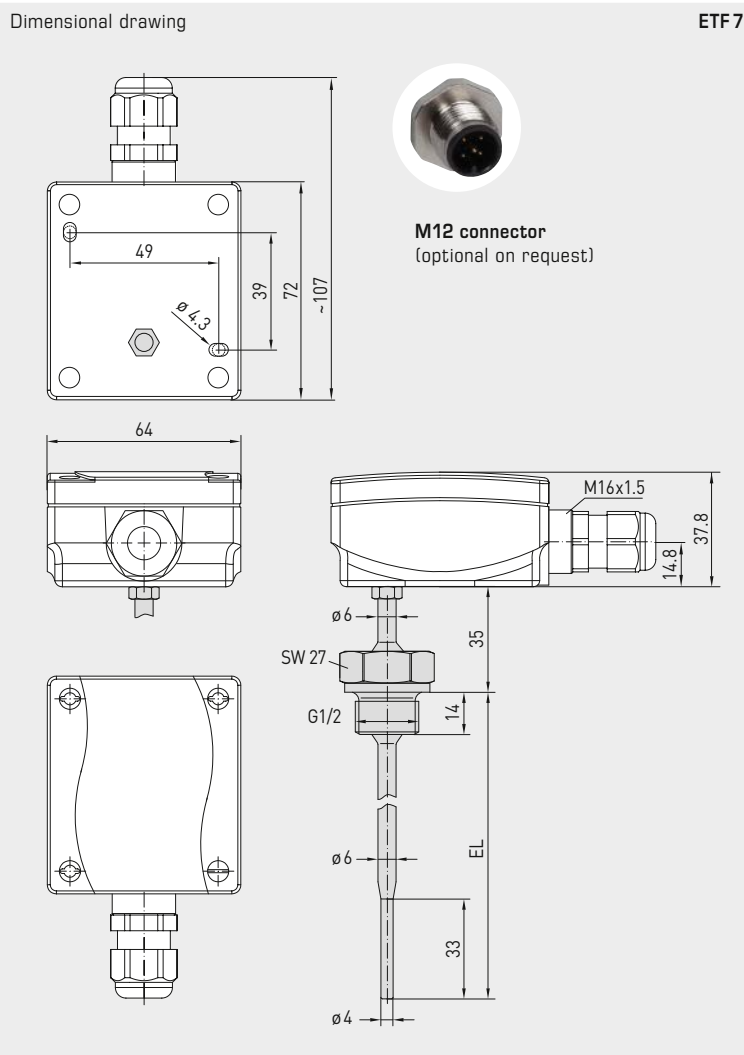
PS-PROTECTION
PERFECT SENSOR PROTECTION



S+S REGELTECHNIK

THERMASGARD® ETF 7

Screw-in / immersion temperature sensors
with neck tube (stepped once)
with passive output



THERMASGARD® ETF 7 Screw-in / immersion temperature sensor with neck tube		
Type / WG01	Sensor / Output	Item No.
ETF7 Pt100 xx	Pt100	
ETF7 Pt100 100mm	Pt100 (according to DIN EN 60 751, class B)	1101-2080-1023-000
ETF7 Pt100 150mm	Pt100 (according to DIN EN 60 751, class B)	1101-2080-1033-000
ETF7 Pt100 250mm	Pt100 (according to DIN EN 60 751, class B)	1101-2080-1053-000
ETF7 Pt1000 xx	Pt1000	
ETF7 Pt1000 100mm	Pt1000 (according to DIN EN 60 751, class B)	1101-2080-5021-000
ETF7 Pt1000 150mm	Pt1000 (according to DIN EN 60 751, class B)	1101-2080-5031-000
ETF7 Pt1000 250mm	Pt1000 (according to DIN EN 60 751, class B)	1101-2080-5051-000
ETF7 Ni1000 xx	Ni1000	
ETF7 Ni1000 100mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-2084-2021-000
ETF7 Ni1000 150mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-2084-2031-000
ETF7 Ni1000 250mm	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-2084-2051-000
ETF7 Ni1000TK xx	Ni1000 TK5000	
ETF7 NiTK 100mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-2081-0021-000
ETF7 NiTK 150mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-2081-0031-000
ETF7 NiTK 250mm	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-2081-0051-000
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101	on request

**Immersion / screw-in / duct temperature sensor,
with passive output**

Resistance thermometer / temperature sensor **THERMASGARD® TF 54**

with passive output, with connecting head made from aluminium (optionally with **cable gland** or **M12 connector** according to DIN EN 61076-2-101) and straight protective tube.

A basic unit in four variants through combination with accessories, eg, for robust applications with a separate immersion sleeve made from stainless steel.

The duct sensor is used to detect temperatures in liquid or gaseous media. It is used in pipes, heating engineering, storage systems, compact district heating stations, warm and cold water systems, oil and lubrication cycle systems, mechanical, apparatus and plant engineering and throughout the industrial sector.

TECHNICAL DATA

Measuring range:	-35...+180 °C (T _{max} NTC = +150 °C, T _{max} LM235Z = +125 °C)
Sensors / output:	see table, passive (Perfect Sensor Protection) (optionally also with two or other sensors)
Connection type:	2-wire connection (4-wire connection on PT100, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Electrical connection:	0.14 - 2.5 mm ² , via terminal screws on ceramic base
Cable connection:	TF 54 (standard) adjusting screw made of metal (M20 x 1,5) TF 54-KV (optional) cable gland, brass, nickel-plated (M20 x 1,5; with strain relief, exchangeable, inner diameter 6 - 12 mm) TF 54-Q (optional) M12 connector according to DIN EN 61076-2-101 (male, 5-pin, A-code)
Dimensions:	see dimensional drawing
Connecting head:	form B, material aluminium, colour white aluminium (similar RAL 9006), ambient temperature -20...+100 °C
Protective tube:	stainless steel, V4A (1.4571), Ø = 6 mm, inserted length (EL) = 50 - 400 mm (see table)
Process connection:	by means of immersion sleeve or mounting flange (accessories)
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 54 (according to EN 60 529) TF 54 IP 65 (according to EN 60 529) TF 54-KV / TF 54-Q
ACCESSORIES	(see table)
TH-MS / xx	Immersion sleeve, brass, nickel-plated / galvanised Ø = 8 mm, T _{max} = +150 °C, p _{max} = 10 bar
TH-VA / xx	Immersion sleeve, stainless steel, V4A (1.4571), Ø = 8 mm, T _{max} = +600 °C, p _{max} = 40 bar
TH-VA / xx / 90	Immersion sleeve, stainless steel, V4A (1.4571), with neck tube (90 mm), Ø = 8 mm, T _{max} = +600 °C, p _{max} = 40 bar
MF-06-M	Mounting flange, metal, galvanised steel, Ø = 32 mm, Ø = 6.3 mm tube gland, T _{max} = +700 °C

TF 54
Basic unit

 2-wire
connection

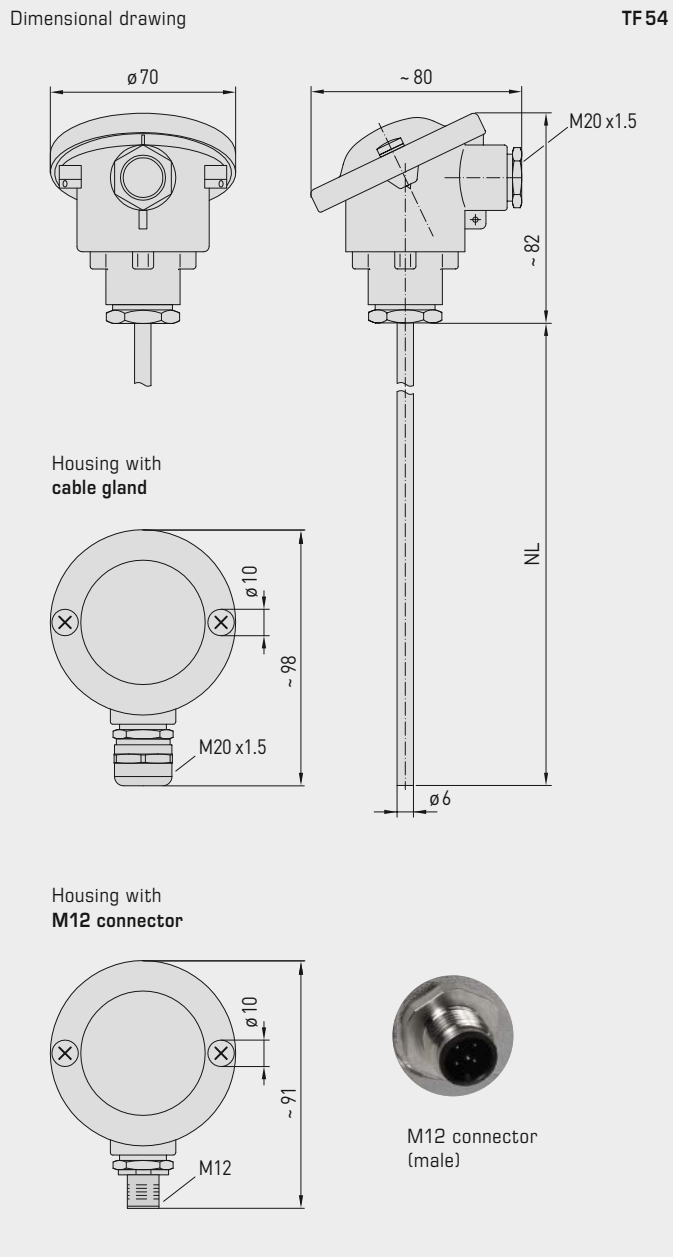
 4-wire
connection




S+S REGELTECHNIK

THERMASGARD® TF 54

Immersion / screw-in / duct temperature sensor,
with passive output



High-performance encapsulation against
vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

TF 54
Standard
(IP 54)



TF 54 - KV
with cable gland
(IP 65)



TF 54 - Q
with M12 connector
(IP 65)



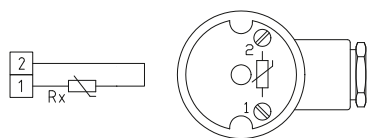
Immersion / screw-in / duct temperature sensor,
with passive output

S+S REGELTECHNIK

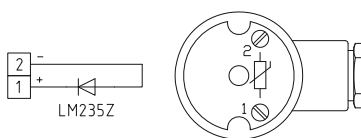
TF54
standard
(IP 54)



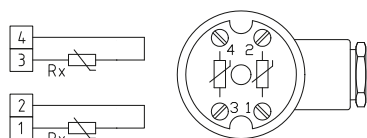
1x two-wire connection
standard



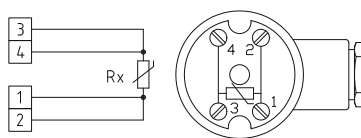
1x two-wire connection
LM235Z (KP 10)



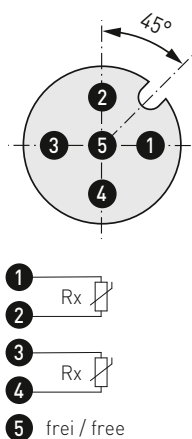
2x two-wire connection
(optional)



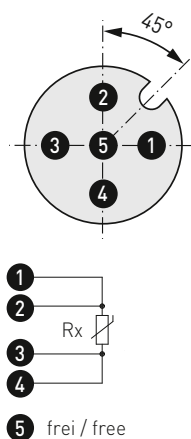
1x four-wire connection
(Pt100 / optional)



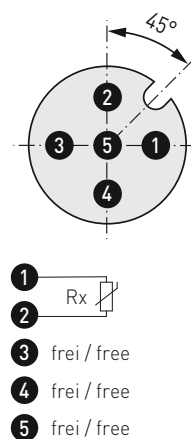
2x two-wire connection
pin assignment (M12)



1x four-wire connection
pin assignment (M12)



1x two-wire connection
pin assignment (M12)



THERMASGARD®
TF 54

Temperature sensor
(Basic unit)

Type / WG03	Sensor / Output	Installation length (EL)	Item No.
TF 54 Pt100 xx	Pt100 (according to DIN EN 60751, class B)		IP 54, 4-wire
TF54 Pt100 50mm	Pt100	50 mm	1101-7050-1013-000
TF54 Pt100 100mm	Pt100	100 mm	1101-7050-1023-000
TF54 Pt100 150mm	Pt100	150 mm	1101-7050-1033-000
TF54 Pt100 200mm	Pt100	200 mm	1101-7050-1043-000
TF54 Pt100 250mm	Pt100	250 mm	1101-7050-1053-000
TF54 Pt100 300mm	Pt100	300 mm	1101-7050-1063-000
TF54 Pt100 400mm	Pt100	400 mm	1101-7050-1083-000
TF 54 Pt1000 xx	Pt1000 (according to DIN EN 60751, class B)		IP 54, 2-wire
TF54 Pt1000 50mm	Pt1000	50 mm	1101-7050-5011-000
TF54 Pt1000 100mm	Pt1000	100 mm	1101-7050-5021-000
TF54 Pt1000 150mm	Pt1000	150 mm	1101-7050-5031-000
TF54 Pt1000 200mm	Pt1000	200 mm	1101-7050-5041-000
TF54 Pt1000 250mm	Pt1000	250 mm	1101-7050-5051-000
TF54 Pt1000 300mm	Pt1000	300 mm	1101-7050-5061-000
TF54 Pt1000 400mm	Pt1000	400 mm	1101-7050-5081-000

Continued on next page...



THERMASGARD® TF 54		Temperature sensor (Basic unit)	
Type / WG03	Sensor / Output	Installation length (EL)	Item No.
TF 54 Ni1000 xx	Ni 1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)		IP 54, 2-wire
TF54 Ni1000 50mm	Ni1000	50 mm	1101-7050-9011-000
TF54 Ni1000 100mm	Ni1000	100 mm	1101-7050-9021-000
TF54 Ni1000 150mm	Ni1000	150 mm	1101-7050-9031-000
TF54 Ni1000 200mm	Ni1000	200 mm	1101-7050-9041-000
TF54 Ni1000 250mm	Ni1000	250 mm	1101-7050-9051-000
TF54 Ni1000 300mm	Ni1000	300 mm	1101-7050-9061-000
TF54 Ni1000 400mm	Ni1000	400 mm	1101-7050-9081-000
TF 54 Ni1000TK xx	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000		IP 54, 2-wire
TF54 NiTK 50mm	Ni1000 TK5000	50 mm	1101-7051-0011-000
TF54 NiTK 100mm	Ni1000 TK5000	100 mm	1101-7051-0021-000
TF54 NiTK 150mm	Ni1000 TK5000	150 mm	1101-7051-0031-000
TF54 NiTK 200mm	Ni1000 TK5000	200 mm	1101-7051-0041-000
TF54 NiTK 250mm	Ni1000 TK5000	250 mm	1101-7051-0051-000
TF54 NiTK 300mm	Ni1000 TK5000	300 mm	1101-7051-0061-000
TF54 NiTK 400mm	Ni1000 TK5000	400 mm	1101-7051-0081-000
TF 54 LM235Z xx	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10		IP 54, 2-wire
TF54 LM235Z 50mm	LM235Z	50 mm	1101-7052-1011-000
TF54 LM235Z 100mm	LM235Z	100 mm	1101-7052-1021-000
TF54 LM235Z 150mm	LM235Z	150 mm	1101-7052-1031-000
TF54 LM235Z 200mm	LM235Z	200 mm	1101-7052-1041-000
TF54 LM235Z 250mm	LM235Z	250 mm	1101-7052-1051-000
TF54 LM235Z 300mm	LM235Z	300 mm	1101-7052-1061-000
TF54 LM235Z 400mm	LM235Z	400 mm	1101-7052-1081-000
TF 54 NTC 1,8K xx	NTC 1,8K		IP 54, 2-wire
TF54 NTC1,8K 50mm	NTC 1,8K	50 mm	1101-7051-2011-000
TF54 NTC1,8K 100mm	NTC 1,8K	100 mm	1101-7051-2021-000
TF54 NTC1,8K 150mm	NTC 1,8K	150 mm	1101-7051-2031-000
TF54 NTC1,8K 200mm	NTC 1,8K	200 mm	1101-7051-2041-000
TF54 NTC1,8K 250mm	NTC 1,8K	250 mm	1101-7051-2051-000
TF54 NTC1,8K 300mm	NTC 1,8K	300 mm	1101-7051-2061-000
TF54 NTC1,8K 400mm	NTC 1,8K	400 mm	1101-7051-2081-000
TF 54 NTC10K xx	NTC 10K		IP 54, 2-wire
TF54 NTC10K 50mm	NTC 10K	50 mm	1101-7051-5011-000
TF54 NTC10K 100mm	NTC 10K	100 mm	1101-7051-5021-000
TF54 NTC10K 150mm	NTC 10K	150 mm	1101-7051-5031-000
TF54 NTC10K 200mm	NTC 10K	200 mm	1101-7051-5041-000
TF54 NTC10K 250mm	NTC 10K	250 mm	1101-7051-5051-000
TF54 NTC10K 300mm	NTC 10K	300 mm	1101-7051-5061-000
TF54 NTC10K 400mm	NTC 10K	400 mm	1101-7051-5081-000
TF 54 NTC20K xx	NTC 20K		IP 54, 2-wire
TF54 NTC20K 50mm	NTC 20K	50 mm	1101-7051-6011-000
TF54 NTC20K 100mm	NTC 20K	100 mm	1101-7051-6021-000
TF54 NTC20K 150mm	NTC 20K	150 mm	1101-7051-6031-000
TF54 NTC20K 200mm	NTC 20K	200 mm	1101-7051-6041-000
TF54 NTC20K 250mm	NTC 20K	250 mm	1101-7051-6051-000
TF54 NTC20K 300mm	NTC 20K	300 mm	1101-7051-6061-000
TF54 NTC20K 400mm	NTC 20K	400 mm	1101-7051-6081-000
Housing variant:	equipped as standard with pressure screw (IP 54), optional housing variants with cable gland (IP 65) or M12 connector (IP 65) see the next page!		
Extra charge:	optionally also with two or other sensors		on request

Immersion / screw-in / duct temperature sensor,
with passive output

TF 54 - Q
with M12 connector
(IP65)



THERMASGARD® TF 54 - Q		Temperature sensor (Basic unit with M12 connector)		
Type / WG03	Sensor / Output	Installation length (EL)	Q	Item No.
TF 54 Pt100 xx Q		Pt100 (according to DIN EN 60751, class B)	●	IP65, 4-wire
TF54 Pt100 50mm Q	Pt100	50 mm	●	2Z01-4111-0100-011
TF54 Pt100 100mm Q	Pt100	100 mm	●	2Z01-4111-0100-021
TF54 Pt100 150mm Q	Pt100	150 mm	●	2Z01-4111-0100-031
TF54 Pt100 200mm Q	Pt100	200 mm	●	2Z01-4111-0100-041
TF54 Pt100 250mm Q	Pt100	250 mm	●	2Z01-4111-0100-051
TF54 Pt100 300mm Q	Pt100	300 mm	●	2Z01-4111-0100-061
TF54 Pt100 400mm Q	Pt100	400 mm	●	2Z01-4111-0100-081
TF 54 Pt1000 xx Q		Pt1000 (according to DIN EN 60751, class B)	●	IP65, 2-wire
TF54 Pt1000 50mm Q	Pt1000	50 mm	●	2Z05-4111-0100-011
TF54 Pt1000 100mm Q	Pt1000	100 mm	●	2Z05-4111-0100-021
TF54 Pt1000 150mm Q	Pt1000	150 mm	●	2Z05-4111-0100-031
TF54 Pt1000 200mm Q	Pt1000	200 mm	●	2Z05-4111-0100-041
TF54 Pt1000 250mm Q	Pt1000	250 mm	●	2Z05-4111-0100-051
TF54 Pt1000 300mm Q	Pt1000	300 mm	●	2Z05-4111-0100-061
TF54 Pt1000 400mm Q	Pt1000	400 mm	●	2Z05-4111-0100-081
Housing variant "Q":		Cable connection with M12 connector (male, 5-pin, A-code)		
Extra charge:		optionally also with two or other sensors		on request

ACCESSORIES	
Special accessories for M12 connector see chapter Accessories!	



S+S REGELTECHNIK

THERMASGARD® TF 54

Immersion / screw-in / duct temperature sensor,
with passive output

TF54 - KV
with cable gland
(IP 65)



THERMASGARD® TF 54 - KV		Temperature sensor (Basic unit with cable gland)	
Type / WG03	Sensor / Output	Installation length (EL)	Item No.
TF54 Pt100 xx KV	Pt100 (according to DIN EN 60751, class B)		IP65, 4-wire
TF54 Pt100 50mm KV	Pt100	50 mm	1101-7070-1013-000
TF54 Pt100 100mm KV	Pt100	100 mm	1101-7070-1023-000
TF54 Pt100 150mm KV	Pt100	150 mm	1101-7070-1033-000
TF54 Pt100 200mm KV	Pt100	200 mm	1101-7070-1043-000
TF54 Pt100 250mm KV	Pt100	250 mm	1101-7070-1053-000
TF54 Pt100 300mm KV	Pt100	300 mm	1101-7070-1063-000
TF54 Pt100 400mm KV	Pt100	400 mm	1101-7070-1083-000
TF54 Pt1000 xx KV	Pt1000 (according to DIN EN 60751, class B)		IP65, 2-wire
TF54 Pt1000 50mm KV	Pt1000	50 mm	1101-7070-5011-000
TF54 Pt1000 100mm KV	Pt1000	100 mm	1101-7070-5021-000
TF54 Pt1000 150mm KV	Pt1000	150 mm	1101-7070-5031-000
TF54 Pt1000 200mm KV	Pt1000	200 mm	1101-7070-5041-000
TF54 Pt1000 250mm KV	Pt1000	250 mm	1101-7070-5051-000
TF54 Pt1000 300mm KV	Pt1000	300 mm	1101-7070-5061-000
TF54 Pt1000 400mm KV	Pt1000	400 mm	1101-7070-5081-000
Housing variant "KV":		Cable connection with cable gland	
Extra charge:	optionally also with two or other sensors		on request

Immersion / screw-in / duct temperature sensor,
with passive output

S+S REGELTECHNIK

One basic device in four variants ...



**TF 54 +
TH-MS/xx**

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



**TF 54 +
TH-VA/xx**

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



**TF 54 +
TH-VA/xx/90**

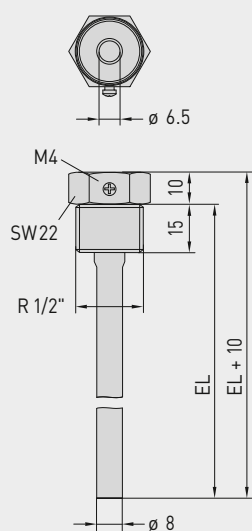
Immersion / screw-in
temperature sensor with
immersion sleeve with neck
tube, stainless steel, V4A



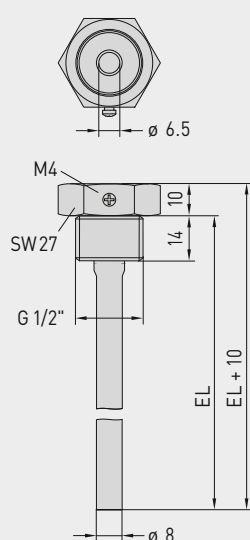
**TF 54 +
MF-06-M**

Duct temperature sensor
with mounting flange, metal

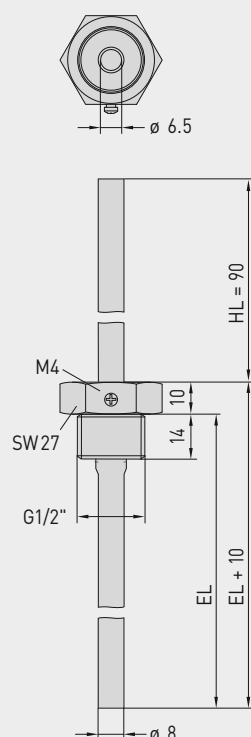
Dimensional drawing
TH-MS/xx



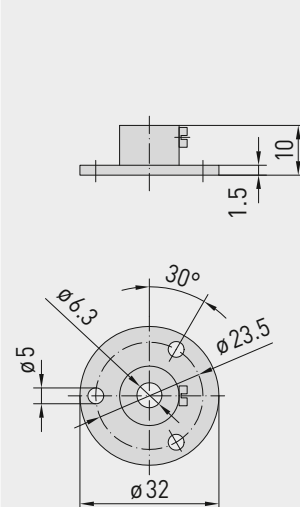
Dimensional drawing
TH-VA/xx



Dimensional drawing
TH-VA/xx/90



Dimensional drawing
MF-06-M





S+S REGELTECHNIK

THERMASGARD® TF 54

Immersion / screw-in / duct temperature sensor,
with passive output



...through combination with accessories:



TH-MS/xx

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



TH-VA/xx

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



TH-VA/xx/90

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



MF-06-M

Mounting flange,
metal

THERMASGARD® TH					Immersion sleeve Ø 8 mm (accessories)	
Type / WG01	p _{max} (static)	T _{max}	Inserted Length (EL)		Item No.	
TH-MS / xx	Brass nickel-plated / galvanised				without neck tube	
TH-MS 50MM	10 bar	+150 °C	50 mm		7100-0011-0010-001	
TH-MS 100MM	10 bar	+150 °C	100 mm		7100-0011-0020-001	
TH-MS 150MM	10 bar	+150 °C	150 mm		7100-0011-0030-001	
TH-MS 200MM	10 bar	+150 °C	200 mm		7100-0011-0040-001	
TH-MS 250MM	10 bar	+150 °C	250 mm		7100-0011-0050-001	
TH-MS 300MM	10 bar	+150 °C	300 mm		7100-0011-0060-001	
TH-MS 350MM	10 bar	+150 °C	350 mm		7100-0011-0070-001	
TH-MS 400MM	10 bar	+150 °C	400 mm		7100-0011-0080-001	
TH-VA / xx	Stainless steel, V4A (1.4571)				without neck tube	
TH-VA 50MM	40 bar	+600 °C	50 mm		7100-0012-0010-001	
TH-VA 100MM	40 bar	+600 °C	100 mm		7100-0012-0020-001	
TH-VA 150MM	40 bar	+600 °C	150 mm		7100-0012-0030-001	
TH-VA 200MM	40 bar	+600 °C	200 mm		7100-0012-0040-001	
TH-VA 250MM	40 bar	+600 °C	250 mm		7100-0012-0050-001	
TH-VA 300MM	40 bar	+600 °C	300 mm		7100-0012-0060-001	
TH-VA 350MM	40 bar	+600 °C	350 mm		7100-0012-0070-001	
TH-VA 400MM	40 bar	+600 °C	400 mm		7100-0012-0080-001	
TH-VA / xx / 90	Stainless steel, V4A (1.4571)				with neck tube (90 mm)	
TH-VA 50/90MM	40 bar	+600 °C	50 mm		7100-0012-2010-001	
TH-VA 100/90MM	40 bar	+600 °C	100 mm		7100-0012-2020-001	
TH-VA 150/90MM	40 bar	+600 °C	150 mm		7100-0012-2030-001	
TH-VA 200/90MM	40 bar	+600 °C	200 mm		7100-0012-2040-001	
TH-VA 250/90MM	40 bar	+600 °C	250 mm		7100-0012-2050-001	
TH-VA 300/90MM	40 bar	+600 °C	300 mm		7100-0012-2060-001	
Note:		inner diameter of socket 6.5 mm For further information see last chapter!				
Mounting flange (accessories)						
Type / WG01			T _{max}	Item No.		
MF						
MF-06-M	Mounting flange, metal (galvanised steel) Ø 32 mm, tube gland Ø 6.3 mm		+700 °C	7100-0030-5000-100		
Note:		For further information see last chapter!				

Screw-in/immersion temperature sensor with neck tube, with passive output

ETF 6
standard

Screw-in resistance thermometer / temperature sensor with neck tube

THERMASGARD® ETF 6 with passive output, with connecting head made from aluminium (optionally with **cable gland** or **M12 connector** according to DIN EN 61076-2-101) and straight protective tube.

The duct sensor is used to detect temperatures in liquid or gaseous media. It is used in pipes, tanks or storage systems, preferably where tubes or tanks must be isolated.

TECHNICAL DATA

Measuring range:	–35...+180 °C ($T_{\max}$ NTC = +150 °C, $T_{\max}$ LM235Z = +125 °C)
Sensors / output:	see table, passive (Perfect Sensor Protection) (optionally also with two or other sensors)
Connection type:	2-wire connection (4-wire connection on PT100, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Electrical connection:	0.14 - 2.5 mm², via terminal screws on ceramic base
Cable connection:	ETF 6 (standard) adjusting screw made of metal (M20 x 1,5) ETF 6-KV (optional) cable gland, brass, nickel-plated (M20 x 1.5; with strain relief, exchangeable, inner diameter 6 - 12 mm) ETF 6-Q (optional) M12 connector according to DIN EN 61076-2-101 (male, 5-pin, A-code)
Dimensions:	see dimensional drawing
Connecting head:	form B, material aluminium, colour white aluminium (similar RAL 9006), ambient temperature –20...+100 °C
Protective tube:	stainless steel V4A (1.4571), G½" straight pipe thread, wrench size 27 mm, $p_{\max}$ = 40 bar, Ø = 8 mm length of neck tube (HL) = 80 mm inserted length (EL) = 100 - 400 mm (see table)
Process connection:	screwed socket with G½"
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 54 (according to EN 60 529) ETF 6 IP 65 (according to EN 60 529) ETF 6-KV / ETF 6-Q

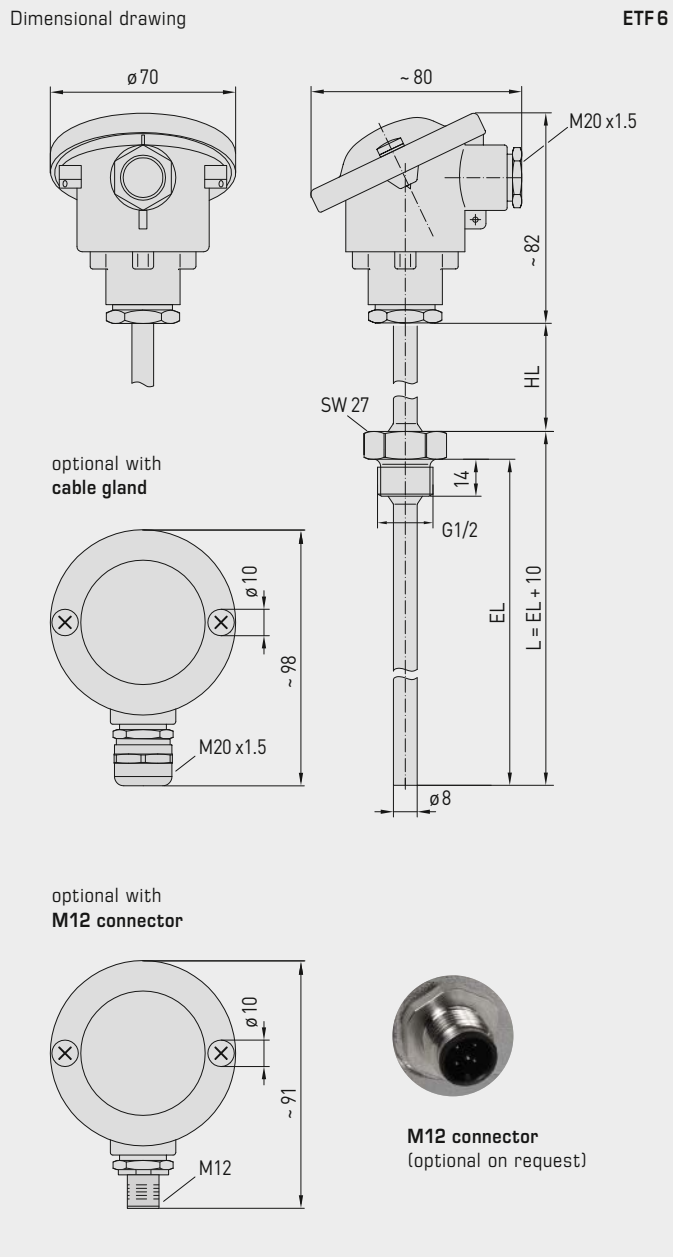




S+S REGELTECHNIK

THERMASGARD® ETF 6

Screw-in/immersion temperature sensor with neck tube,
with passive output



High-performance encapsulation against
vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

ETF 6
standard
(IP 54)



ETF 6 - KV
with cable gland
(IP 65)

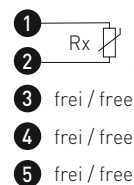
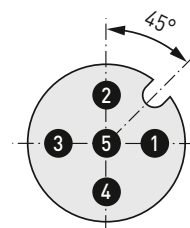
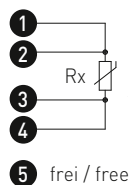
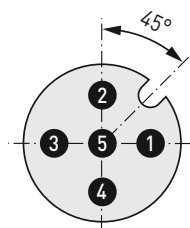
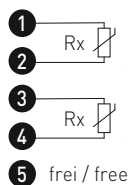
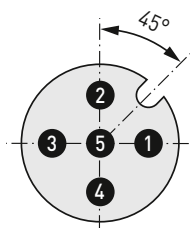
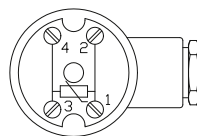
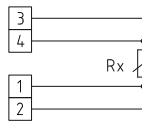
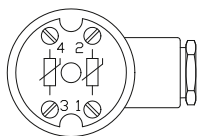
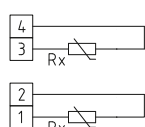
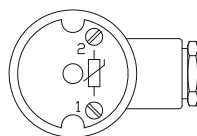
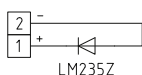
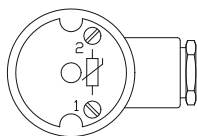
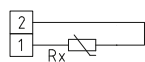


ETF 6 - Q
with M12 connector
(IP 65)





23



Type / WG03	Sensor / Output	Installation length (EL)	Item No.
ETF6 Pt100 xx	Pt100 (according to DIN EN 60751, class B)		IP 54, 4-wire
ETF6 Pt100 100/80	Pt100	100 mm	1101-2070-1023-000
ETF6 Pt100 150/80	Pt100	150 mm	1101-2070-1033-000
ETF6 Pt100 200/80	Pt100	200 mm	1101-2070-1043-000
ETF6 Pt100 250/80	Pt100	250 mm	1101-2070-1053-000
ETF6 Pt100 400/80	Pt100	400 mm	1101-2070-1083-000
ETF6 Pt1000 xx	Pt1000 (according to DIN EN 60751, class B)		IP 54, 2-wire
ETF6 Pt1000 100/80	Pt1000	100 mm	1101-2070-5021-000
ETF6 Pt1000 150/80	Pt1000	150 mm	1101-2070-5031-000
ETF6 Pt1000 200/80	Pt1000	200 mm	1101-2070-5041-000
ETF6 Pt1000 250/80	Pt1000	250 mm	1101-2070-5051-000
ETF6 Pt1000 400/80	Pt1000	400 mm	1101-2070-5081-000
Continued on next page...			

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THERMASGARD® ETF 6		Screw-in / immersion temperature sensor with neck tube (standard)	
Type / WG03	Sensor / Output	Installation length (EL)	Item No.
ETF6 Ni1000 xx	Ni1000 (according to DIN EN 43760, class B, TCR = 6180 ppm / K)		IP54, 2-wire
ETF6 Ni1000 100/80	Ni1000	100 mm	1101-2070-9021-000
ETF6 Ni1000 150/80	Ni1000	150 mm	1101-2070-9031-000
ETF6 Ni1000 200/80	Ni1000	200 mm	1101-2070-9041-000
ETF6 Ni1000 250/80	Ni1000	250 mm	1101-2070-9051-000
ETF6 Ni1000 400/80	Ni1000	400 mm	1101-2070-9081-000
ETF6 Ni1000TK xx	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000		IP54, 2-wire
ETF6 NiTK 100/80	Ni1000 TK5000	100 mm	1101-2071-0021-000
ETF6 NiTK 150/80	Ni1000 TK5000	150 mm	1101-2071-0031-000
ETF6 NiTK 200/80	Ni1000 TK5000	200 mm	1101-2071-0041-000
ETF6 NiTK 250/80	Ni1000 TK5000	250 mm	1101-2071-0051-000
ETF6 NiTK 400/80	Ni1000 TK5000	400 mm	1101-2071-0081-000
ETF6 LM235Z xx	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10		IP54, 2-wire
ETF6 LM235Z 100/80	LM235Z	100 mm	1101-2072-1021-000
ETF6 LM235Z 150/80	LM235Z	150 mm	1101-2072-1031-000
ETF6 LM235Z 200/80	LM235Z	200 mm	1101-2072-1041-000
ETF6 LM235Z 250/80	LM235Z	250 mm	1101-2072-1051-000
ETF6 LM235Z 400/80	LM235Z	400 mm	1101-2072-1081-000
ETF6 NTC 1,8K xx	NTC 1,8K		IP54, 2-wire
ETF6 NTC1,8K 100/80	NTC 1,8K	100 mm	1101-2071-2021-000
ETF6 NTC1,8K 150/80	NTC 1,8K	150 mm	1101-2071-2031-000
ETF6 NTC1,8K 200/80	NTC 1,8K	200 mm	1101-2071-2041-000
ETF6 NTC1,8K 250/80	NTC 1,8K	250 mm	1101-2071-2051-000
ETF6 NTC1,8K 400/80	NTC 1,8K	400 mm	1101-2071-2081-000
ETF6 NTC10K xx	NTC 10K		IP54, 2-wire
ETF6 NTC10K 100/80	NTC 10K	100 mm	1101-2071-5021-000
ETF6 NTC10K 150/80	NTC 10K	150 mm	1101-2071-5031-000
ETF6 NTC10K 200/80	NTC 10K	200 mm	1101-2071-5041-000
ETF6 NTC10K 250/80	NTC 10K	250 mm	1101-2071-5051-000
ETF6 NTC10K 400/80	NTC 10K	400 mm	1101-2071-5081-000
ETF6 NTC20K xx	NTC 20K		IP54, 2-wire
ETF6 NTC20K 100/80	NTC 20K	100 mm	1101-2071-6021-000
ETF6 NTC20K 150/80	NTC 20K	150 mm	1101-2071-6031-000
ETF6 NTC20K 200/80	NTC 20K	200 mm	1101-2071-6041-000
ETF6 NTC20K 250/80	NTC 20K	250 mm	1101-2071-6051-000
ETF6 NTC20K 400/80	NTC 20K	400 mm	1101-2071-6081-000
Housing variant:	equipped as standard with pressure screw (IP54), optional housing variants with cable gland (IP65) or M12 connector (IP65) see the next page!		
Extra charge:	optionally also with two or other sensors		on request

Screw-in / immersion temperature sensor with neck tube,
with passive output

ETF 6 - Q
with M12 connector
(IP65)



THERMASGARD® ETF 6 - Q		Screw-in / immersion temperature sensor with neck tube (with M12 connector)		
Type / WG03	Sensor / Output	Installation length (EL)	Q	Item No.
ETF6 Pt100 xx Q	Pt100 (according to DIN EN 60751, class B)		●	IP65, 4-wire
ETF6 Pt100 100/80mm Q	Pt100	100 mm	●	2Z01-4121-0100-041
ETF6 Pt100 150/80mm Q	Pt100	150 mm	●	2Z01-4121-0100-051
ETF6 Pt100 200/80mm Q	Pt100	200 mm	●	2Z01-4121-0100-061
ETF6 Pt100 250/80mm Q	Pt100	250 mm	●	2Z01-4121-0100-071
ETF6 Pt100 400/80mm Q	Pt100	400 mm	●	2Z01-4121-0100-101
ETF6 Pt1000 xx Q	Pt1000 (according to DIN EN 60751, class B)			IP65, 2-wire
ETF6 Pt1000 100/80mm Q	Pt1000	100 mm	●	2Z05-4121-0100-041
ETF6 Pt1000 150/80mm Q	Pt1000	150 mm	●	2Z05-4121-0100-051
ETF6 Pt1000 200/80mm Q	Pt1000	200 mm	●	2Z05-4121-0100-061
ETF6 Pt1000 250/80mm Q	Pt1000	250 mm	●	2Z05-4121-0100-071
ETF6 Pt1000 400/80mm Q	Pt1000	400 mm	●	2Z05-4121-0100-101
Housing variant "Q":	Cable connection with M12 connector (male, 5-pin, A-code)			
Extra charge:	optionally also with two or other sensors		on request	

ACCESSORIES	
Special accessories for M12 connector see chapter Accessories!	



Screw-in / immersion temperature sensor with neck tube,
with passive output

ETF6-KV
with cable gland
(IP 65)



THERMASGARD®
ETF 6-KV

Screw-in / immersion temperature sensor with neck tube
(with cable gland)

Type / WG03	Sensor / Output	Installation length (EL)	Item No.
ETF6 Pt100 xx KV	Pt100 (according to DIN EN 60751, class B)		IP 65, 4-wire
ETF6 Pt100 100/80mm KV	Pt100	100 mm	1101-20C0-1023-000
ETF6 Pt100 150/80mm KV	Pt100	150 mm	1101-20C0-1033-000
ETF6 Pt100 200/80mm KV	Pt100	200 mm	1101-20C0-1043-000
ETF6 Pt100 250/80mm KV	Pt100	250 mm	1101-20C0-1053-000
ETF6 Pt100 400/80mm KV	Pt100	400 mm	1101-20C0-1083-000
ETF6 Pt1000 xx KV	Pt1000 (according to DIN EN 60751, class B)		IP 65, 2-wire
ETF6 Pt1000 100/80mm KV	Pt1000	100 mm	1101-20C0-5021-000
ETF6 Pt1000 150/80mm KV	Pt1000	150 mm	1101-20C0-5031-000
ETF6 Pt1000 200/80mm KV	Pt1000	200 mm	1101-20C0-5041-000
ETF6 Pt1000 250/80mm KV	Pt1000	250 mm	1101-20C0-5051-000
ETF6 Pt1000 400/80mm KV	Pt1000	400 mm	1101-20C0-5081-000
Housing variant "KV":	Cable connection with cable gland		
Extra charge:	optionally also with two or other sensors		on request

Duct temperature sensors / smoke gas temperature sensors, including mounting flange, with passive output

Resistance thermometer / smoke gas temperature sensor **THERMASGARD® RGTF 1** with passive output, with connecting head made from aluminium (optionally with **cable gland** or **M12 connector** according to DIN EN 61076-2-101) and straight protective tube, incl. mounting flange.

The duct sensor is used to detect relatively high temperatures in gaseous media, eg, for exhaust air and smoke gas temperature measurement.

RGTF 1
standard

TECHNICAL DATA

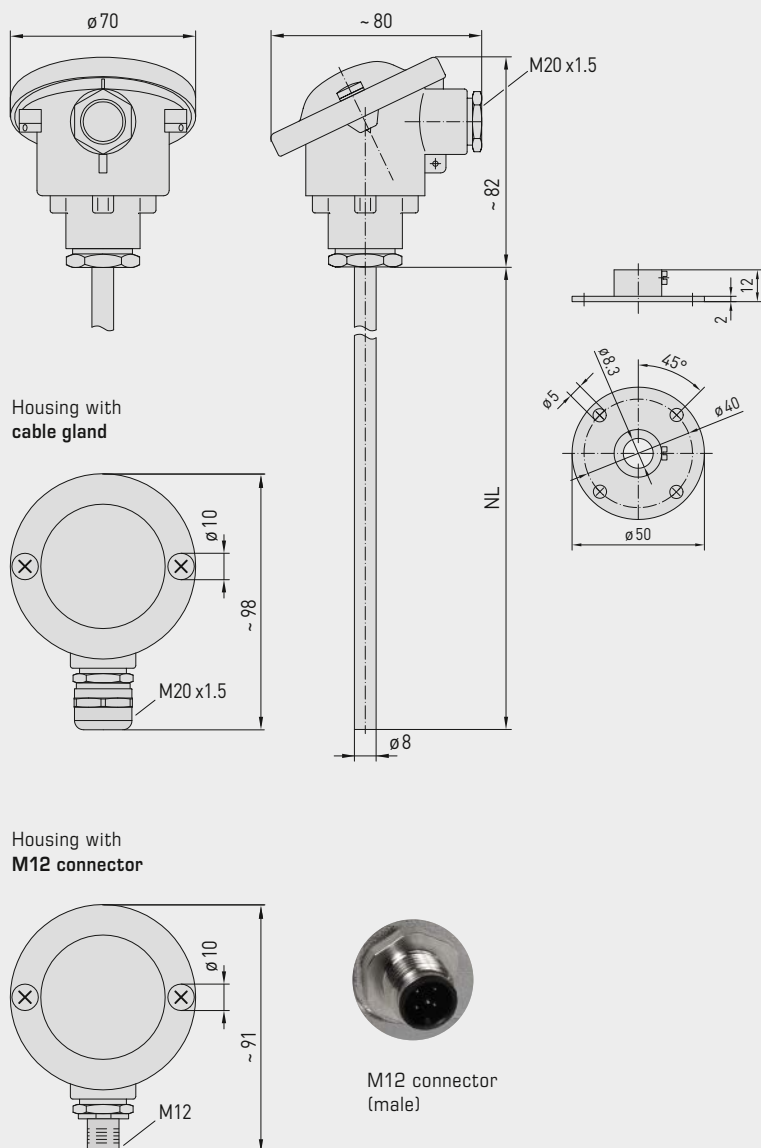
Measuring range:	-35...+600 °C (extended range limits from -100...+750 °C optional)
Sensor / output:	Pt100 / Pt1000 (according to DIN EN 60 751, class B) (Perfect Sensor Protection)
Connection type:	2-wire connection (Pt1000) 4-wire connection (Pt100; optional Pt1000)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Electrical connection:	0.14 - 2.5 mm ² via terminal screws on ceramic base
Cable connection:	RGTF 1 (standard) adjusting screw made of metal (M20 x 1.5); RGTF 1-KV (optional) cable gland, brass, nickel-plated (M20 x 1.5; with strain relief, exchangeable, inner diameter 6 - 12 mm) RGTF 1-Q (optional) M12 connector according to DIN EN 61076-2-101 (male, 5-pin, A-code)
Dimensions:	see dimensional drawing
Connecting head:	form B, material aluminium, colour white aluminium (similar to RAL 9006), ambient temperature -20...+100 °C
Protective tube:	stainless steel V4A (1.4571), Ø = 8 mm inserted length (EL) = 200 - 500 mm (see table)
Process connection:	by mounting flange, stainless steel V2A (1.4305) (included in the scope of delivery)
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 54 (according to EN 60 529) RGTF 1 IP 65 (according to EN 60 529) RGTF1-KV / RGTF1-Q



RGTF 1
Measuring insert with
ceramic tubelet

Dimensional drawing
[mm]

RGTF 1



RGTF 1
standard
(IP 54)



RGTF 1 - KV
with cable gland
(IP 65)



RGTF 1 - Q
with M12 connector
(IP 65)



High-performance encapsulation against
vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

Duct temperature sensors / smoke gas temperature sensors,
including mounting flange, with passive output

S+S REGELTECHNIK

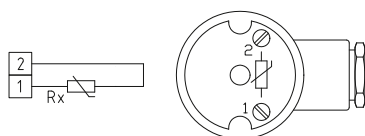
2-wire connection
(Pt1000)



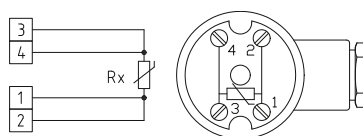
4-wire connection
(Pt100 / Pt1000 optional)



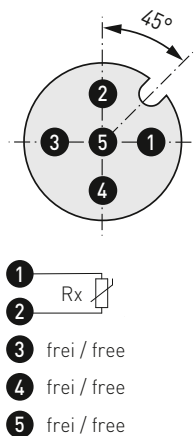
1x two-wire connection
(Pt1000)



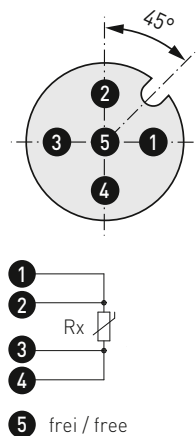
1x four-wire connection
(Pt100 / Pt1000 optional)



1x two-wire connection
pin assignment (M12)



1x four-wire connection
pin assignment (M12)





S+S REGELTECHNIK

THERMASGARD® RGTF 1

Duct temperature sensors / smoke gas temperature sensors,
including mounting flange, with passive output

THERMASGARD® RGTF 1		Duct temperature sensors / smoke gas temperature sensors, including mounting flange (Standard)	
Type / WG01	Sensor / Output	Installation length (EL)	Item No.
RGTF1 Pt100 xx	Pt100 (according to DIN EN 60751, class B)		IP54 , 4-wire
RGTF1 Pt100 200mm	Pt100	200 mm	1101-3040-1043-000
RGTF1 Pt100 250mm	Pt100	250 mm	1101-3040-1053-000
RGTF1 Pt100 300mm	Pt100	300 mm	1101-3040-1063-000
RGTF1 Pt100 500mm	Pt100	500 mm	1101-3040-1103-000
RGTF1 Pt1000 xx	Pt1000 (according to DIN EN 60751, class B)		IP54 , 2-wire
RGTF1 Pt1000 200mm	Pt1000	200 mm	1101-3040-5041-000
RGTF1 Pt1000 250mm	Pt1000	250 mm	1101-3040-5051-000
RGTF1 Pt1000 300mm	Pt1000	300 mm	1101-3040-5061-000
RGTF1 Pt1000 500mm	Pt1000	500 mm	1101-3040-5101-000
Housing variant:	with pressure screw (IP54)		
Extra charge:	other measuring ranges optional		on request

THERMASGARD® RGTF 1 - KV		Duct temperature sensors / smoke gas temperature sensors, including mounting flange (with cable gland)	
Type / WG01	Sensor / Output	Installation length (EL)	Item No.
RGTF1 Pt100 xx KV	Pt100 (according to DIN EN 60751, class B)		IP65 , 4-wire
RGTF1 Pt100 200mm KV	Pt100	200 mm	1101-30D0-1043-000
RGTF1 Pt100 250mm KV	Pt100	250 mm	1101-30D0-1053-000
RGTF1 Pt100 300mm KV	Pt100	300 mm	1101-30D0-1063-000
RGTF1 Pt100 500mm KV	Pt100	500 mm	1101-30D0-1103-000
RGTF1 Pt1000 xx KV	Pt1000 (according to DIN EN 60751, class B)		IP65 , 2-wire
RGTF1 Pt1000 200mm KV	Pt1000	200 mm	1101-30D0-5041-000
RGTF1 Pt1000 250mm KV	Pt1000	250 mm	1101-30D0-5051-000
RGTF1 Pt1000 300mm KV	Pt1000	300 mm	1101-30D0-5061-000
RGTF1 Pt1000 500mm KV	Pt1000	500 mm	1101-30D0-5101-000
Housing variant "Q":	with cable gland (IP65)		
Extra charge:	other measuring ranges optional		on request

THERMASGARD® RGTF 1 - Q		Duct temperature sensors / smoke gas temperature sensors, including mounting flange (with M12 connector)		
Type / WG03	Sensor / Output	Installation length (EL)	Q ●	Item No.
RGTF1 Pt100 xx Q	Pt100 (according to DIN EN 60751, class B)			IP65 , 4-wire
RGTF1 Pt100 200mm Q	Pt100	200 mm	●	2Z01-4131-0100-011
RGTF1 Pt100 250mm Q	Pt100	250 mm	●	2Z01-4131-0100-021
RGTF1 Pt100 300mm Q	Pt100	300 mm	●	2Z01-4131-0100-031
RGTF1 Pt100 500mm Q	Pt100	500 mm	●	2Z01-4131-0100-041
RGTF1 Pt1000 xx Q	Pt1000 (according to DIN EN 60751, class B)			IP65 , 2-wire
RGTF1 Pt1000 200mm Q	Pt1000	200 mm	●	2Z05-4131-0100-011
RGTF1 Pt1000 250mm Q	Pt1000	250 mm	●	2Z05-4131-0100-021
RGTF1 Pt1000 300mm Q	Pt1000	300 mm	●	2Z05-4131-0100-031
RGTF1 Pt1000 500mm Q	Pt1000	500 mm	●	2Z05-4131-0100-041
Housing variant "KV":	with M12 connector (male, 5-pin, A-code) (IP65)			
Extra charge:	other measuring ranges optional			on request

Screw-in temperature sensors / smoke gas temperature sensors with neck tube and passive output

RGTF 2
standard

Screw-in resistance thermometer / smoke gas temperature sensor with neck tube
THERMASGARD® RGTF 2 with passive output, with connecting head made from aluminium (optionally with **cable gland** or **M12 connector** according to DIN EN 61076-2-101) and straight protective tube.

The duct sensor is used to detect relatively high temperatures in liquid or gaseous media, eg, for exhaust air and smoke gas temperature measurement..

TECHNICAL DATA

Measuring range:	–35...+600 °C (extended range limits from –100...+750 °C optional)
Sensor / output:	Pt100/Pt1000 (according to DIN EN 60 751, class B) (Perfect Sensor Protection)
Connection type:	2-wire connection (Pt1000) 4-wire connection (Pt100; optional Pt1000)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Electrical connection:	0.14 - 2.5 mm ² via terminal screws on ceramic base
Cable connection:	RGTF 2 (Standard) adjusting screw made of metal (M20 x 1.5); RGTF 2-KV (optional) cable gland , brass, nickel-plated (M20 x 1.5; with strain relief, exchangeable, inner diameter 6 - 12 mm) RGTF 2-Q (optional) M12 connector according to DIN EN 61076-2-101 (male, 5-pin, A-code)
Dimensions:	see dimensional drawing
Connecting head:	form B, material aluminium, colour white aluminium (similar to RAL 9006), ambient temperature –20...+100 °C
Protective tube:	stainless steel V4A (1.4571), G ½" straight pipe thread, wrench size 27 mm, p _{max} = 40 bar, Ø = 8 mm length of neck tube (HL) = 80 mm inserted length (EL) = 100 - 500 mm (see table)
Process connection:	screwed socket with G ½" straight pipe thread
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 54 (according to EN 60 529) RGTF 2 IP 65 (according to EN 60 529) RGTF 2-KV / RGTF 2-Q



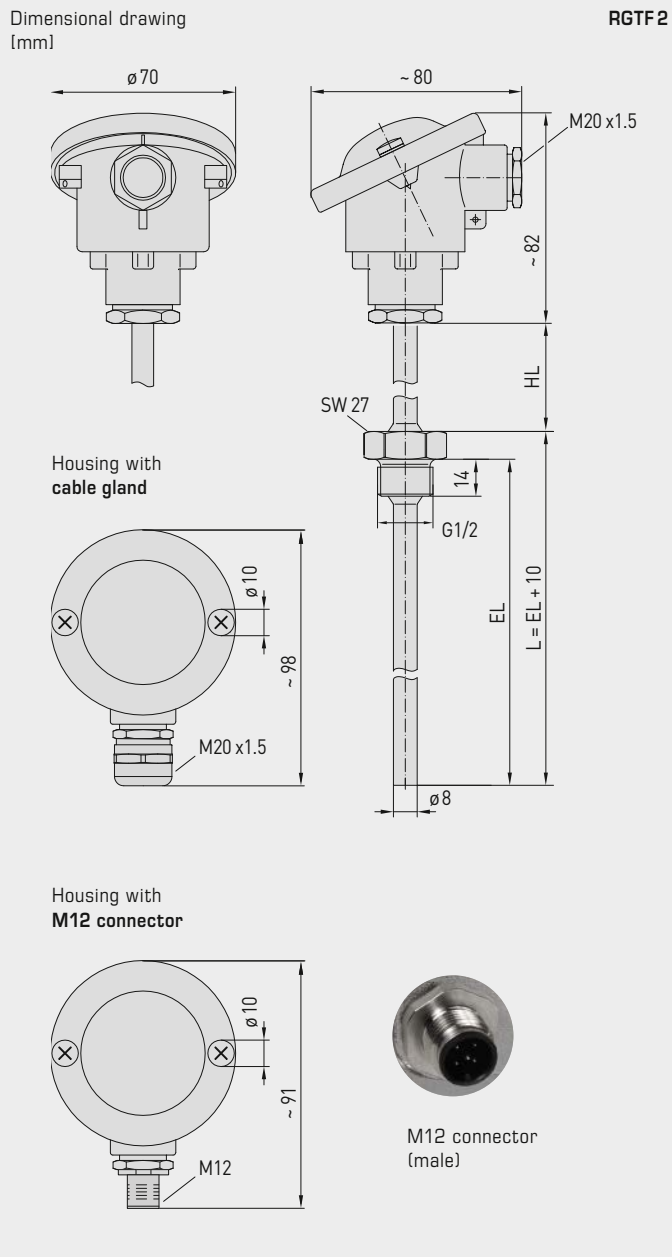
RGTF 2
Measuring insert with
ceramic tubelet



S+S REGELTECHNIK

THERMASGARD® RGTF 2

Screw-in temperature sensors / smoke gas temperature sensors
with neck tube and passive output



High-performance encapsulation against
vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

RGTF 2
standard
(IP 54)



RGTF 2 - KV
with cable gland
(IP 65)



RGTF 2 - Q
with M12 connector
(IP 65)



**Screw-in temperature sensors / smoke gas temperature sensors
with neck tube and passive output**

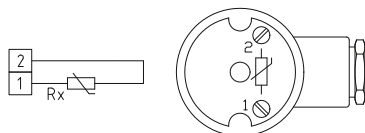
2-wire connection
(Pt1000)



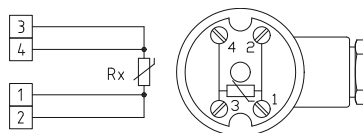
4-wire connection
(Pt100 / Pt1000 optional)



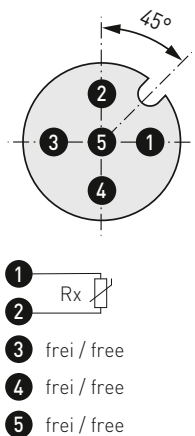
1x two-wire connection
(Pt1000)



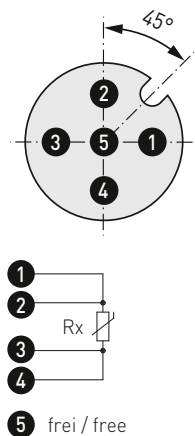
1x four-wire connection
(Pt100 / Pt1000 optional)



1x two-wire connection
pin assignment (M12)



1x four-wire connection
pin assignment (M12)





THERMASGARD® RGTF 2		Screw-in temperature sensors / smoke gas temperature sensors with neck tube (standard)	
Type / WG01	Sensor / Output	Installation length (EL)	Item No.
RGTF2 Pt100 xx	Pt100 (according to DIN EN 60751, class B)		IP54, 4-wire
RGTF2 Pt100 100/80mm	Pt100	100 mm	1101-2090-1023-000
RGTF2 Pt100 150/80mm	Pt100	150 mm	1101-2090-1033-000
RGTF2 Pt100 200/80mm	Pt100	200 mm	1101-2090-1043-000
RGTF2 Pt100 250/80mm	Pt100	250 mm	1101-2090-1053-000
RGTF2 Pt100 300/80mm	Pt100	300 mm	1101-2090-1063-000
RGTF2 Pt100 500/80mm	Pt100	500 mm	1101-2090-1103-000
RGTF2 Pt1000 xx	Pt1000 (according to DIN EN 60751, class B)		IP54, 2-wire
RGTF2 Pt1000 100/80	Pt1000	100 mm	1101-2090-5021-000
RGTF2 Pt1000 150/80	Pt1000	150 mm	1101-2090-5031-000
RGTF2 Pt1000 200/80	Pt1000	200 mm	1101-2090-5041-000
RGTF2 Pt1000 250/80	Pt1000	250 mm	1101-2090-5051-000
RGTF2 Pt1000 300/80	Pt1000	300 mm	1101-2090-5061-000
RGTF2 Pt1000 500/80	Pt1000	500 mm	1101-2090-5101-000
Housing variant:	with pressure screw (IP54)		
Extra charge:	other measuring ranges optional		on request

THERMASGARD® RGTF 2 - KV		Screw-in temperature sensors / smoke gas temperature sensors with neck tube (with M12 connector)	
Type / WG01	Sensor / Output	Installation length (EL)	Item No.
RGTF2 Pt100 xx KV	Pt100 (according to DIN EN 60751, class B)		IP65, 4-wire
RGTF2 Pt100 100/80mm KV	Pt100	100 mm	1101-20D0-1023-000
RGTF2 Pt100 150/80mm KV	Pt100	150 mm	1101-20D0-1033-000
RGTF2 Pt100 200/80mm KV	Pt100	200 mm	1101-20D0-1043-000
RGTF2 Pt100 250/80mm KV	Pt100	250 mm	1101-20D0-1053-000
RGTF2 Pt100 300/80mm KV	Pt100	300 mm	1101-20D0-1063-000
RGTF2 Pt100 500/80mm KV	Pt100	500 mm	1101-20D0-1103-000
RGTF2 Pt1000 xx KV	Pt1000 (according to DIN EN 60751, class B)		IP65, 2-wire
RGTF2 Pt1000 100/80mm KV	Pt1000	100 mm	1101-20D0-5021-000
RGTF2 Pt1000 150/80mm KV	Pt1000	150 mm	1101-20D0-5031-000
RGTF2 Pt1000 200/80mm KV	Pt1000	200 mm	1101-20D0-5041-000
RGTF2 Pt1000 250/80mm KV	Pt1000	250 mm	1101-20D0-5051-000
RGTF2 Pt1000 300/80mm KV	Pt1000	300 mm	1101-20D0-5061-000
RGTF2 Pt1000 500/80mm KV	Pt1000	500 mm	1101-20D0-5101-000
Housing variant "Q":	with cable gland (IP65)		
Extra charge:	other measuring ranges optional		on request

THERMASGARD® RGTF 2 - Q		Screw-in temperature sensors / smoke gas temperature sensors with neck tube (with cable gland)		
Type / WG03	Sensor / Output	Installation length (EL)	Q ●	Item No.
RGTF2 Pt100 xx Q	Pt100 (according to DIN EN 60751, class B)			IP65, 4-wire
RGTF2 Pt100 100/80mm Q	Pt100	100 mm	●	2Z01-4141-0100-011
RGTF2 Pt100 150/80mm Q	Pt100	150 mm	●	2Z01-4141-0100-021
RGTF2 Pt100 200/80mm Q	Pt100	200 mm	●	2Z01-4141-0100-031
RGTF2 Pt100 250/80mm Q	Pt100	250 mm	●	2Z01-4141-0100-041
RGTF2 Pt100 300/80mm Q	Pt100	300 mm	●	2Z01-4141-0100-051
RGTF2 Pt100 500/80mm Q	Pt100	500 mm	●	2Z01-4141-0100-061
RGTF2 Pt1000 xx Q	Pt1000 (according to DIN EN 60751, class B)			IP65, 2-wire
RGTF2 Pt1000 100/80mm Q	Pt1000	100 mm	●	2Z05-4141-0100-011
RGTF2 Pt1000 150/80mm Q	Pt1000	150 mm	●	2Z05-4141-0100-021
RGTF2 Pt1000 200/80mm Q	Pt1000	200 mm	●	2Z05-4141-0100-031
RGTF2 Pt1000 250/80mm Q	Pt1000	250 mm	●	2Z05-4141-0100-041
RGTF2 Pt1000 300/80mm Q	Pt1000	300 mm	●	2Z05-4141-0100-051
RGTF2 Pt1000 500/80mm Q	Pt1000	500 mm	●	2Z05-4141-0100-061
Housing variant "KV":	with M12 connector (male, 5-pin, A-code) (IP65)			
Extra charge:	other measuring ranges optional			on request

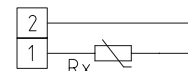
Sleeve sensor / cable temperature sensor
duct / immersion / screw-in temperature sensor,
with passive output

The sleeve sensor / cable sensor **THERMASGARD® HTF** is used to measure temperatures in liquid and gaseous media. It can be used as a duct sensor and - if installed in an immersion sleeve - as an immersion and screw-in sensor. The sleeve length varies, depending on request, from 30...400 mm (standard is 50 mm respectively 200 mm), the cable length is arbitrary (standard is 1.5 m). Depending on application, with silicone, glass fibre, or PVC leads, for two-wire or four-wire connection. For direct, continuous use in liquids, please use our **THE** immersion sleeves (see type table).

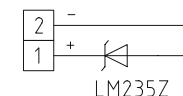
TECHNICAL DATA

Measuring ranges:	-35...+105 °C PVC , LiYY, 2 x 0.25 mm ² -50...+180 °C Silicone , SiHF, 2 x 0.25 mm ² -50...+250 °C PTFE , 2 x 1.0 mm ² -50...+350 °C glass fibre , 2 x 0.25 mm ² ends stripped with wire end sleeves (extended measuring range limits optional, depending on connection leads, T_{max} Ni1000 = +180 °C, T_{max} NTC / Ni1000 TK5000 = +150 °C, T_{max} LM235Z = +125 °C)
Sensors / output:	see table, passive (optional also with 2 sensors) (Perfect Sensor Protection with IP68)
Connection type:	2-wire connection (4-wire connection optional)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Protective tube	sensor sleeve made of stainless steel, V4A (1.4571), Ø = 6 mm HTF50 nominal length (NL) = 50 mm HTF200 nominal length (NL) = 200 mm (other optional dimensions also available, nominal length (NL) = 30...400 mm)
Connection cable:	cable length (KL) = 1.5 m (optional also 3 m, 5 m, 8 m, 10 m)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Process connection:	using immersion sleeves THE (see table) or mounting flange, plastic (see table) (optionally in galvanised steel, see chapter Accessories)
Permitted humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP65 (according to EN 60 529) sleeve humidity-tight (standard) IP68 (according to EN 60 529) sleeve water-tight (optional) IP54 (according to EN 60 529) with glass fibre cable (optional)
ACCESSORIES	
MF-06-K	Mounting flange , plastic, 56.8 x 84.3 mm, Ø = 6.2 mm tube gland, T _{max} = +100 °C (is not included in scope of delivery)
THE-MS-G xx	Immersion sleeve , polished brass, Ø = 9 mm, inserted length (EL) = 50 - 250 mm (see table), inner diameter of socket Ø = 5.2 mm, with adjusting screw M12 x1.5 T _{max} = +130 °C, p _{max} = 16 bar
THE-VA/xx	Immersion sleeve , stainless steel, V4A (1.4571), Ø = 9 mm, inserted length (EL) = 50 - 400 mm (see table), inner diameter of socket Ø = 5.2 mm, with adjusting screw M12 x1.5 T _{max} = +200 °C, p _{max} = 40 bar

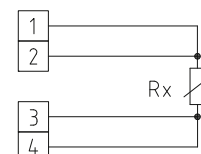
1x two-wire connection
standard



1x two-wire connection
LM235Z (KP 10)



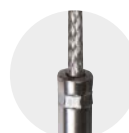
1x four-wire connection
(optional)



IP65 (standard)
humidity-tight



IP68 (optional)
water-tight
Perfect Sensor Protection



IP54 (optional)
with **glass fibre** cable

MF-06-K
Mounting flange,
plastic
(optional)



High-performance encapsulation against
vibration, mechanical stress and humidity





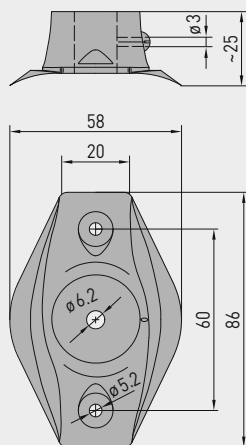
S+S REGELTECHNIK

THERMASGARD® HTF 50
THERMASGARD® HTF 200

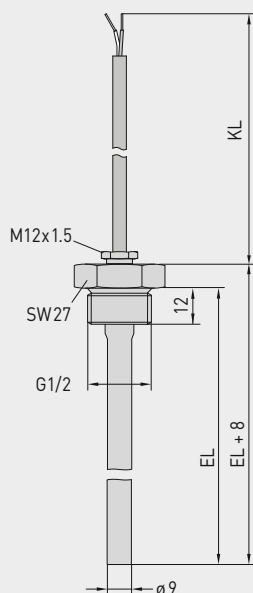
Sleeve sensor / cable temperature sensor
duct / immersion / screw-in temperature sensor,
with passive output



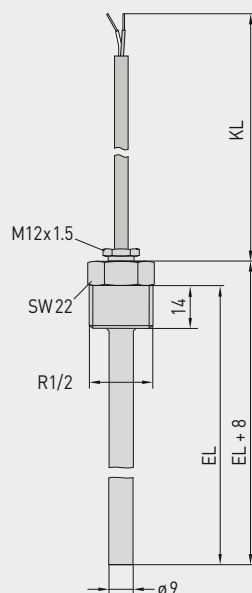
Dimensional drawing **MF-06-K**



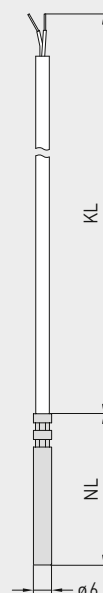
HTF 50 + THE-VA



HTF 50 + THE-MS-G



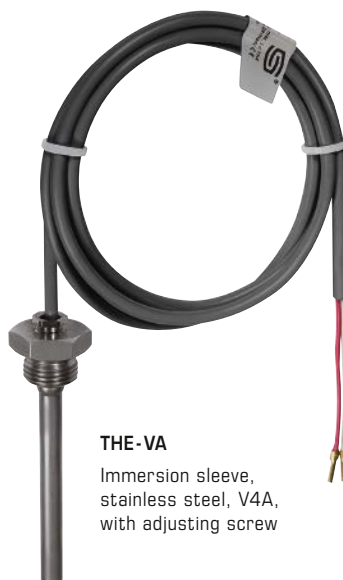
HTF 50 / HTF 200



HTF200 + MF-06-K
with accessory mounting flange
(see type table)
as duct temperature sensor

HTF 50 + THE-xx
with accessory immersion sleeve
(see type table)
as immersion / screw-in temperature sensor

HTF 50
with PVC / silicone cable
(standard)



THE-VA
Immersion sleeve,
stainless steel, V4A,
with adjusting screw



HTF 50
with glass fibre cable



THE-MS-G
Immersion sleeve,
polished brass,
with adjusting screw



Sleeve sensor / cable temperature sensor
duct / immersion / screw-in temperature sensor,
with passive output

S+S REGELTECHNIK

THERMASGARD® HTF 50 sleeve sensor / cable temperature sensor (NL = 50 mm)

Type / WG03	Cable material	Cable length	Measuring Range	Protection class	Item No. Sensor
HTF50 PT100					Pt 100, class B
HTF50 Pt100 PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6030-1211-110
HTF50 Pt100 Silikon 1,5M	Silicone	1.5 m	-50...+180 °C	IP65 *	1101-6030-1211-120
HTF50 Pt100 PTFE 1,5M	PTFE	1.5 m	-50...+250 °C	IP65 *	1101-6030-1211-140
HTF50 Pt100	Glass Fibre	1.5 m	-50...+350 °C	IP54	1101-6030-1211-050
HTF50 Pt100 PVC 3M	PVC	3 m	-35...+105 °C	IP65 *	1101-6030-1231-110
HTF50 Pt100 Silikon 3M	Silicone	3 m	-50...+180 °C	IP65 *	1101-6030-1231-120
HTF50 Pt100 PVC 5M	PVC	5 m	-35...+105 °C	IP65 *	1101-6030-1251-110
HTF50 Pt100 Silikon 5M	Silicone	5 m	-50...+180 °C	IP65 *	1101-6030-1251-120
HTF50 Pt100 PVC 8M	PVC	8 m	-35...+105 °C	IP65 *	1101-6030-1281-110
HTF50 Pt100 Silikon 8M	Silicone	8 m	-50...+180 °C	IP65 *	1101-6030-1281-120
HTF50 Pt100 PVC 10M	PVC	10 m	-35...+105 °C	IP65 *	1101-6030-1301-110
HTF50 Pt100 Silikon 10M	Silicone	10 m	-50...+180 °C	IP65 *	1101-6030-1301-120
HTF50 PT1000					Pt 1000, class B
HTF50 Pt1000 PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6030-5211-110
HTF50 Pt1000 Silikon 1,5M	Silicone	1.5 m	-50...+180 °C	IP65 *	1101-6030-5211-120
HTF50 Pt1000 PTFE 1,5M	PTFE	1.5 m	-50...+250 °C	IP65 *	1101-6030-5211-140
HTF50 Pt1000	Glass Fibre	1.5 m	-50...+350 °C	IP54	1101-6030-5211-050
HTF50 Pt1000 PVC 3M	PVC	3 m	-35...+105 °C	IP65 *	1101-6030-5231-110
HTF50 Pt1000 Silikon 3M	Silicone	3 m	-50...+180 °C	IP65 *	1101-6030-5231-120
HTF50 Pt1000 PVC 5M	PVC	5 m	-35...+105 °C	IP65 *	1101-6030-5251-110
HTF50 Pt1000 Silikon 5M	Silicone	5 m	-50...+180 °C	IP65 *	1101-6030-5251-120
HTF50 Pt1000 PVC 8M	PVC	8 m	-35...+105 °C	IP65 *	1101-6030-5281-110
HTF50 Pt1000 Silikon 8M	Silicone	8 m	-50...+180 °C	IP65 *	1101-6030-5281-120
HTF50 Pt1000 PVC 10M	PVC	10 m	-35...+105 °C	IP65 *	1101-6030-5301-110
HTF50 Pt1000 Silikon 10M	Silicone	10 m	-50...+180 °C	IP65 *	1101-6030-5301-120
HTF50 PT1000 A					Pt 1000 A, class A-TGA
HTF50 Pt1000A PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6030-6211-110
HTF50 Pt1000A Silikon 1,5M	Silicone	1.5 m	-50...+180 °C	IP65 *	1101-6030-6211-120
HTF50 Ni1000					Ni 1000
HTF50 Ni1000 PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6030-9211-110
HTF50 Ni1000 Silikon 1,5M	Silicone	1.5 m	-50...+180 °C	IP65 *	1101-6030-9211-120
HTF50 Ni1000 PVC 3M	PVC	3 m	-35...+105 °C	IP65 *	1101-6030-9231-110
HTF50 Ni1000 Silikon 3M	Silicone	3 m	-50...+180 °C	IP65 *	1101-6030-9231-120
HTF50 Ni1000 PVC 5M	PVC	5 m	-35...+105 °C	IP65 *	1101-6030-9251-110
HTF50 Ni1000 Silikon 5M	Silicone	5 m	-50...+180 °C	IP65 *	1101-6030-9251-120
HTF50 Ni1000 PVC 8M	PVC	8 m	-35...+105 °C	IP65 *	1101-6030-9281-110
HTF50 Ni1000 Silikon 8M	Silicone	8 m	-50...+180 °C	IP65 *	1101-6030-9281-120
HTF50 Ni1000 PVC 10M	PVC	10 m	-35...+105 °C	IP65 *	1101-6030-9301-110
HTF50 Ni1000 Silikon 10M	Silicone	10 m	-50...+180 °C	IP65 *	1101-6030-9301-120
HTF50 NiTK					Ni 1000 TK 5000
HTF50 NiTK PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6031-0211-110
HTF50 NiTK Silikon 1,5M	Silicone	1.5 m	-50...+150 °C	IP65 *	1101-6031-0211-120
HTF50 NiTK PVC 3M	PVC	3 m	-35...+105 °C	IP65 *	1101-6031-0231-110
HTF50 NiTK Silikon 3M	Silicone	3 m	-50...+150 °C	IP65 *	1101-6031-0231-120
HTF50 NiTK PVC 5M	PVC	5 m	-35...+105 °C	IP65 *	1101-6031-0251-110
HTF50 NiTK Silikon 5M	Silicone	5 m	-50...+150 °C	IP65 *	1101-6031-0251-120
HTF50 NiTK PVC 8M	PVC	8 m	-35...+105 °C	IP65 *	1101-6031-0281-110
HTF50 NiTK Silikon 8M	Silicone	8 m	-50...+150 °C	IP65 *	1101-6031-0281-120
HTF50 NiTK PVC 10M	PVC	10 m	-35...+105 °C	IP65 *	1101-6031-0301-110
HTF50 NiTK Silikon 10M	Silicone	10 m	-50...+150 °C	IP65 *	1101-6031-0301-120
HTF50 LM235Z					LM235Z
HTF50 LM235Z PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6032-1211-110
HTF50 LM235Z Silikon 1,5M	Silicone	1.5 m	-40...+125 °C	IP65 *	1101-6032-1211-120
HTF50 LM235Z PVC 3M	PVC	3 m	-35...+105 °C	IP65 *	1101-6032-1231-110
HTF50 LM235Z Silikon 3M	Silicone	3 m	-40...+125 °C	IP65 *	1101-6032-1231-120
HTF50 LM235Z PVC 5M	PVC	5 m	-35...+105 °C	IP65 *	1101-6032-1251-110
HTF50 LM235Z Silikon 5M	Silicone	5 m	-40...+125 °C	IP65 *	1101-6032-1251-120
HTF50 LM235Z PVC 8M	PVC	8 m	-35...+105 °C	IP65 *	1101-6032-1281-110
HTF50 LM235Z Silikon 8M	Silicone	8 m	-40...+125 °C	IP65 *	1101-6032-1281-120
HTF50 LM235Z PVC 10M	PVC	10 m	-35...+105 °C	IP65 *	1101-6032-1301-110
HTF50 LM235Z Silikon 10M	Silicone	10 m	-40...+125 °C	IP65 *	1101-6032-1301-120

Continued on next page ...



S+S REGELTECHNIK

THERMASGARD® HTF 50

Sleeve sensor / cable temperature sensor
duct / immersion / screw-in temperature sensor,
with passive output



THERMASGARD® HTF 50 sleeve sensor / cable temperature sensor (NL = 50 mm)					
Type / WG03	Cable material	Cable length	Measuring Range	Protection class	Item No. Sensor
HTF50 NTC1.8K					NTC 1.8K
HTF50 NTC1,8K PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP 65 *	1101-6031-2211-110
HTF50 NTC1,8K Silikon 1,5M	Silicone	1.5 m	-50...+150 °C	IP 65 *	1101-6031-2211-120
HTF50 NTC1,8K PVC 3M	PVC	3 m	-35...+105 °C	IP 65 *	1101-6031-2231-110
HTF50 NTC1,8K Silikon 3M	Silicone	3 m	-50...+150 °C	IP 65 *	1101-6031-2231-120
HTF50 NTC1,8K PVC 5M	PVC	5 m	-35...+105 °C	IP 65 *	1101-6031-2251-110
HTF50 NTC1,8K Silikon 5M	Silicone	5 m	-50...+150 °C	IP 65 *	1101-6031-2251-120
HTF50 NTC1,8K PVC 8M	PVC	8 m	-35...+105 °C	IP 65 *	1101-6031-2281-110
HTF50 NTC1,8K Silikon 8M	Silicone	8 m	-50...+150 °C	IP 65 *	1101-6031-2281-120
HTF50 NTC1,8K PVC 10M	PVC	10 m	-35...+105 °C	IP 65 *	1101-6031-2301-110
HTF50 NTC1,8K Silikon 10M	Silicone	10 m	-50...+150 °C	IP 65 *	1101-6031-2301-120
HTF50 NTC10K					NTC 10K
HTF50 NTC10K PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP 65 *	1101-6031-5211-110
HTF50 NTC10K Silikon 1,5M	Silicone	1.5 m	-50...+150 °C	IP 65 *	1101-6031-5211-120
HTF50 NTC10K PVC 3M	PVC	3 m	-35...+105 °C	IP 65 *	1101-6031-5231-110
HTF50 NTC10K Silikon 3M	Silicone	3 m	-50...+150 °C	IP 65 *	1101-6031-5231-120
HTF50 NTC10K PVC 5M	PVC	5 m	-35...+105 °C	IP 65 *	1101-6031-5251-110
HTF50 NTC10K Silikon 5M	Silicone	5 m	-50...+150 °C	IP 65 *	1101-6031-5251-120
HTF50 NTC10K PVC 8M	PVC	8 m	-35...+105 °C	IP 65 *	1101-6031-5281-110
HTF50 NTC10K Silikon 8M	Silicone	8 m	-50...+150 °C	IP 65 *	1101-6031-5281-120
HTF50 NTC10K PVC 10M	PVC	10 m	-35...+105 °C	IP 65 *	1101-6031-5301-110
HTF50 NTC10K Silikon 10M	Silicone	10 m	-50...+150 °C	IP 65 *	1101-6031-5301-120
HTF50 NTC20K					NTC 20K
HTF50 NTC20K PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP 65 *	1101-6031-6211-110
HTF50 NTC20K Silikon 1,5M	Silicone	1.5 m	-50...+150 °C	IP 65 *	1101-6031-6211-120
HTF50 NTC20K PVC 3M	PVC	3 m	-35...+105 °C	IP 65 *	1101-6031-6231-110
HTF50 NTC20K Silikon 3M	Silicone	3 m	-50...+150 °C	IP 65 *	1101-6031-6231-120
HTF50 NTC20K PVC 5M	PVC	5 m	-35...+105 °C	IP 65 *	1101-6031-6251-110
HTF50 NTC20K Silikon 5M	Silicone	5 m	-50...+150 °C	IP 65 *	1101-6031-6251-120
HTF50 NTC20K PVC 8M	PVC	8 m	-35...+105 °C	IP 65 *	1101-6031-6281-110
HTF50 NTC20K Silikon 8M	Silicone	8 m	-50...+150 °C	IP 65 *	1101-6031-6281-120
HTF50 NTC20K PVC 10M	PVC	10 m	-35...+105 °C	IP 65 *	1101-6031-6301-110
HTF50 NTC20K Silikon 10M	Silicone	10 m	-50...+150 °C	IP 65 *	1101-6031-6301-120
Extra charge:	* Protection type IP 68 (Sensor sleeve watertight compound-filled) Other sensors optional Cable length (KL) 3 m, 5 m, 8 m, 10 m (standard lengths) Connection type 4-wire (4-conductor)				on request on request on request
For special orders please specify: (possible for 25 or more pieces)	Type sensor length (NL), sensor, cable material, connection type, cable length (KL), protection type e.g. HTF - 30mm, Pt1000, PVC, 2-wire, 10m, IP68; HTF - 50mm, Ni1000 TK5000, silicon, 4-wire, 5m, IP65				

HTF 50
(NL = 50 mm)
with PVC / silicone cable

HTF 50
(NL = 50 mm)
with glass fibre cable



IP 65 (standard)
humidity-tight



IP 68 (optional)
water-tight
Perfect Sensor Protection



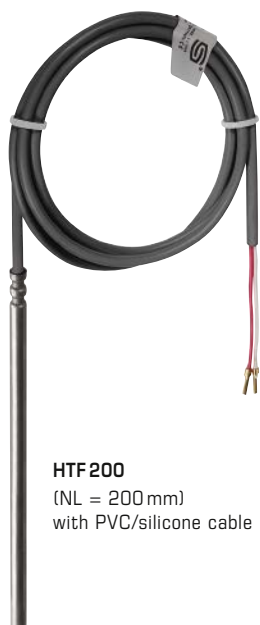
IP 54 (optional)
with glass fibre cable



Sleeve sensor / cable temperature sensor
duct / immersion / screw-in temperature sensor,
with passive output

THERMASGARD® HTF 200 sleeve sensor / cable temperature sensor (NL = 200 mm)

Type / WG03	Cable material	Cable length	Measuring Range	Protection class	Item No. Sensor
HTF200 PT100					Pt 100, class B
HTF200 Pt100 PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6090-1211-110
HTF200 Pt100 Silikon 1,5M	Silicone	1.5 m	-50...+180 °C	IP65 *	1101-6090-1211-120
HTF200 PT1000					Pt 1000, class B
HTF200 Pt1000 PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6090-5211-110
HTF200 Pt1000 Silikon 1,5M	Silicone	1.5 m	-50...+180 °C	IP65 *	1101-6090-5211-120
HTF200 PT1000 A					Pt 1000 A, class A-TGA
HTF200 Pt1000A PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6090-6211-110
HTF200 Pt1000A Silikon 1,5M	Silicone	1.5 m	-50...+180 °C	IP65 *	1101-6090-6211-120
HTF200 Ni1000					Ni 1000
HTF200 Ni1000 PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6090-9211-110
HTF200 Ni1000 Silikon 1,5M	Silicone	1.5 m	-50...+180 °C	IP65 *	1101-6090-9211-120
HTF200 NiTK					Ni 1000 TK 5000
HTF200 NiTK PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6091-0211-110
HTF200 NiTK Silikon 1,5M	Silicone	1.5 m	-50...+150 °C	IP65 *	1101-6091-0211-120
HTF200 LM235Z					LM 235 Z
HTF200 LM235Z PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6092-1211-110
HTF200 LM235Z Silikon 1,5M	Silicone	1.5 m	-40...+125 °C	IP65 *	1101-6092-1211-120
HTF200 NTC1,8K					NTC 1.8K
HTF200 NTC1,8K PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6091-2211-110
HTF200 NTC1,8K Silikon 1,5M	Silicone	1.5 m	-50...+150 °C	IP65 *	1101-6091-2211-120
HTF200 NTC10K					NTC 10K
HTF200 NTC10K PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6091-5211-110
HTF200 NTC10K Silikon 1,5M	Silicone	1.5 m	-50...+150 °C	IP65 *	1101-6091-5211-120
HTF200 NTC20K					NTC 20K
HTF200 NTC20K PVC 1,5M	PVC	1.5 m	-35...+105 °C	IP65 *	1101-6091-6211-110
HTF200 NTC20K Silikon 1,5M	Silicone	1.5 m	-50...+150 °C	IP65 *	1101-6091-6211-120
Extra charge:	* Protection type IP68 (Sensor sleeve watertight compound-filled) Other sensors optional Cable length (KL) 3 m, 5 m, 8 m, 10 m (standard lengths) Connection type 4-wire (4-conductor)				on request on request on request
For special orders please specify: (possible for 25 or more pieces)	Type sensor length (NL), sensor, cable material, connection type, cable length (KL), protection type e. g. HTF-200 mm, Pt1000, PVC, 2-wire, 10 m, IP68; HTF-400 mm, Ni1000 TK5000, silicon, 4-wire, 5 m, IP65				



HTF 200
(NL = 200 mm)
with PVC/silicone cable



IP65 (standard)
humidity-tight



IP68 (optional)
water-tight
Perfect Sensor Protection

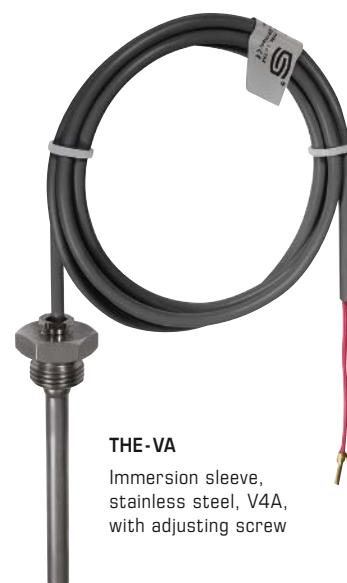
THERMASGARD® HTF 50 accessory as immersion / screw-in sensor temperature sensor (ESTF)			
Type / WG01	Description	Item No.	
THE-MS-G xx			
	Immersion sleeve, polished brass, Ø 9 mm, inner diameter of socket Ø = 5.2 mm, with adjusting screw M12 x1.5		
THE-MS-G 50MM	p _{max} = 16 bar, T _{max} = +130 °C	EL = 50 mm	7100-0017-6010-002
THE-MS-G 100MM	p _{max} = 16 bar, T _{max} = +130 °C	EL = 100 mm	7100-0017-6020-002
THE-MS-G 150MM	p _{max} = 16 bar, T _{max} = +130 °C	EL = 150 mm	7100-0017-6030-002
THE-MS-G 200MM	p _{max} = 16 bar, T _{max} = +130 °C	EL = 200 mm	7100-0017-6040-002
THE-MS-G 250MM	p _{max} = 16 bar, T _{max} = +130 °C	EL = 250 mm	7100-0017-6050-002
THE-VA / xx			
	Immersion sleeve, stainless steel, V4A (1.4571), Ø 9 mm, inner diameter of socket Ø = 5.2 mm, with adjusting screw M12 x1.5		
THE-VA 50MM	p _{max} = 40 bar, T _{max} = +200 °C	EL = 50 mm	7100-0012-6010-002
THE-VA 100MM	p _{max} = 40 bar, T _{max} = +200 °C	EL = 100 mm	7100-0012-6020-002
THE-VA 150MM	p _{max} = 40 bar, T _{max} = +200 °C	EL = 150 mm	7100-0012-6030-002
THE-VA 200MM	p _{max} = 40 bar, T _{max} = +200 °C	EL = 200 mm	7100-0012-6040-002
THE-VA 250MM	p _{max} = 40 bar, T _{max} = +200 °C	EL = 250 mm	7100-0012-6050-002
THE-VA 300MM	p _{max} = 40 bar, T _{max} = +200 °C	EL = 300 mm	7100-0012-6060-002
THE-VA 400MM	p _{max} = 40 bar, T _{max} = +200 °C	EL = 400 mm	7100-0012-6080-002
xx = (EL)	Other installation lengths on request		

HTF 50
(NL = 50 mm)
with THE-xx immersion sleeve
as immersion / screw-in temperature sensor

MF-06-K
Mounting flange,
plastic
(optional)



THE-MS-G
Immersion sleeve,
polished brass,
with adjusting screw



THE-VA
Immersion sleeve,
stainless steel, V4A,
with adjusting screw

THERMASGARD® HTF 50		Accessories (standard)	
THERMASGARD® HTF 200		Accessories (standard)	
Type / WG01	Description	T _{max}	Item No.
MF			
MF-06-K	Mounting flange plastic, 56.8 x 84.3 mm, Ø 6.2 mm tube gland (not included in scope of delivery)	+100 °C	7100-0030-1000-000
Note:	For further information see last chapter!		

Surface contact temperature sensors / surface temperature sensors, with passive output

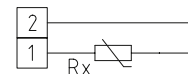
Small surface contact resistance thermometer in aluminium enclosure (cable sensor).

The surface sensor **THERMASGARD® OUTF** is used for temperature detection on flat or slightly convex surfaces, for instance for surface temperature measurement at windows, for monitoring formation of condensate, or as heating surface sensor, e.g. at windows or walls.

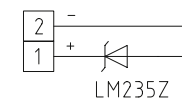
TECHNICAL DATA

Measuring range:	−30...+105 °C
Sensors / output:	see table, passive (Perfect Sensor Protection with IP68)
Connection type:	2-wire connection
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Process connection:	attachment to the surface to be measured through fixing hole in the sensor head or by suitable adhesive
Protective sleeve:	aluminium
Dimensions:	8 x 8 x 50 mm
Connecting cable:	PVC; 1.5 m, LiYY, 2 x 0.25 mm², ends stripped with wire end sleeves (optional with silicone cable SiHF, up to +180 °C)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Permissible air humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according to EN 60 529) sleeve humidity-tight (standard) IP 68 (according to EN 60 529) sleeve water-tight (optional)

1x two-wire connection
standard



1x two-wire connection
LM235Z (KP 10)

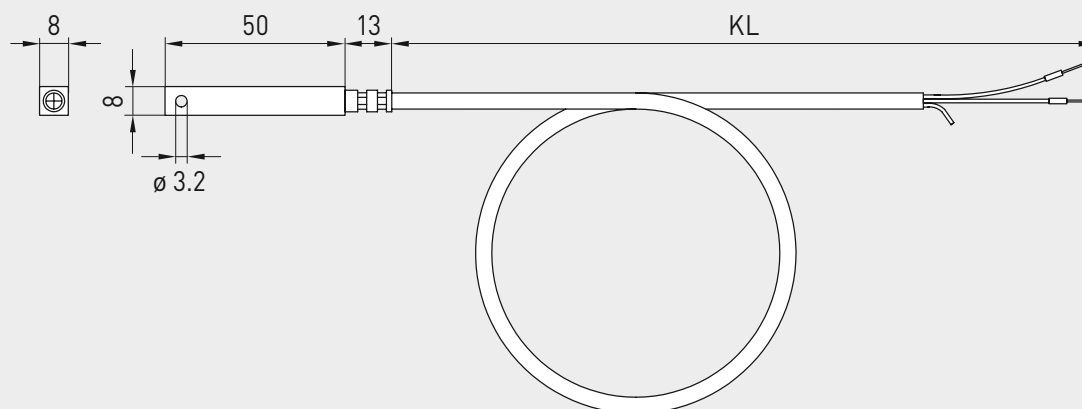


High-performance encapsulation against
vibration, mechanical stress and humidity



Dimensional drawing

OUTF





OUTF



THERMASGARD® OUTF Surface contact temperature sensors / surface temperature sensors		
Type / WG03	Sensor / output	Item No.
OUTF		IP65
OUTF Pt100 PVC 1,5M	Pt100 (according to DIN EN 60 751, class B)	1101-6010-1211-110
OUTF Pt1000 PVC 1,5M	Pt1000 (according to DIN EN 60 751, class B)	1101-6010-5211-110
OUTF Ni1000 PVC 1,5M	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-6010-9211-110
OUTF NiTK PVC 1,5M	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-6011-0211-110
OUTF LM235Z PVC 1,5M	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-6012-1211-110
OUTF NTC1,8K PVC 1,5M	NTC 1.8 K	1101-6011-2211-110
OUTF NTC10K PVC 1,5M	NTC 10K	1101-6011-5211-110
OUTF NTC20K PVC 1,5M	NTC 20K	1101-6011-6211-110
Extra charge:	Protection type IP68 (sensor sleeve watertight compound-filled) 2-wire connecting leads (PVC/silicone) per running metre 4-wire connecting leads (PVC/silicone) per running metre	on request on request
For special orders please specify:	Type, sensor type, cable length e.g. OUTF Pt100, 3 m; OUTF Pt100 1 / 3 DIN, 4 m; OUTF KTY 81-210, 6 m	

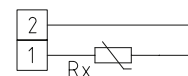
Surface contact temperature sensors / tube contact temperature sensors, including strap, with passive output

THERMASGARD® ALTF 1 surface contact sensors are electric contact thermometers and are used for measuring surface temperatures of solids, having at least one so-called contact area that is brought into contact with the surface to be measured. The surface contact temperature sensor ALTF 1 with connection cable and passive output determines the temperature of a medium flowing inside a pipe (e.g. water temperature) via the surface temperature. ALTF 1 is a tube contact resistance thermometer with strap and axial feeler tube for measuring temperature on piping and tubes (e.g. cold-water and hot-water), or at heating sections for heating system control.

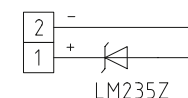
TECHNICAL DATA

Measuring range:	-35...+105 °C PVC -35...+180 °C silicone ($T_{\max}$ NTC = +150 °C, $T_{\max}$ LM 235 Z = +125 °C)
Sensors / output:	see table, passive (optional also with 2 sensors) (Perfect Sensor Protection with IP68)
Connection type:	2-wire connection (4-wire connection optional)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Connecting cable:	PVC; 1.5 m, LiYY, 2 x 0.25 mm ² or silicone, SiHF, 2 x 0.25 mm ² ends stripped, with wire end sleeves
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Sensor protection:	pipe feeder made of stainless steel V4A (1.4571), Ø = 6 mm, L = 50 mm
Process connection:	with endless strap with metal tightener (included in the scope of delivery) Ø = 13-92 mm (¼-3"); length 300 mm
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP65 (according to EN 60 529) sleeve humidity-tight (standard) IP68 (according to EN 60 529) sleeve water-tight (optional)

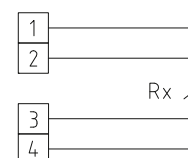
1x two-wire connection standard



1x two-wire connection LM235Z (KP 10)



1x four-wire connection (optional)



IP65 (standard)
humidity-tight



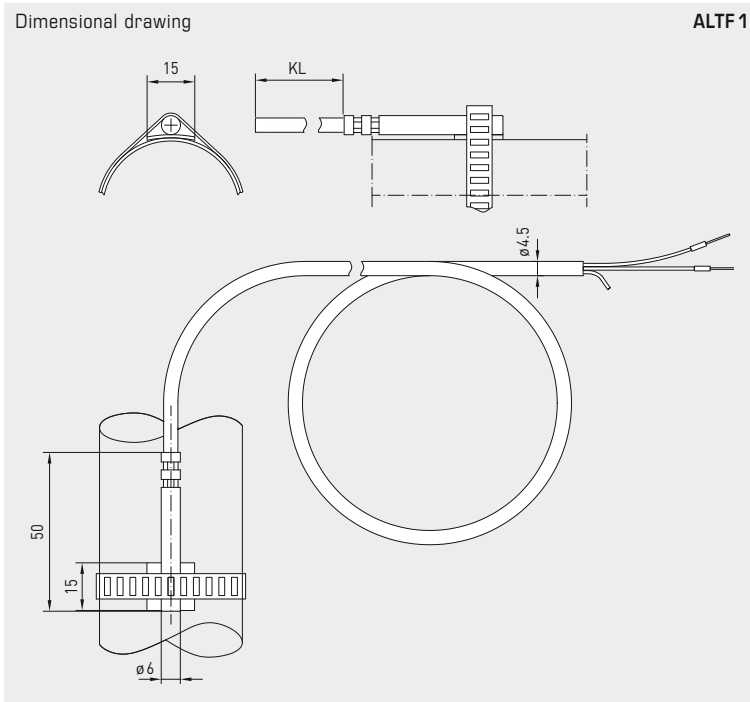
IP68 (optional)
water-tight
Perfect Sensor Protection

THERMASGARD® ALTF 1 Surface contact temperature sensors / tube contact temperature sensors (PVC)

Type / WG03	Sensor / Output	Item No.
ALTF 1 xx PVC		IP65, PVC
ALTF1 Pt100 PVC 1,5M	Pt100 (according to DIN EN 60 751, class B)	1101-6020-1211-110
ALTF1 Pt1000 PVC 1,5M	Pt1000 (according to DIN EN 60 751, class B)	1101-6020-5211-110
ALTF1 Ni1000 PVC 1,5M	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-6020-9211-110
ALTF1 NiTK PVC 1,5M	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-6021-0211-110
ALTF1 LM235Z PVC 1,5M	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-6022-1211-110
ALTF1 NTC1,8K PVC 1,5M	NTC 1.8K	1101-6021-2211-110
ALTF1 NTC10K PVC 1,5M	NTC 10K	1101-6021-5211-110
ALTF1 NTC20K PVC 1,5M	NTC 20K	1101-6021-6211-110
Note:	including strap, connecting cable PVC (KL = 1.5 m)	
Extra charge:	Protection type IP68 (Sensor sleeve watertight compound-filled) 2-wire connecting leads, per running meter (PVC) Other sensors optional	on request on request

ACCESSORIES

WLP-1	Heat-conductive paste, silicone-free	7100-0060-1000-000
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High-performance encapsulation against vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

THERMASGARD® ALTF 1 Surface contact temperature sensors / tube contact temperature sensors (silicone)		
Type / WG03	Sensor / Output	Item No.
ALTF 1 xx SILIKON		IP 65, silicone
ALTF1 Pt100 Silikon 1,5M	Pt100 (according to DIN EN 60 751, class B)	1101-6020-1211-120
ALTF1 Pt1000 Silikon 1,5M	Pt1000 (according to DIN EN 60 751, class B)	1101-6020-5211-120
ALTF1 Ni1000 Silikon 1,5M	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-6020-9211-120
ALTF1 NiTK Silikon 1,5M	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-6021-0211-120
ALTF1 LM235Z Silikon 1,5M	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-6022-1211-120
ALTF1 NTC1,8K Silikon 1,5M	NTC 1.8K	1101-6021-2211-120
ALTF1 NTC10K Silikon 1,5M	NTC 10K	1101-6021-5211-120
ALTF1 NTC20K Silikon 1,5M	NTC 20K	1101-6021-6211-120
Note:	including strap, connecting cable silicone (KL = 1.5 m)	
Extra charge:	Protection type IP 68 (Sensor sleeve watertight compound-filled) 2-wire connecting leads, per running meter (silicone) Other sensors optional	on request on request

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

Surface contact temperature sensors /
tube contact temperature sensors, including strap,
with passive output

THERMASGARD® ALTF 2 is a tube contact resistance thermometer with passive output,
in an impact-resistant plastic housing with quick-locking screws, incl.strap.

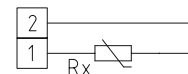
THERMASGARD® ALTF 02 is a cost-saving tube contact resistance thermometer with passive output,
in an impact-resistant plastic housing with snap-on lid, incl.strap.

Surface contact sensors are electric contact thermometers used for surface temperature measurement
on solids, having at least one so-called contact area that is brought into contact with the surface to be
measured. This surface contact temperature sensor measures the temperature of a medium flowing
inside a pipe (e.g. the water temperature). This tube surface sensor is used for measuring temperature
on piping and tubes (e.g. cold-water and hot-water), wor on heating sections for heating system control.

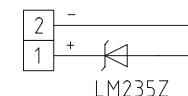
TECHNICAL DATA

Measuring range:	-30...+110 °C
Sensors / output:	see table, passive (Perfect Sensor Protection) (optional also with two sensors)
Connection type:	2-wire connection (4-wire connection on PT100/PT1000A, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, colour traffic white (similar to RAL 9016), ALTF 02 with snap-on lid, ALTF 2 with quick-locking screws (slotted / Phillips head combination)
Dimensions:	72 x 64 x 37.8 mm (Tyr 1 / Tyr 01)
Electrical connection:	0.14 - 1.5 mm ² via terminal screws
Cable connection:	cable gland , plastic (M 16 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)
Process connection:	with endless strap with metal tightener (included in the scope of delivery) Ø = 13 - 92 mm (1/4 - 3"), length L = 300 mm
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	ALTF 02 IP 54 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713160960A (Tyr 01) ALTF 2 IP 65 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)

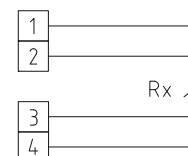
1x two-wire connection
standard



1x two-wire connection
LM235Z (KP 10)



1x four-wire connection
(optional)



THERMASGARD® ALTF 02 Surface contact temperature sensors / tube contact temperature sensors, *Standard*
including strap, with snap-on lid

Type / WG03B	Sensor / Output	Item No.
ALTF 02		IP 54
ALTF02 Pt100	Pt100 (according to DIN EN 60 751, class B)	1101-1010-1003-000
ALTF02 Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-1010-5001-000
ALTF02 Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-1010-9001-000
ALTF02 NiTK	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-1011-0001-000
ALTF02 LM235Z	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-1012-1001-000
ALTF02 NTC1,8K	NTC 1.8 K	1101-1011-2001-000
ALTF02 NTC10K	NTC 10K	1101-1011-5001-000
ALTF02 NTC20K	NTC 20K	1101-1011-6001-000
Extra charge:	two or other sensors optional cable connection with M12 connector according to DIN EN 61076-2-101	on request on request

ACCESSORIES

WLP-1	Heat-conductive paste, silicone-free	7100-0060-1000-000
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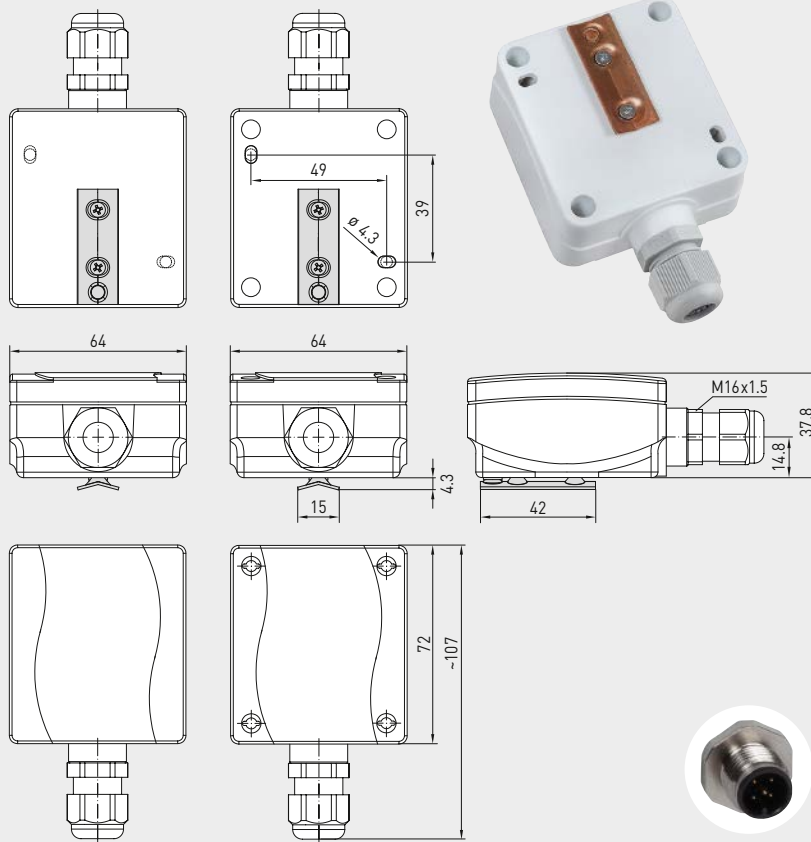
S+S REGELTECHNIK

THERMASGARD® ALTF 2
THERMASGARD® ALTF 02

Surface contact temperature sensors /
tube contact temperature sensors, including strap,
with passive output



Dimensional drawing



with snap-on lid

with quick-locking
screws

M12 connector
(optional on request)

ALTF 02
with snap-on lid
(IP 54)



ALTF 2
with quick-locking
screws
(IP 65)



High-performance encapsulation against
vibration, mechanical stress and humidity



THERMASGARD® ALTF 2 Surface contact temperature sensors / tube contact temperature sensors, *Premium*
including strap, with quick-locking screws

Type / WG03	Sensor / Output	Item No.
ALTF 2		IP 65
ALTF2 Pt100	Pt100 (according to DIN EN 60 751, class B)	1101-1020-1003-000
ALTF2 Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-1020-5001-000
ALTF2 Pt1000A	Pt1000 (according to VDI / VDE 3512, class A-TGA)	1101-1020-6003-000
ALTF2 Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-1020-9001-000
ALTF2 NiTK	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-1021-0001-000
ALTF2 LM235Z	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-1022-1001-000
ALTF2 NTC1,8K	NTC 1.8K	1101-1021-2001-000
ALTF2 NTC10K	NTC 10K	1101-1021-5001-000
ALTF2 NTC20K	NTC 20K	1101-1021-6001-000
Extra charge:	two or other sensors optional cable connection with M12 connector according to DIN EN 61076-2-101	on request on request

ACCESSORIES

WLP-1	Heat-conductive paste, silicone-free	7100-0060-1000-000
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Pendulum room temperature sensors with passive output

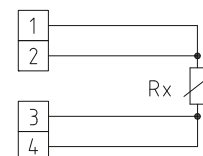
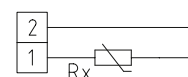
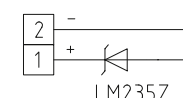
Resistance thermometer **THERMASGARD® RPTF 1** with passive output is specifically used for temperature detection in larger rooms and halls. Due to the measuring method employed by this pendulum room temperature sensor in combination with its positioning in the room, excellent and room-representative measuring results are achieved as ambient air of the room is steadily washing around the sensor.

TECHNICAL DATA

Measuring range:	-5...+60 °C
Sensors / output:	see table, passive (optional also with two sensors)
Sensor protection:	plastic sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional metal sinter filter, Ø 16 mm, L = 32 mm)
Connection type:	2-wire connection (4-wire connection optional)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Connection cable:	PVC, H03VV-F, 2 x 0.5 mm ² , ends stripped with wire end sleeves KL = approx. 1.5 m (other lengths optional)
Protective tube:	stainless steel V2A (1.4301), Ø=16 mm, NL = 142 mm
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Humidity:	< 95 % RH
Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according to EN 60 529)

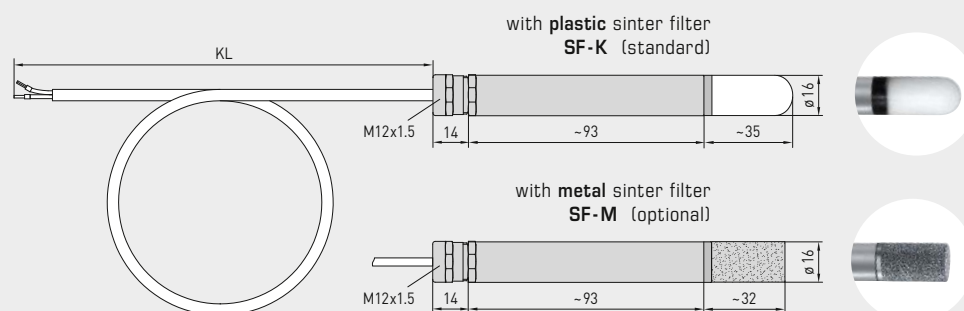


RPTF 1

1x four-wire connection
(optional)1x two-wire connection
standard1x two-wire connection
LM235Z (KP 10)

Dimensional drawing

RPTF 1



THERMASGARD® RPTF 1 Pendulum room temperature sensors (with metal sleeve)

Type / WG03	Sensor / Output	Item No.
RPTF 1		IP 65
RPTF1 Pt100 PVC 1,5M	Pt100 (according to DIN EN 60 751, class B)	1101-6060-1211-010
RPTF1 Pt1000 PVC 1,5M	Pt1000 (according to DIN EN 60 751, class B)	1101-6060-5211-010
RPTF1 Ni1000 PVC 1,5M	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-6060-9211-010
RPTF1 NiTK PVC 1,5M	Ni1000 TK5000 (TCR = 5000 ppm / K), LG - Ni1000	1101-6061-0211-010
RPTF1 LM235Z PVC 1,5M	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-6062-1211-110
RPTF1 NTC1,8K PVC 1,5M	NTC 1.8K	1101-6061-2211-010
RPTF1 NTC10K PVC 1,5M	NTC 10K	1101-6061-5211-010
RPTF1 NTC20K PVC 1,5M	NTC 20K	1101-6061-6211-010
ACCESSORIES		
SF-M	Metal sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel V4A (1.4404)	7000-0050-2200-100
Extra charge:	2-wire connecting leads, per running meter (PVC) 4-wire connecting leads, per running meter (PVC)	on request on request
For special orders please specify:	Type, sensor type and cable length e.g. RPTF1 Pt100, 3m; RPTF1 Pt1000, 4m; RPTF1 KTY 81-210, 6m	



S+S REGELTECHNIK

THERMASGARD® RPTF 2

Pendulum room temperature sensors
with passive output



Resistance thermometer **THERMASGARD® RPTF 2** with passive output is specifically used for temperature detection in larger rooms and halls, as dark radiation sensor for example. The pendulum room sensor RPTF-2 (globe thermometer) determines the effective portion of active radiation or also the effective radiant heat at the measured location. Due to the measuring method employed by this pendulum room temperature sensor in combination with its positioning in the room, an excellent and room-representative measuring result is achieved. The globe temperature is determined to take heat radiation into consideration and to estimate the degree of thermal comfort (operative room temperature). The operative room temperature describes the coaction of heat radiation and heat convection (the ratio of globe temperature / air temperature is approx. 70 % / 30 %).

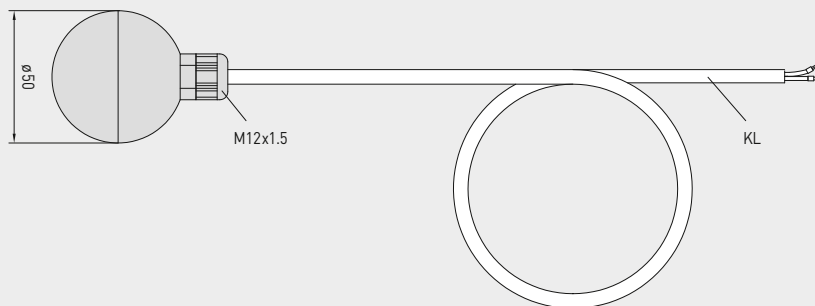
TECHNICAL DATA

Measuring range:	−5...+60 °C
Sensors / output:	see table, passive (optional also with two sensors)
Connection type:	2-wire connection (4-wire connection optional)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Globe:	plastic, colour black, Ø = 50 mm
Connection cable:	PVC, H03VV-F, 2 x 0.5 mm², ends stripped with wire end sleeves KL = approx. 1.5 m (other lengths optional)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Humidity:	< 95 % RH
Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according to EN 60 529)



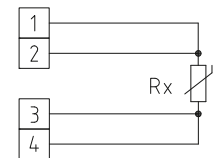
RPTF 2

Dimensional drawing

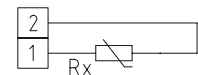


RPTF 2

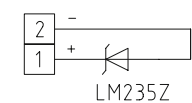
1x four-wire connection (optional)



1x two-wire connection standard



1x two-wire connection LM 235 Z (KP 10)



THERMASGARD® RPTF 2 Pendulum room temperature sensors (with globe)

Type / WG03	Sensor / Output	Item No.
RPTF 2		IP 65
RPTF2 Pt100 PVC 1,5M	Pt100 (according to DIN EN 60 751, class B)	1101-6070-1211-010
RPTF2 Pt1000 PVC 1,5M	Pt1000 (according to DIN EN 60 751, class B)	1101-6070-5211-010
RPTF2 Ni1000 PVC 1,5M	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-6070-9211-010
RPTF2 NiTK PVC 1,5M	Ni1000 TK5000 (TCR = 5000 ppm / K), LG- Ni1000	1101-6071-0211-010
RPTF2 LM235Z PVC 1,5M	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-6072-1211-010
RPTF2 NTC1,8K PVC 1,5M	NTC 1.8K	1101-6071-2211-010
RPTF2 NTC10K PVC 1,5M	NTC 10K	1101-6071-5211-010
RPTF2 NTC20K PVC 1,5M	NTC 20K	1101-6071-6211-010
Extra charge::	2-wire connecting leads, per running meter (PVC) 4-wire connecting leads, per running meter (PVC)	on request on request
For special orders please specify:	Type, sensor type and cable length e. g. RPTF2 Pt100, 3 m; RPTF2 Pt1000, 4 m; RPTF2 KTY 81-210, 6 m	

On-wall radiation temperature sensors with passive output

Resistance thermometer **THERMASGARD® ASTF** with passive output, terminal box housing made of impact-resistant plastic and housing cover with quick-locking screws. This radiation sensor is specifically designed for temperature detection in wet areas or in larger rooms or halls. The on-wall radiation temperature sensor ASTF determines the effective portion of active radiation or the effective radiant heat at the measured location. Due to the measuring method employed by the dark radiation temperature sensor, excellent and room-representative measuring results are achieved.

ASTF

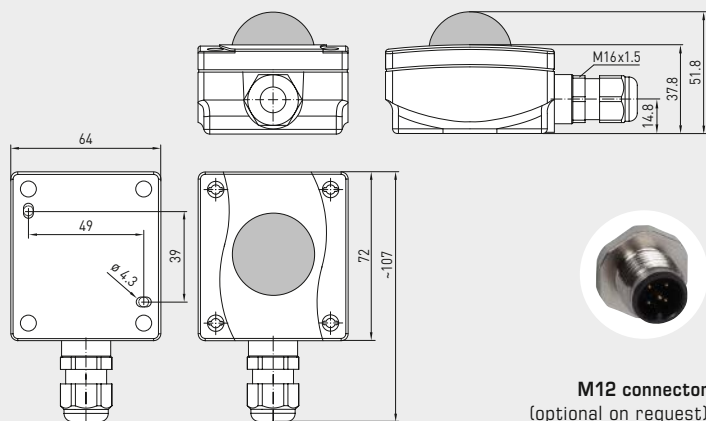


TECHNICAL DATA

Measuring range:	−30 ... +75 °C
Sensors / output:	see table, passive (optional also with two sensors)
Connection type:	2-wire connection (4-wire connection on PT100, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
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), semi-globe: black
Housing dimensions:	72 x 64 x 37.8 (51.8) mm (Tyr 1)
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 mm², via terminal screws
Humidity:	< 95 % RH
Protection class:	III (according to EN 60 730)
Protection type:	IP65 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)

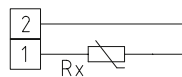
Dimensional drawing

ASTF

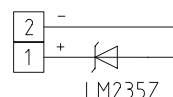


M12 connector
(optional on request)

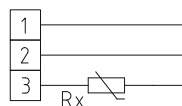
1x two-wire connection standard



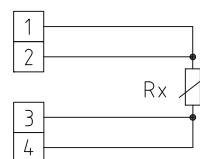
1x two-wire connection LM235Z (KP10)



1x three-wire connection (optional)



1x four-wire connection (optional)



THERMASGARD® ASTF On-wall radiation temperature sensors

Type / WG03	Sensor / Output	Item No.
ASTF		IP65
ASTF Pt100	Pt100 (according to DIN EN 60 751, B)	1101-1060-1003-000
ASTF Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-1060-5001-000
ASTF Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm/K)	1101-1060-9001-000
ASTF NiTK	Ni1000 TK5000 (TCR = 5000 ppm/K), LG-Ni1000	1101-1061-0001-000
ASTF LM235Z	LM235Z (TCR = 10 mV/K; 2.73 V at 0 °C), KP10	1101-1062-1001-000
ASTF NTC1,8K	NTC 1.8 K	1101-1061-2001-000
ASTF NTC10K	NTC 10 K	1101-1061-5001-000
ASTF NTC20K	NTC 20 K	1101-1061-6001-000
Extra charge:	two or other sensors optional cable connection with M12 connector according to DIN EN 61076-2-101	on request on request



S+S REGELTECHNIK

THERMASGARD® RSTF

Room radiation temperature sensors
with passive output

Resistance thermometer **THERMASGARD® RSTF** with passive output 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, specifically used for temperature detection in larger rooms. The room radiation temperature sensor RSTF determines the effective portion of active radiation or the effective radiant heat at the measured location. Due to the measuring method employed by the dark radiation temperature sensor, an excellent and room-representative measuring result is achieved. In addition there is an independent passive output available to determinate the reference temperature.

RSTF



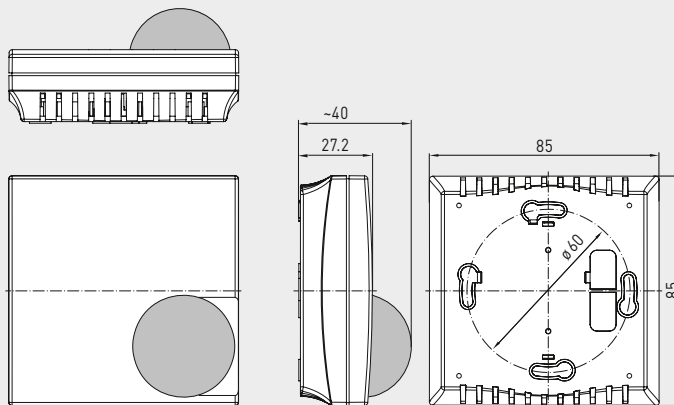
TECHNICAL DATA

Measuring range:	-30...+75 °C
Sensors / output:	see table, passive (optional also with two sensors)
Connection type:	2-wire connection (4-wire connection on PT100, optional on other sensors)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Process connection:	by screws
Housing:	plastic, flame retardant (UL 94 V-0), PC/ABS material, colour white (similar to RAL 9016), Semi-globe: black
Dimensions:	85 x 85 x 27 (40) mm (Baldur 1)
Electrical connection:	0.14 - 1.5 mm², via terminal screws
Humidity:	< 95 % RH
Protection class:	III (according to EN 60 730)
Protection type:	IP 30 (according to EN 60 529)

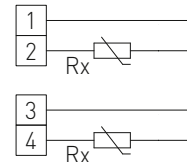
Terminals 3 and 4:
Sensor for reference temperature

Dimensional drawing

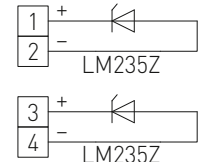
RSTF



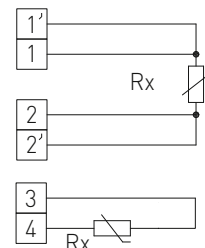
1x two-wire connection
standard



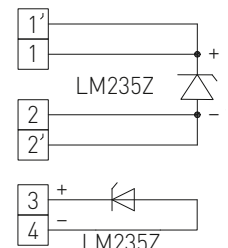
1x two-wire connection
LM235Z (KP 10)



1x four-wire connection
(optional)



1x four-wire connection
(optional)



THERMASGARD® RSTF Room radiation temperature sensors

Type / WG03	Sensor / Output	Item No.
RSTF		IP30
RSTF Pt100	Pt100 (according to DIN EN 60 751, class B)	1101-40C0-1003-000
RSTF Pt1000	Pt1000 (according to DIN EN 60 751, class B)	1101-40C0-5001-000
RSTF Ni1000	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-40C0-9001-000
RSTF NiTK	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-40C1-0001-000
RSTF LM235Z	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-40C2-1001-000
RSTF NTC1,8K	NTC 1.8K	1101-40C1-2001-000
RSTF NTC10K	NTC 10K	1101-40C1-5001-000
RSTF NTC20K	NTC 20K	1101-40C1-6001-000
Extra charge:	two or other sensors optional	on request