S S REGELTECHNIK TM 65-EtherCAT P Immersion Screw-In Duct Temperature Measuring Transducer Instruction Manual

S+S REGELTECHNIK

THERMASGARD® TM 65 – EtherCAT P

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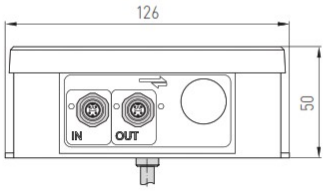
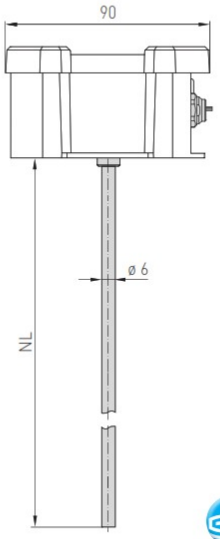
Operating Instructions, Mounting & Installation

Immersion / screw-in / duct temperature measuring transducer, Bluetooth-enabled, with EtherCATP port

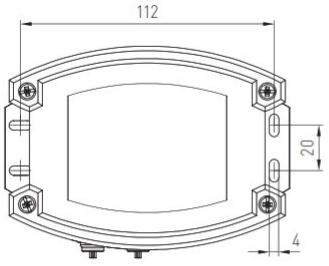
TM65-EtherCATP

Dimensional drawing





M8-plug-in connector
EtherCATP-encoded



High-performance encapsulation against vibration, mechanical stress and humidity

PS-PROTECTION
PERFECT SENSOR PROTECTION

Networkable temperature measuring transducer with sensor tube THERMASGARD® TM65 – EtherCAT P with M8 plug-in connector (EtherCATP-encoded), Bluetooth-enabled, in an impact-resistant plastic housing with quick-locking screws, optionally with / without display and bar graph. The duct sensor is used to detect the temperature in liquid or gaseous media. Use the stainless steel immersion sleeves for aggressive media. It is used in heating engineering, ventilation and air conditioning ducts, pipes, storage systems, compact district heating stations, warm and cold water systems, oil and lubrication cycle systems, machine and systems engineering and the entire industry sector. The sensor is factory-calibrated.

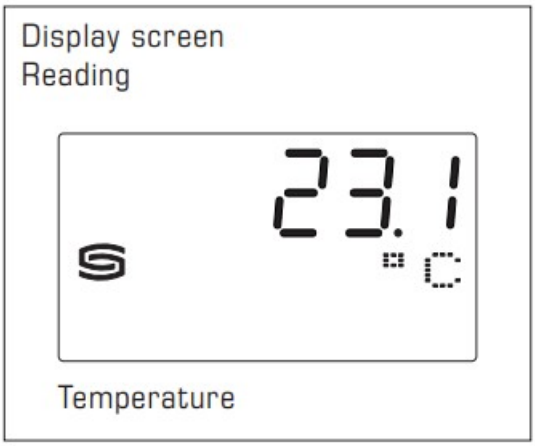
EtherCATP-enabled measuring transducer for industrial requirements with maximum reliability: includes easy PLC integration using the device's ESI configuration file, diagnostics (such as communication failure counter), advanced settings options, access to historical data (min / max) and establishing the sensor's service interval. Optionally with large illuminated display (3-line, customised programming in the 7-segment and dot-matrix range) and bar graph (7-digit, LEDs freely configurable) for graphical display, e.g., as a traffic light indicator.

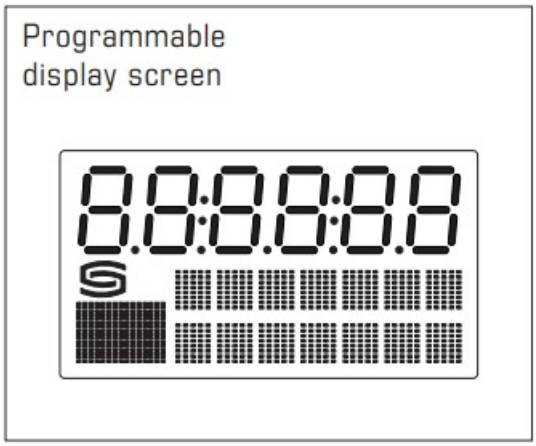
TECHNICAL DATA

Power supply:	24VDC via EtherCATP (Us)
Power consumption:	< 3W
Bus protocol:	EtherCAT
Radio technology:	Bluetooth (LE)
Sensor:	Pt1000, DIN EN 60751, class B (Perfect Sensor Protection)
Measuring range:	—50…+150°C
Deviation in temperature:	Typically ± 0.2K at +25°C
Medium:	Clean air and non-aggressive, non-combustible gases; liquids depending on selected immersion sleeve (accessory)
Protective tube:	Stainless steel,V4A (1.4571), 0=6mm, installation length (IL) = 50-400mm (see table)
Housing:	Plastic, UV-resistant, polyamide material, 30% glass-globe reinforced, with quick-locking screws (slotted/Phillips head combination), colour traffic white (similar to RAL9016), housing cover for display is transparent!
Dimensions:	126 x 90 x 50mm (Tyra
Cable connection:	M8 plug-in connector, EtherCATP-encoded
Ambient temperature:	Measuring transducer —30…+70°C
Permitted humidity:	<95% r. H., non-precipitating air
Protection class:	III (according to EN 60730)
Protection type:	IP 54 (according to EN 60529) when built-in
Standards:	CE conformity, according to EMC Directive 2014/30/EU, according to RED 2014/53/EU
Equipment:	Display with illumination, 3-line, customised programming, cutout approx. W51 x H29mm, to display the actual temperature or a customised display value. Bar graph, 7-digit, LEDs freely configurable, to graphically display the reading.
ACCESSORIES	see last page

Temperature measuring transducer (basic unit), with EtherCATP port

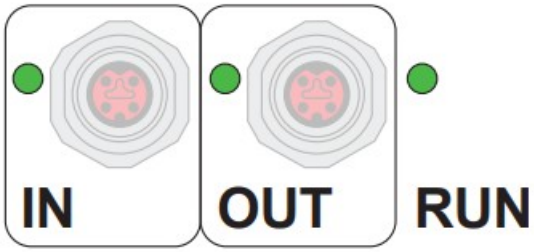
Type/WG02	Measuring Range Temperature	Output	Inserted Length	Bar graph Display	Item No.
TM65•ECATP xx			(EL)		
TM65-ECATP 50mm	-50…+150°C	EtherCATP	50mm	☐ ■	2001-4201-9100-011
TM65-ECATP 50mm LCD				☐ ■	2001-4202-9100-011
TM65-ECATP 100mm	-50…+150°C	EtherCATP	100mm	☐ ■	2001-4201-9100-021
TM65-ECATP 100mm LCD				☐ ■	2001-4202-9100-021
TM65-ECATP 150mm	-50…+150°C	EtherCATP	150mm	☐ ■	2001-4201-9100-031
TM65-ECATP 150mm LCD				☐ ■	2001-4202-9100-031
TM65-ECATP 200mm	-50…+150°C	EtherCATP	200mm	☐ ■	2001-4201-9100-041
TM65-ECATP 200mm LCD				☐ ■	2001-4202-9100-041
TM65-ECATP 250mm	-50…+150°C	EtherCATP	250mm	☐ ■	2001-4201-9100-051
TM65-ECATP 250mm LCD				☐ ■	2001-4202-9100-051
TM65-ECATP 300mm	-50…+150°C	EtherCATP	300mm	☐ ■	2001-4201-9100-061
TM65-ECATP 300mm LCD				☐ ■	2001-4202-9100-061
TM65-ECATP 400mm	-50…+150°C	EtherCATP	400mm	☐ ■	2001-4201-9100-081
TM65-ECATP 400mm LCD				☐ ■	2001-4202-9100-081





Use the EtherCAT interface to program the LCD display.
With only one output value selected, the display is static; with several values selected, the display is cyclical with one after the other.
In the first line the value is displayed and in the second line the corresponding unit. The third line is empty by default if there are no customised inputs.

The entire display in the 7-segment range as well as in the dot-matrix range can be customised.
When the supply voltage is applied, the device performs a function test for the display and bar graph.
This takes approximately 30 seconds, after which the device is ready for operation.
In the absence of a bus connection to the device, the message “ERR no link” appears in the display.



Ether CAT P	**LED status display**
1.LED	**“IN”**
off	no connection to upstream EtherCAT module
illuminated	LINK: connection to upstream EtherCAT module
blinking	ACT: communication with upstream EtherCAT module
2.LED	**“OUT”**
off	no connection to downstream EtherCAT module
illuminated	LINK: connection to downstream EtherCAT module
blinking	ACT: communication with downstream EtherCAT module
3.LED	**“RUN”**
off	EtherCAT module is in “Init” state
quickly blinking	EtherCAT module is in “Pre-Operational” state
slowly blinking	EtherCAT module is in “Safe-Operational” state
illuminated	EtherCAT module is in “Operational” state
The status LEDs are next to the cable connection.	

Installation and Commissioning

Notes regarding mechanical mounting and attachment:
Mounting shall take place while observing all relevant regulations and standards applicable for the place of measurement (e.g. such as welding instructions, etc.). Particularly the following shall be regarded:

- VDE / VDI directive technical temperature measurements, measurement set
- up for temperature measurements.
- The EMC directives must be adhered to.
- It is imperative to avoid parallel laying of current-carrying lines.
- We recommend to use shielded cables with the shielding being attached at one side to the DDC / PLC.

- If the sensor is used in refrigeration circuits, it must be insulated together with the housing to reduce the temperature potential between the device and the medium to a minimum and thus prevent condensation damage.

Before mounting, make sure that the existing thermometer‘s technical parameters comply with the actual conditions at the place of utilization, in particular in respect of:

- Measuring range
- Permissible maximum pressure, flow velocity
- Oscillations, vibrations, shocks are to be avoided (< 0.5 g)

SAFETY REGULATIONS
These devices shall only be used for their intended purpose. Respective safety regulations issued by the VDE, the states, their control authorities, the TÜV and the local energy supply company must be observed. The buyer has to ensure adherence to the building and safety regulations and has to avoid all dangers of any kind. We do not assume any warranty for faults or damages arising or resulting from improper use of our equipment or from non-observance of operating instructions. These instruments
must be installed by authorised specialists only!
Preferably shielded cables should be used in order to prevent damages / errors. It is imperative to avoid laying parallel with current-carrying lines. EMC directives must be adhered to.
Notes on commissioning:
This device was calibrated, adjusted and tested under standardised conditions. When operating under deviating conditions, we recommend performing an initial manual adjustment on-site during commissioning and subsequently at regular intervals.
Commissioning is mandatory and may only be performed by qualified personnel!

General notes

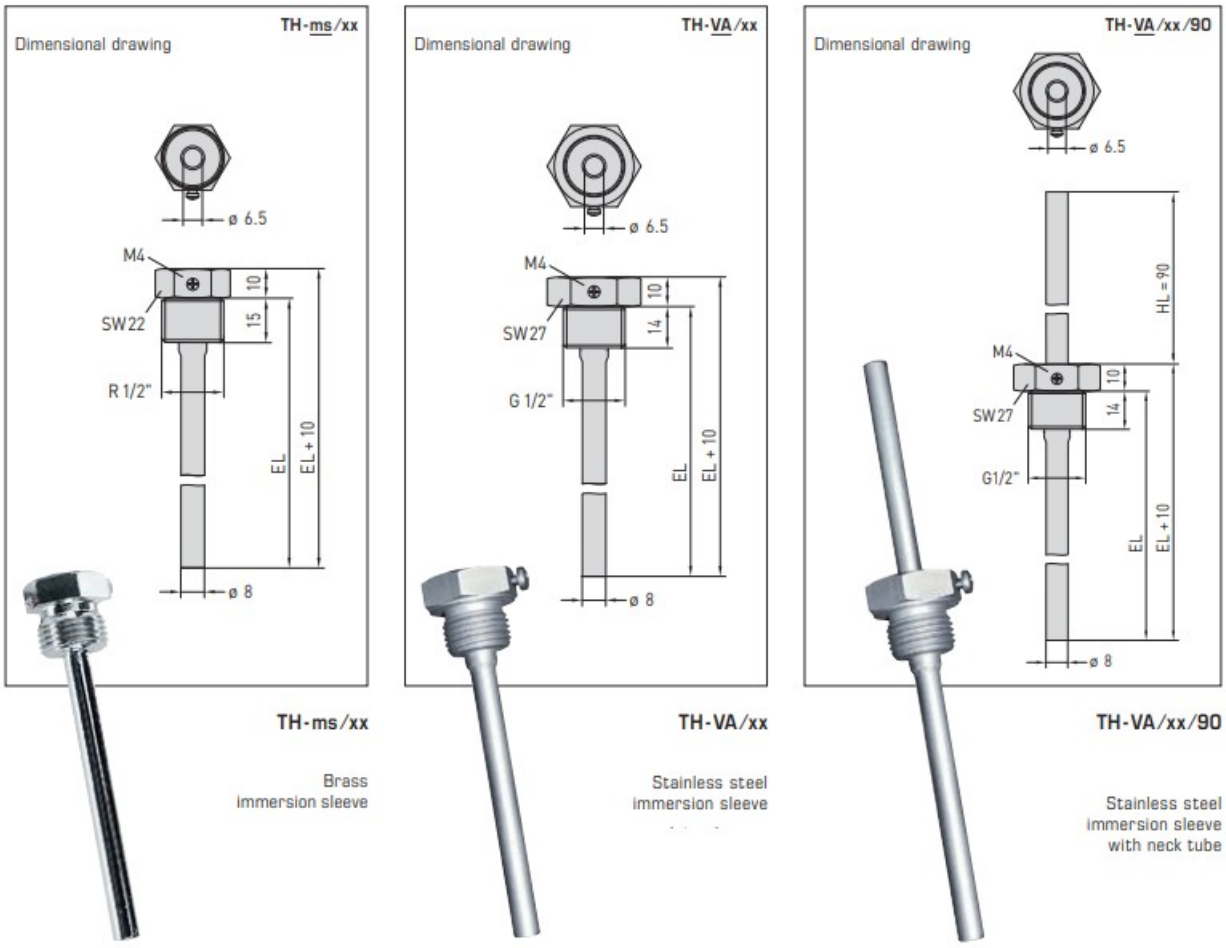
Our “General Terms and Conditions for Business“ together with the “General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry“ (ZVEI conditions) including supplementary clause “Extended Retention of Title“ apply as the exclusive terms and conditions.
In addition, the following points are to be observed:

- These instructions must be read before installation and putting in operation and all notes provided therein are to be regarded!
- A suitable weather and sun protection hood must be used when installed outdoors.
- Devices must only be connected to safety extra-low voltage and under dead-voltage condition. To avoid damages and errors at the device (e.g. by voltage induction) shielded cables are to be used, laying parallel with current-carrying lines is to be avoided, and EMC directives are to be observed.
- This device shall only be used for its intended purpose. Respective safety regulations issued by the VDE, the states, their control authorities, the TÜV and the local energy supply company must be observed. The purchaser has to adhere to the building and safety regulations and has to prevent perils of any kind.
- No warranties or liabilities will be assumed for defects and damages arising from improper use of this device.
- Consequential damages caused by a fault in this device are excluded from warranty or liability.
- These devices must be installed and commissioned by authorised specialists.
- The technical data and connecting conditions of the mounting and operating instructions delivered together with the device are exclusively valid. Deviations from the catalogue representation are not explicitly mentioned and are possible in terms of technical progress and continuous improvement of our products.
- In case of any modifications made by the user, all warranty claims are forfeited.

- This device must not be installed close to heat sources (e.g. radiators) or be exposed to their heat flow. Direct sun irradiation or heat irradiation by similar sources (powerful lamps, halogen spotlights) must absolutely be avoided.
- Operating this device close to other devices that do not comply with EMC directives may influence functionality.
- This device must not be used for monitoring applications, which serve the purpose of protecting persons against hazards or injury, or as an EMERGENCY STOP switch for systems or machinery, or for any other similar safety-relevant purposes.
- Dimensions of housings or housing accessories may show slight tolerances on the specifications provided in these instructions.
- Modifications of these records are not permitted.
- In case of a complaint, only complete devices returned in original packing will be accepted.

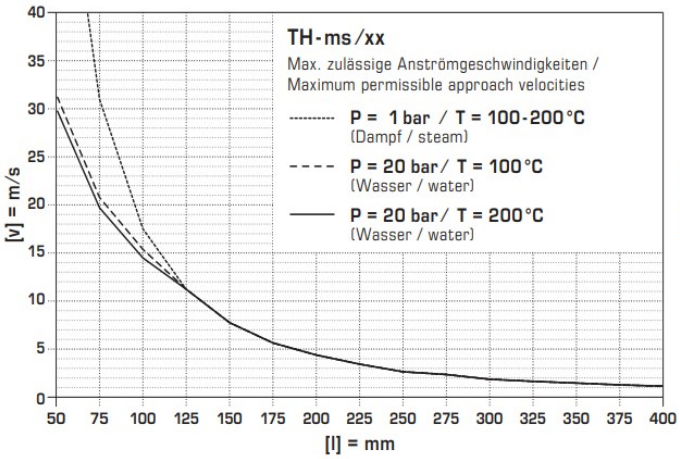
These instructions must be read before installation and commissioning and all notes provided therein are to be regarded!

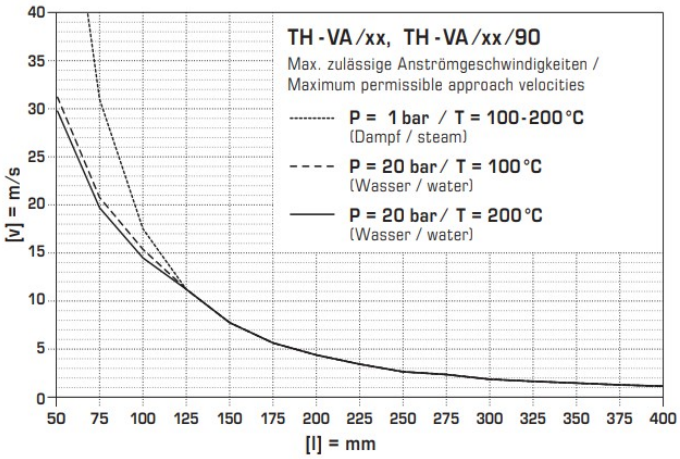
THERMASGARD® TH

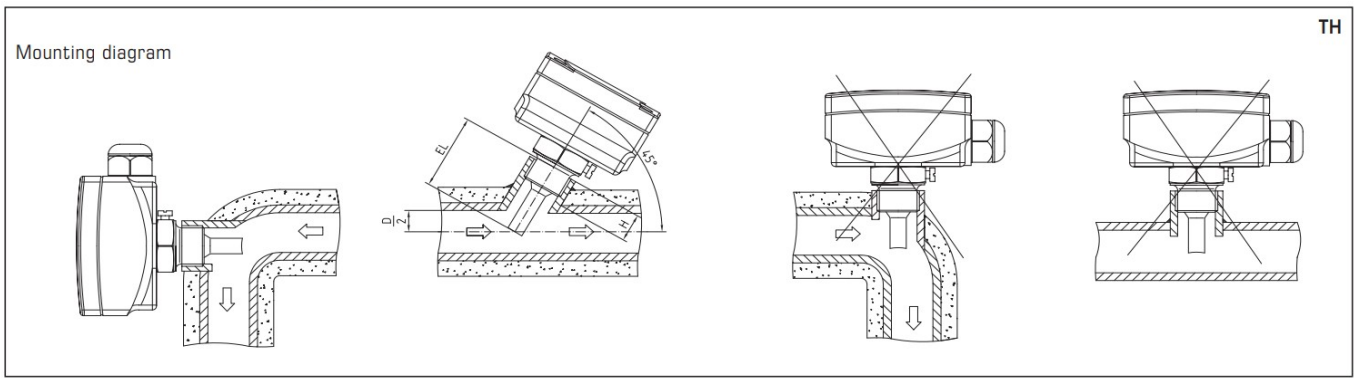


Subject to errors and technical changes. All statements and data herein represent our best knowledge at date of publication. They are only meant to inform about our products and their application potential, but do not imply any warranty as to certain product characteristics. Since the devices are used under a wide range of different conditions and loads beyond our control, their particular suitability must be verified by each customer and/or end user themselves. Existing property rights must be observed. We warrant the faultless quality of our products as stated in our General Terms and Conditions.
Permissible approach velocities (flow rates) for crosswise approached protective tubes in water.

The approaching flow causes protective tube to vibrate. If specified approach velocity is exceeded even by a marginal amount, a negative impact on the protective tube‘s service life may result (material fatigue). Discharge of gases and pressure surges must be avoided as they have a negative influence on the service life and may damage the protective tubes irreparably.
Please observe maximum permissible approach velocities for stainless steel protective tubes 8 x 0.75 mm (1.4571) (see graph TH – VA / xx, TH – VA / xx / 90) as well as for brass protective tubes 8 x 0.75 mm (see graph TH – ms / xx)







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Documents / Resources

	S S REGELTECHNIK TM 65-EtherCAT P Immersion Screw-In Duct Temperature Measuring Transducer [pdf] Instruction Manual TM 65 EtherCAT P Immersion Screw-In Duct Temperature Measuring Transducer, TM 65-Ether CAT P, Immersion Screw-In Duct Temperature Measuring Transducer, Screw-In Duct Temperature Measuring Transducer, Temperature Measuring Transducer, Measuring Transducer, Transducer

References

- S+S Regeltechnik | Ihr sensorik Partner
- User Manual