

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

Calibratable sleeve temperature measuring transducer **THERMASGARD® HFTM-Modbus-T3**, with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, cable sensor with a stainless steel sleeve, optionally with /without display, measures temperature (–50...+150 °C). International system of units **SI** (default) can be changed to **imperial** (via Modbus).

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

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

TECHNICAL DATA

Voltage supply:	24 V AC (± 20%); 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
System of units:	SI (default) or Imperial (switchable via Modbus)
Data points:	Temperature [°C] [°F]
Sensor:	Pt1000, DIN EN 60751, class B (Perfect Sensor Protection)
Measuring range:	–50...+150 °C
Deviation, temperature:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 °C
Ambient temperature:	Measuring transducer –30...+70 °C
Medium:	clean air and non-aggressive, non-combustible gases; liquids depending on selected immersion sleeve (accessory)
Bus protocol:	Modbus (RTU mode), address range 0... 247 selectable
Baud rate:	9600, 19200, 38400 Baud
Signal filtering:	0.3 s / 1 s / 10 s
Sensor protection:	Sensor sleeve made from stainless steel V4A (1.4571), Ø = 6 mm, nominal length (NL) = 50 mm (optional 30...400 mm)
Sensor cable:	silicone, SiHF, 2x 0.25 mm²; cable length (KL) = 1.5 m (other lengths and jacket materials, e.g. PTFE or glass fibre with steel mesh, available on request)
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	cable gland , plastic (2x M20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) or M12 connector according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Permissible air humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type housing:	IP65 (according to EN 60 529)
Protection type sensor:	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)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Features:	Display with illumination , three-line, programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value
Internal diagnostics:	Error 1 at sensor breakage Error 2 at sensor short circuit

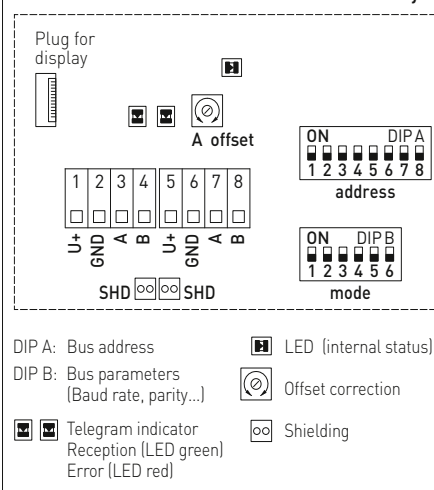
HFTM-Modbus-T3



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



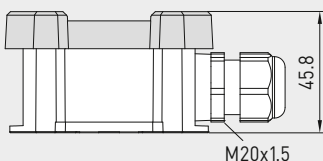
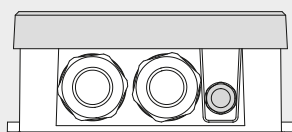
Schematic diagram

Modbus
Tyr 3Programmable
display screenModbus
Tyr 3

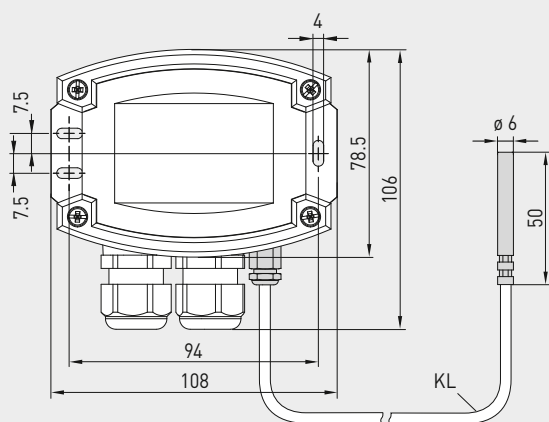
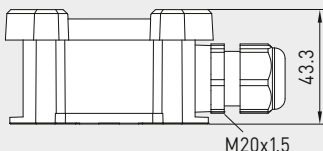
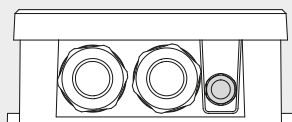
Dimensional drawing
[mm]

HFTM - Modbus - T3

with display



without display



HFTM - Modbus - T3
with display



IP65 (standard)
humidity-tight

IP68 (optional)
water-tight
Perfect Sensor Protection

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



High-performance encapsulation against
vibration, mechanical stress and humidity



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

Type / WG01	Sensor	Output	Type	Display	Item No.
HFTM - Modbus - T3					
HFTM-Modbus-T3	Pt1000	Modbus	Remote sensor		1101-62A6-0210-000
HFTM-Modbus-T3 LCD	Pt1000	Modbus	Remote sensor		1101-62A6-4210-000
Extra charge:	Protection type IP68 (sensor sleeve watertight compound-filled) per running metre of connecting lead (silicone/PTFE/glass fibre) other protection sleeve lengths optional Cable connection with M12 connector according to DIN EN 61076-2-101				on request on request on request
Note:	System of units SI (default) or imperial (can be changed via Modbus).				
ACCESSORIES					
KA2-Modbus	Communication adapter (USB/RS485) for system connection				1906-1200-0000-100
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination				1906-1300-0000-100
THE-xx	Immersion sleeve , stainless steel V4A (1.4571) or nickel-plated brass, Ø=9 mm, inner diameter of socket 5.2 mm, with adjusting screw M12 x1.5				
For further information, see last chapter Accessories!					