HYGRASGARD® **AFTF - Modbus - T3**

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

NEW

S+S REGELTECHNIK

Calibratable outside humidity and temperature sensor **HYGR**ASGARD® **AFTF-Modbus-T3** with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, optionally with / without display, with a plastic sinter filter (exchangeable).

The sensor is used to detect various parameters in humidity measurement. It measures the relative humidity (0...100% r.H.) and the temperature (−35...+80 °C) of the ambient air. These measurands are used to internally calculate the following parameters that can be retrieved via Modbus: relative humidity [% r. H.], absolute humidity [g/m³], mixture ratio [g/kg], dew point temperature [°C], enthalpy [kJ/kg] (ignoring atmospheric air pressure) and ambient temperature [°C]. A long-term stable, digital sensor guarantees exact measurement results.

The on-wall sensor is applied in a non-aggressive, dust-free environment. It is used in the refrigeration, air conditioning and clean room technology, engineering rooms, hotels and conference facilities.

Innovative Modbus sensor with galvanically separated RS485-Modbus-interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated; with customised programming in the 7-segment and dot-matrix range). The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.
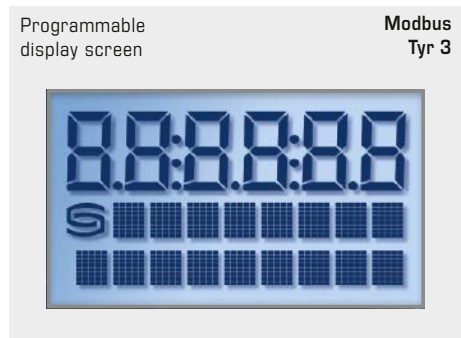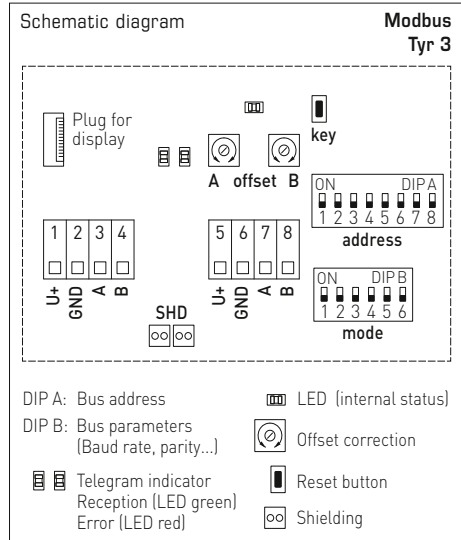
AFTF-Modbus-T3

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

TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Data points:	Temperature [°C], relative humidity [% r.H.], dew point [°C], absolute humidity [g / m³], mixture ratio [g / kg], enthalpy [kJ / kg]
Sensors:	**digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
Sensor protection:	plastic sinter filter, Ø 14 mm, L = 25 mm, exchangeable
Measuring range:	0...100 % r.H. (humidity) −35...+80 °C (temperature)
Deviation, humidity:	typically **± 2.0** % (20...80 % r. H.) at +25 °C, otherwise ± 3.0 %
Temperature deviation:	typically ± 0.4 K at +25 °C
Zero point offset:	± 10 % r.H. (humidity); ± 5 °C (temperature)
Ambient temperature:	−30...+70 °C
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0...**247** selectable
Housing:	plastic, UV-stabilised, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	108 x 78.5 x 43.3 mm (Tyr 3 without display) 108 x 78.5 x 45.8 mm (Tyr 3 with display)
Cable connection:	**cable gland**, plastic (2x M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Process connection:	by screws
Electrical connection:	0.2 - 1.5 mm², using push-in terminals
Long-term stability:	± 1 % / year
Permissible air humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Optional:	**Display with illumination**, three-line, programmable, cutout approx. 51 x 29 mm (W x H), for displaying the actual humidity and actual temperature (cyclic) or a selectable parameter (static) or an individually programmable display value
ACCESSORIES	see table

Schematic diagram — Modbus Tyr 3

Plug for display

key

A offset B

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

1	2	3	4
U+	GND	A	B

SHD

5	6	7	8
U+	GND	A	B

ON   DIP B
1 2 3 4 5 6
mode

DIP A: Bus address
DIP B: Bus parameters (Baud rate, parity...)
Telegram indicator Reception (LED green) Error (LED red)

LED (internal status)
Offset correction
Reset button
Shielding

Programmable display screen — Modbus Tyr 3

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Dimensional drawing
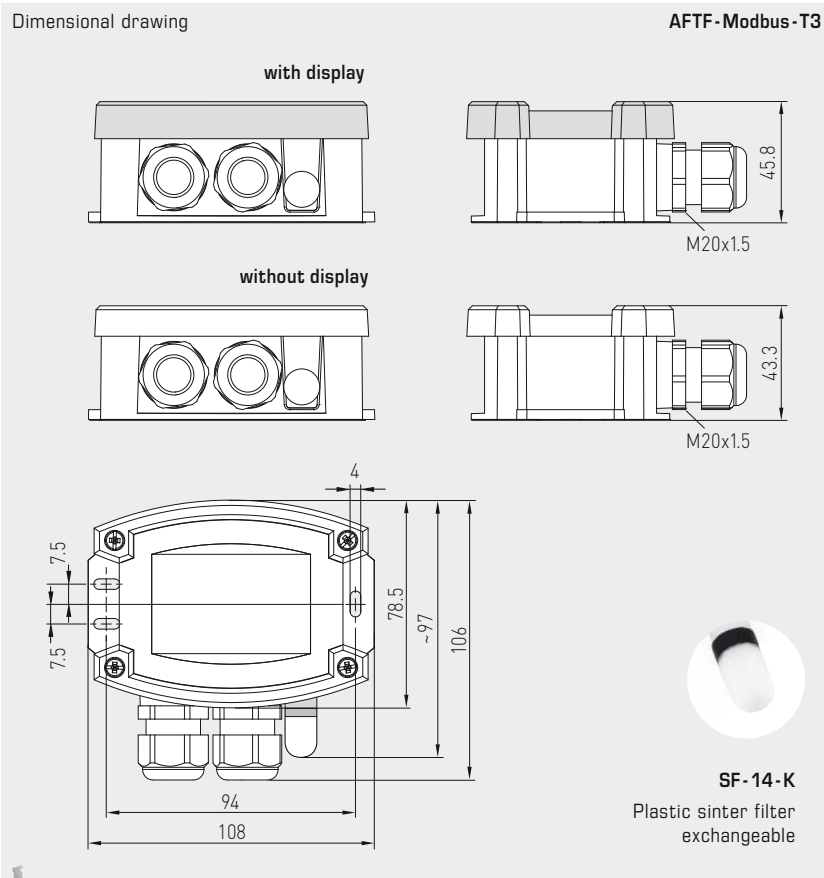
AFTF - Modbus - T3

AFTF - Modbus - T3
with display

with display

without display

M20x1.5

45.8

M20x1.5

43.3

SF - 14 - K
Plastic sinter filter
exchangeable

WS-04
Weather and sun
protection hood
(optional)

HYGRASGARD® **AFTF - Modbus - T3** On-wall- humidity- and temperature sensors (± 2.0 %)

Type / WG01	Measuring Range / Readout Humidity (switchable)	Temperature	Output Display		Item No.	Price
AFTF - Modbus - T3						
AFTF-MODBUS-T3	0 …100 % r. H. (default) 0 … 80 g / kg (MV) 0 … 80 g / m³ (a.F.) 0 … 85 kJ / kg (ENT.) −20…+80 °C (TP)	−35…+80 °C	Modbus		1201-12C6-1000-000	**182,51 €**
AFTF-MODBUS-T3 LCD	(5 x as above)	(1 x as above)	Modbus	■	1201-12C6-1400-000	**230,07 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101				on request	

ACCESSORIES			
KA2-Modbus	**Communication adapter** (USB/RS485) for system connection	1906-1200-0000-100	**185,00 €**
LA-Modbus	**Line termination device** (with terminating resistor) as an active bus termination	1906-1300-0000-100	**69,00 €**
WS-01	**Sun and ball-impact protection hood,** 184 x 180 x 80 mm, stainless steel **V2A** (1.4301)	7100-0040-2000-000	**27,47 €**
WS-04	**Weather and sun protection hood,** 130 x 180 x 135 mm, stainless steel **V2A** (1.4301)	7100-0040-7000-000	**32,41 €**
	For further information, see last chapter Accessories!		