

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

Calibratable outside humidity and temperature sensor **HYGRASGARD® 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 ($-35...+80\text{ }^{\circ}\text{C}$) 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/m^3], mixture ratio [g/kg], dew point temperature [$^{\circ}\text{C}$], enthalpy [kJ/kg] (ignoring atmospheric air pressure) and ambient temperature [$^{\circ}\text{C}$]. 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.

TECHNICAL DATA

Voltage supply:	24 V AC ($\pm 20\%$) and 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
Data points:	Temperature [$^{\circ}\text{C}$], relative humidity [% r.H.], dew point [$^{\circ}\text{C}$], absolute humidity [g/m^3], 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, $\varnothing$ 14 mm, L = 25 mm, exchangeable
Measuring range:	0...100% r.H. (humidity) $-35...+80\text{ }^{\circ}\text{C}$ (temperature)
Deviation, humidity:	typically $\pm 2.0\%$ (20...80% r.H.) at $+25\text{ }^{\circ}\text{C}$, otherwise $\pm 3.0\%$
Temperature deviation:	typically $\pm 0.4\text{ K}$ at $+25\text{ }^{\circ}\text{C}$
Zero point offset:	$\pm 10\%$ r.H. (humidity); $\pm 5\text{ }^{\circ}\text{C}$ (temperature)
Ambient temperature:	$-30...+70\text{ }^{\circ}\text{C}$
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0...247 selectable
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)
Process connection:	by screws
Electrical connection:	0.2 - 1.5 mm ² , using push-in terminals
Long-term stability:	$\pm 1\%$ / 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

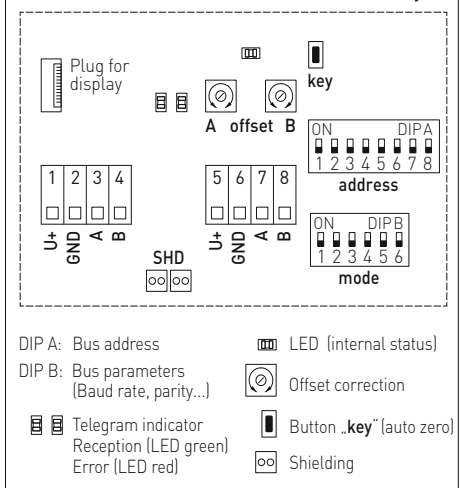
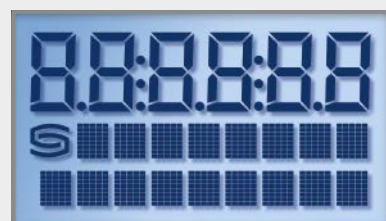
AFTF-Modbus-T3



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



Schematic diagram

Modbus
Tyr 3Programmable
display screenModbus
Tyr 3



S+S REGELTECHNIK

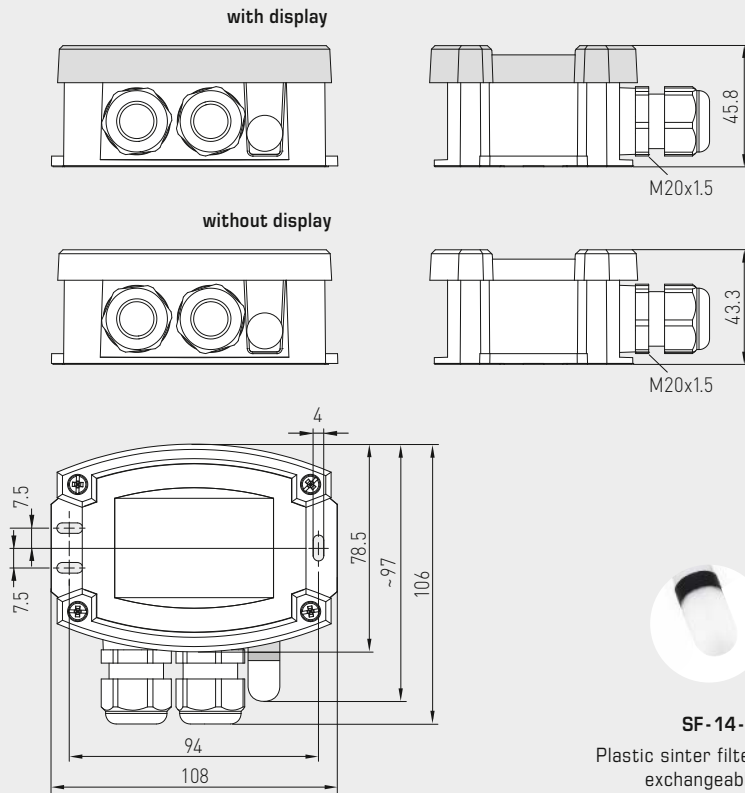
HYGRASGARD® AFTF-Modbus-T3

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Dimensional drawing

AFTF-Modbus-T3

AFTF-Modbus-T3
with display



WS-04
Weather and sun
protection hood
(optional)



HYGRASGARD® AFTF-Modbus-T3 On-wall-humidity- and temperature sensors ($\pm 2.0\%$)

Type / WG01	Measuring Range / Readout	Temperature	Output	Display	Item No.
	Humidity (switchable)				
AFTF-Modbus-T3					
AFTF-Modbus-T3	0 ... 100% r. H. (default) 0 ... 80 g / kg (MV) 0 ... 80 g / m ³ (a.F.) 0 ... 85 kJ / kg (ENT.) -20 ... +80 °C (TP)	-35 ... +80 °C	Modbus		1201-12C6-1000-000
AFTF-Modbus-T3 LCD	(5 x as above)	(1 x as above)	Modbus	■	1201-12C6-1400-000
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
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination	1906-1300-0000-100
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 Accessories!		