

# HYGRASGARD® AFTF-Modbus-T3

## HYGRASGARD® AFTF-wModbus



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

S+S REGELTECHNIK

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), to exactly detect the relative humidity (0...100% RH) and the temperature (-35...+80 °C) and to detect various parameters in humidity measurement. International system of units **SI** (default) can be switched to **Imperial** (via Modbus). With **wModbus** device version, the W-Modbus (Wireless) replaces the RTU cable; the BMS connection is radio-based using a W-Modbus gateway.

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. A long-term stable, **digital humidity and temperature sensor** guarantee exact measurement results. These measurands are used to internally calculate the following parameters that can be retrieved via Modbus: relative humidity, absolute humidity, mixture ratio, dew point, enthalpy (ignoring atmospheric air pressure) and ambient temperature.

**Innovative Modbus sensor** with galvanically isolated RS485 Modbus interface, switchable bus terminating resistor, DIP switch for setting in current-free state, internal LEDs for telegram status display, push-in terminals and large three-line display (illuminated, individually programmable). The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

**AFTF-Modbus-T3**  
without display  
(RTU cable)



**AFTF-wModbus**  
without display  
(wireless)



### TECHNICAL DATA

Power supply:	24 V AC ( $\pm 20\%$ ); 15...36 V DC
Power consumption:	< 1.2 W / 24 V DC; < 1.8 VA / 24 V AC
System of units:	<b>SI</b> (default) or <b>Imperial</b> (switchable via Modbus)
Data points:	temperature [°C] [°F], relative humidity [% RH], absolute humidity [g/m <sup>3</sup> ] [gr/ft <sup>3</sup> ], dew point [°C] [°F], mixture ratio [g/kg] [gr/lb], enthalpy [kJ/kg] [Btu/lb]
Sensor:	<b>digital humidity sensor with integrated temperature sensor</b> , low hysteresis, high long-term stability
Measuring range:	0...100% RH (humidity); -35...+80 °C (temperature)
Accuracy, humidity:	typically $\pm 2.0\%$ (20...80% RH) at +25 °C, otherwise $\pm 3.0\%$
Accuracy, temperature:	typically $\pm 0.4$ K at +25 °C
Zero point offset:	$\pm 10$ % RH (humidity); $\pm 5$ °C (temperature)
Ambient temperature:	-30...+70 °C
Medium:	clean air and non-aggressive, non-combustible gases
Communication:	<b>Modbus</b> (RTU cable), Bus interface RS 485, <b>galvanically isolated</b> , Baud rate 9600, 19200, 38400 baud or <b>W-Modbus</b> (Wireless Modbus, AES-128 encrypted) Frequency <b>2.4 GHz</b> ISM, Transmission power <b>100 mW</b> , Range <b>max. 500 m</b> (open field) / approx. 50-70 m (inside buildings)
Bus protocol:	Modbus (RTU mode), address range 0... <b>247</b> adjustable
Signal filtering:	4 s / 32 s
Sensorschutz:	<b>plastic sinter filter</b> , $\varnothing$ 13 mm, L = 28 mm
Schutzrohr:	<b>made from stainless steel V2A</b> (1.4301), $\varnothing$ 13 mm, NL = 46 mm
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:	<b>cable gland</b> , plastic (M20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) or <b>M12 connector</b> according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.2 - 1.5 mm <sup>2</sup> , using push-in terminals
Process connection:	by screws
Permissible air humidity:	< 95% RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	<b>IP 65</b> (according to EN 60 529)
Standards (Modbus):	CE conformity according to EMC Directive 2014 / 30 / EU
Standards (W-Modbus):	CE conformity according to Radio Directive 2014 / 53 / EU
Features:	<b>display with illumination</b> , 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

Programmable display screen **Tyr 3**





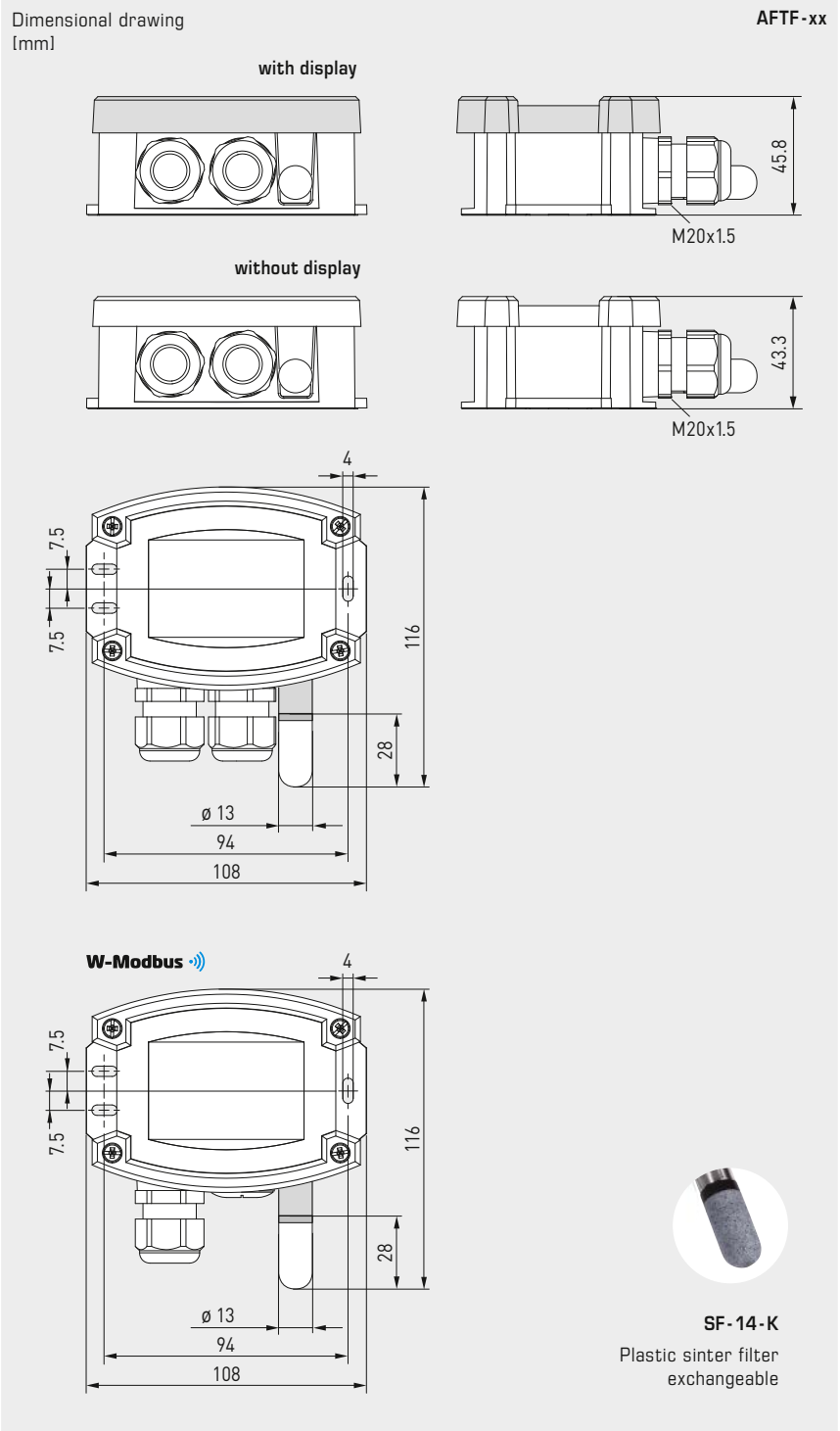
**NEW**

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**AFTF-Modbus-T3**  
with display  
(RTU cable)



**AFTF-wModbus**  
with display  
(wireless)



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



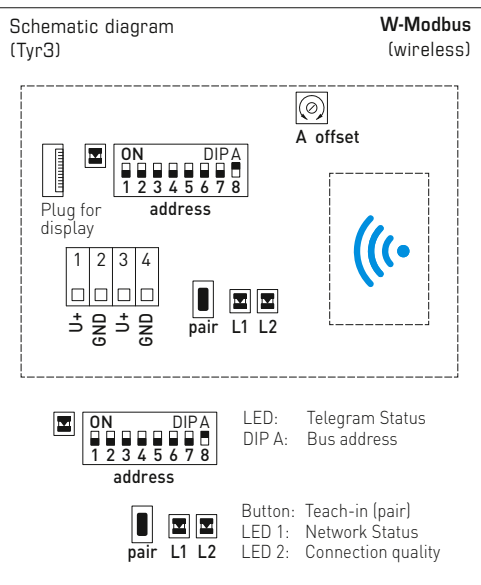
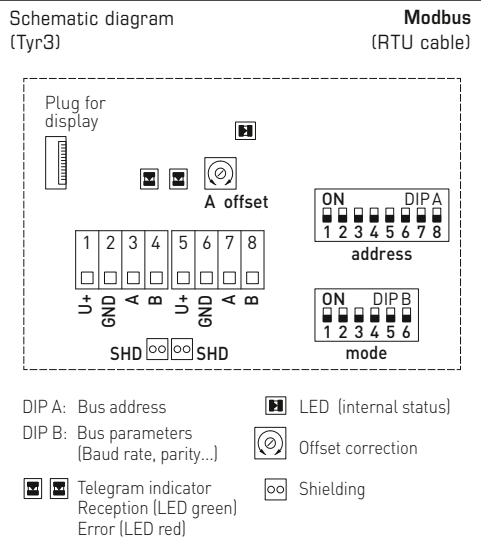
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**GW-wModbus (Pro)**  
Gateway with W-Modbus module,  
for radio-based connection to Modbus networks



**WS-04**  
Weather and sun protection hood  
(optional)



**WS-01**  
Sun and ball-impact protection hood  
(optional)





**NEW**

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# HYGRASGARD® AFTF-Modbus-T3 HYGRASGARD® AFTF-wModbus

On-wall-humidity- and temperature sensors ( $\pm 2.0\%$ ),  
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**AFTF-wModbus**  
with / without display  
(wireless)

**AFTF-Modbus-T3**  
with / without display  
(RTU cable)



HYGRASGARD®  
AFTF-Modbus-T3  
AFTF-wModbus

On-wall-humidity- and temperature sensors ( $\pm 2.0\%$ )  
with Modbus connection (RTU cable) or  
with W-Modbus (wireless)

**Modbus  
W-Modbus**

Type / WG01	Measuring Range / Readout Humidity (switchable)	Temperature	Output	Display	Item No.
<b>AFTF-Modbus-T3</b>					
AFTF-Modbus-T3	0...100% RH (default) 0...80 g/kg (MV) 0...80 g/m <sup>3</sup> (AH) 0...85 kJ/kg (ENT.) 0...+50°C (DP)	-35...+80°C	Modbus (RTU cable)		1201-12C6-1000-000
AFTF-Modbus-T3 LCD	(5x as above)	(1x as above)	Modbus (RTU cable)	■	1201-12C6-1400-000
<b>AFTF-wModbus</b>					
AFTF-wModbus	0...100% RH (default) 0...80 g/kg (MV) 0...80 g/m <sup>3</sup> (AH) 0...85 kJ/kg (ENT.) 0...+50°C (DP)	-35...+80°C	W-Modbus (wireless)		1201-12CF-1000-000
AFTF-wModbus LCD	(5x as above)	(1x as above)	W-Modbus (wireless)	■	1201-12CF-1400-000
Extra charge:	Cable connection with <b>M12 connector</b> according to DIN EN 61076-2-101				on request
<b>Note:</b>	System of units <b>SI</b> (default) or <b>imperial</b> (can be changed via Modbus).				

## MODBUS ACCESSORIES

<b>GW-wModbus</b>	Gateway with W-Modbus (Wireless) for radio-based connection to Modbus networks, operating modes ' <b>Gateway</b> ' (basic function as a base station) and ' <b>Node</b> ' (adapter function for max. 1 wired sensor)	1801-1211-1101-000
<b>GW-wModbus Pro</b>	and ' <b>Node Pro</b> ' (adapter function for max. 16 wired sensors)	1801-1211-1101-100
<b>KA2-Modbus</b>	<b>Communication adapter</b> (USB/RS485) for system connection	1906-1200-0000-100
<b>LA-Modbus</b>	<b>Line termination device</b> (with terminating resistor) as an active bus termination	1906-1300-0000-100
For further information see the end of the chapter!		

## ACCESSORIES

<b>WS-01</b>	<b>Sun and ball-impact protection hood</b> , 184 x 180 x 80 mm, stainless steel <b>V2A</b> (1.4301)	7100-0040-2000-000
<b>WS-04</b>	<b>Weather and sun protection hood</b> , 130 x 180 x 135 mm, stainless steel <b>V2A</b> (1.4301)	7100-0040-7000-000
For further information, see last chapter Accessories!		