

**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)**

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:	SI (default) or Imperial (switchable via Modbus)
Data points:	temperature [°C] [°F], relative humidity [% RH], absolute humidity [g/m ³] [gr/ft ³], dew point [°C] [°F], mixture ratio [g/kg] [gr/lb], enthalpy [kJ/kg] [Btu/lb]
Sensor:	digital humidity sensor with integrated temperature sensor , 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 ± 0.4 K at +25 °C
Zero point offset:	± 10 % RH (humidity); ± 5 °C (temperature)
Ambient temperature:	-30...+70 °C
Medium:	clean air and non-aggressive, non-combustible gases
Communication:	Modbus (RTU cable), Bus interface RS 485, galvanically isolated , Baud rate 9600, 19200, 38400 baud or W-Modbus (Wireless Modbus, AES-128 encrypted) Frequency 2.4 GHz ISM, Transmission power 100 mW , Range max. 500 m (open field) / approx. 50-70 m (inside buildings)
Bus protocol:	Modbus (RTU mode), address range 0... 247 adjustable
Signal filtering:	4 s / 32 s
Sensorschutz:	plastic sinter filter , \varnothing 13 mm, L = 28 mm
Schutzrohr:	made from stainless steel V2A (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:	cable gland , plastic (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 mm ² , 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:	IP 65 (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:	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

Programmable display screen

Tyr 3





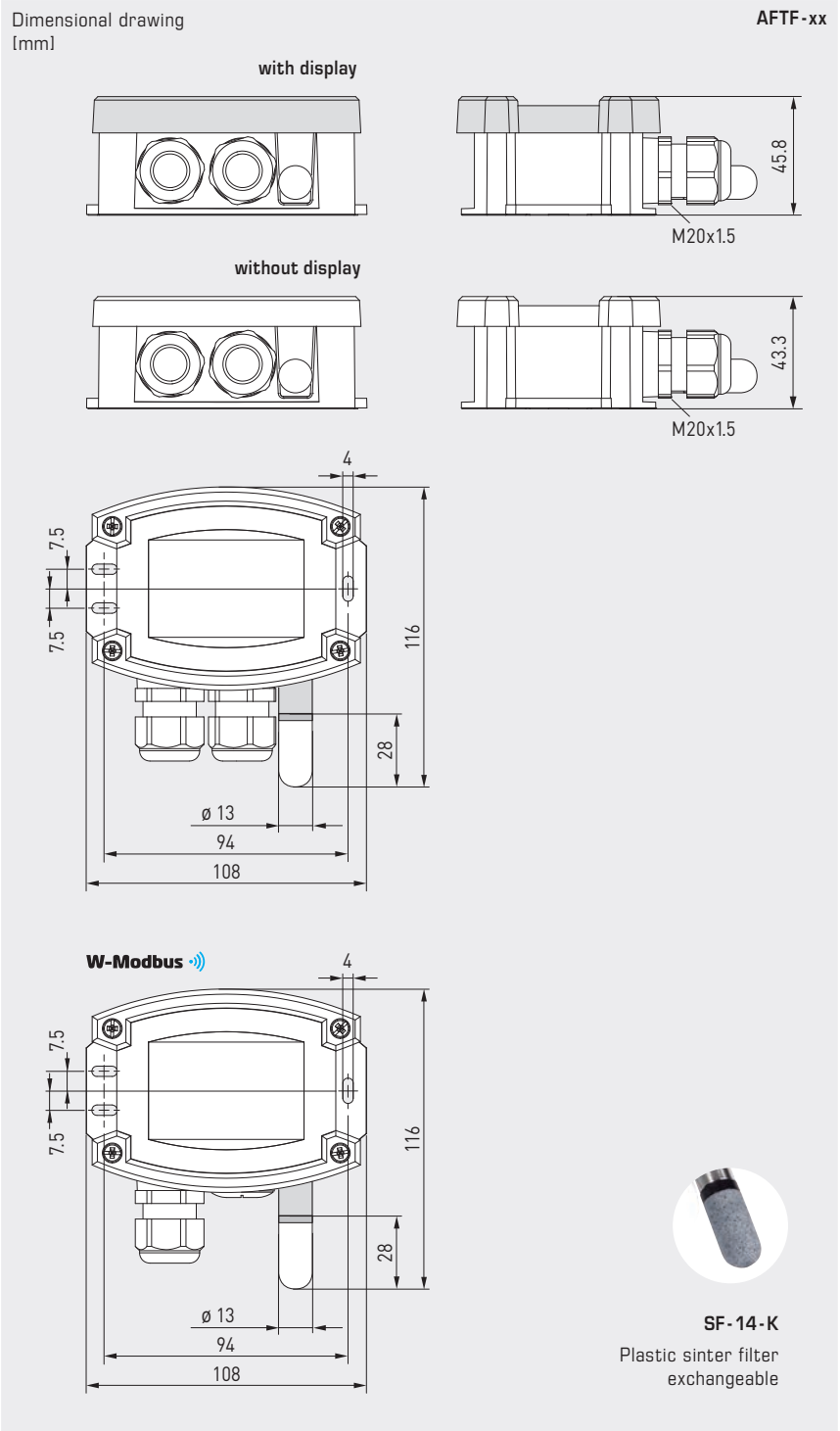
NEW

S+S REGELTECHNIK

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)



AFTF-Modbus-T3
with display
(RTU cable)



AFTF-wModbus
with display
(wireless)



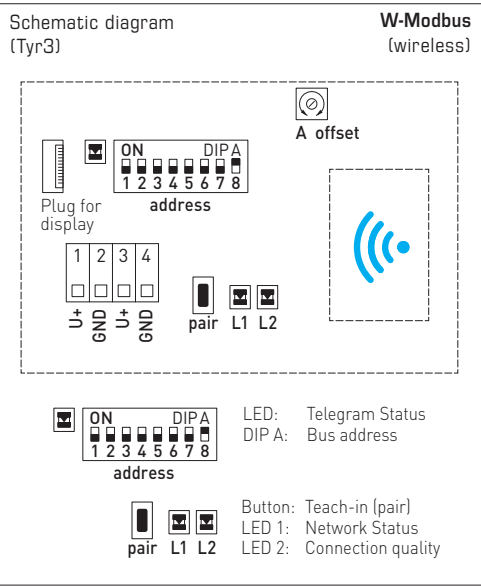
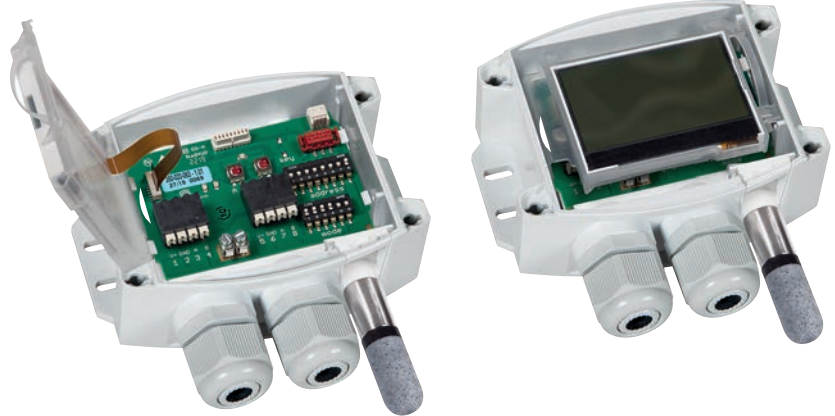
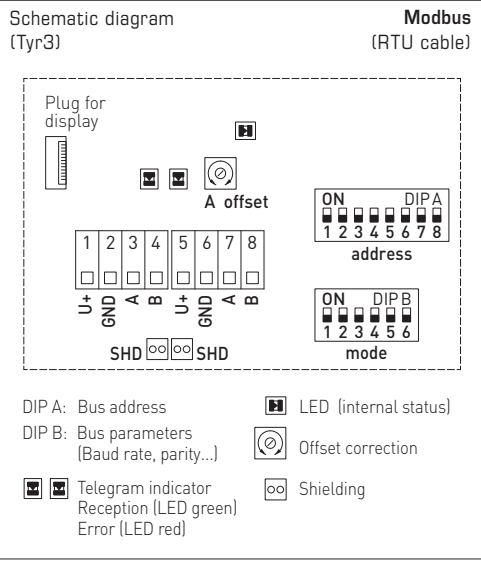
SF-14-K

Plastic sinter filter
exchangeable

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



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)



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

S+S REGELTECHNIK

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)

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.	Price
AFTF-Modbus-T3						
AFTF-Modbus-T3	0...100% RH (default) 0...80 g/kg (MV) 0...80 g/m ³ (AH) 0...85 kJ/kg (ENT.) 0...+50°C (DP)	-35...+80°C	Modbus (RTU cable)		1201-12C6-1000-000	232,91 €
AFTF-Modbus-T3 LCD	(5x as above)	(1x as above)	Modbus (RTU cable)	■	1201-12C6-1400-000	293,60 €
AFTF-wModbus						
AFTF-wModbus	0...100% RH (default) 0...80 g/kg (MV) 0...80 g/m ³ (AH) 0...85 kJ/kg (ENT.) 0...+50°C (DP)	-35...+80°C	W-Modbus (wireless)		1201-12CF-1000-000	275,76 €
AFTF-wModbus LCD	(5x as above)	(1x as above)	W-Modbus (wireless)	■	1201-12CF-1400-000	336,45 €
Extra charge:	Cable connection with M12 connector according to DIN EN 61076-2-101					on request
Note:	System of units SI (default) or imperial (can be changed via Modbus).					

MODBUS ACCESSORIES

GW-wModbus	Gateway with W-Modbus (Wireless) for radio-based connection to Modbus networks, operating modes ' Gateway ' (basic function as a base station) and ' Node ' (adapter function for max. 1 wired sensor)	1801-1211-1101-000	245,30 €
GW-wModbus Pro	and ' Node Pro ' (adapter function for max. 16 wired sensors)	1801-1211-1101-100	332,07 €
KA2-Modbus	Communication adapter (USB/RS485) for system connection	1906-1200-0000-100	236,11 €
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination	1906-1300-0000-100	88,05 €

For further information see the end of the chapter!

ACCESSORIES

WS-01	Sun and ball-impact protection hood , 184 x 180 x 80 mm, stainless steel V2A (1.4301)	7100-0040-2000-000	35,05 €
WS-04	Weather and sun protection hood , 130 x 180 x 135 mm, stainless steel V2A (1.4301)	7100-0040-7000-000	41,35 €

For further information, see last chapter Accessories!