

HYGRASGARD® RPFTF-Modbus-T3

HYGRASGARD® RPFTF-20-Modbus-T3

Pendulum room humidity and temperature sensors ($\pm 1.8\%$ / $\pm 2.0\%$),
for mixture ratio, relative/absolute humidity, dew point, enthalpy
and temperature, calibratable, with Modbus connection

NEW



S+S REGELTECHNIK

Calibratable room pendulum humidity and temperature sensor **HYGRASGARD® RPFTF-Modbus-T3** ($\pm 2.0\%$) or **RPFTF-20-Modbus-T3** ($\pm 1.8\%$), with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, optionally with /without display, cable sensor with a stainless steel pendulum and 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 ($-35...+80^\circ\text{C}$) 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 pendulum sensor is applied in a non-aggressive, dust-free environment and is suitable for installation in ceilings, ducts and devices. 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, $\varnothing$ 16 mm, L = 35 mm, exchangeable (optional metal sinter filter, $\varnothing$ 16 mm, L = 32 mm)
Measuring range:	0...100% r.H. (humidity) $-35...+80^\circ\text{C}$ (temperature)
Deviation, humidity:	RPFTF-Modbus: typically $\pm 2.0\%$ (20...80% r.h.) at $+25^\circ\text{C}$, otherwise $\pm 3.0\%$ RPFTF-20-Modbus: typically $\pm 1.8\%$ (10...90% r.h.) at $+25^\circ\text{C}$, otherwise $\pm 2.0\%$
Temperature deviation:	typically $\pm 0.2\text{ K}$ at $+25^\circ\text{C}$
Zero point offset:	$\pm 10\%$ r.h. (humidity); $\pm 5^\circ\text{C}$ (temperature)
Ambient temperature:	$-30...+70^\circ\text{C}$
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0...247 selectable
Signal filtering:	4 s / 32 s
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 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)
Connection cable:	PVC, LiYY, 6 x 0,14 mm ² , cable length (KL) = approx. 2 m (other lengths optional)
Protective tube:	stainless steel V2A (1.4301), $\varnothing$ 16 mm, NL = 142 mm
Electrical connection:	0,2 - 1,5 mm ² , using push-in terminals
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

RPFTF-Modbus-T3 ($\pm 2.0\%$)
RPFTF-20-Modbus-T3 ($\pm 1.8\%$)

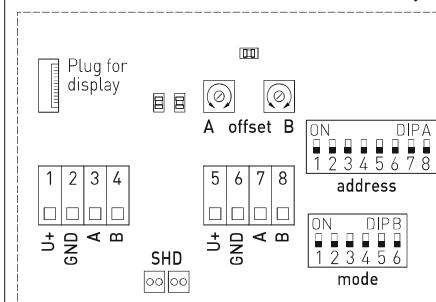


Device version
with **M12 connector**
(optional on request)



Schematic diagram

Modbus
Tyr 3



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

Programmable display screen

Modbus
Tyr 3



**NEW**

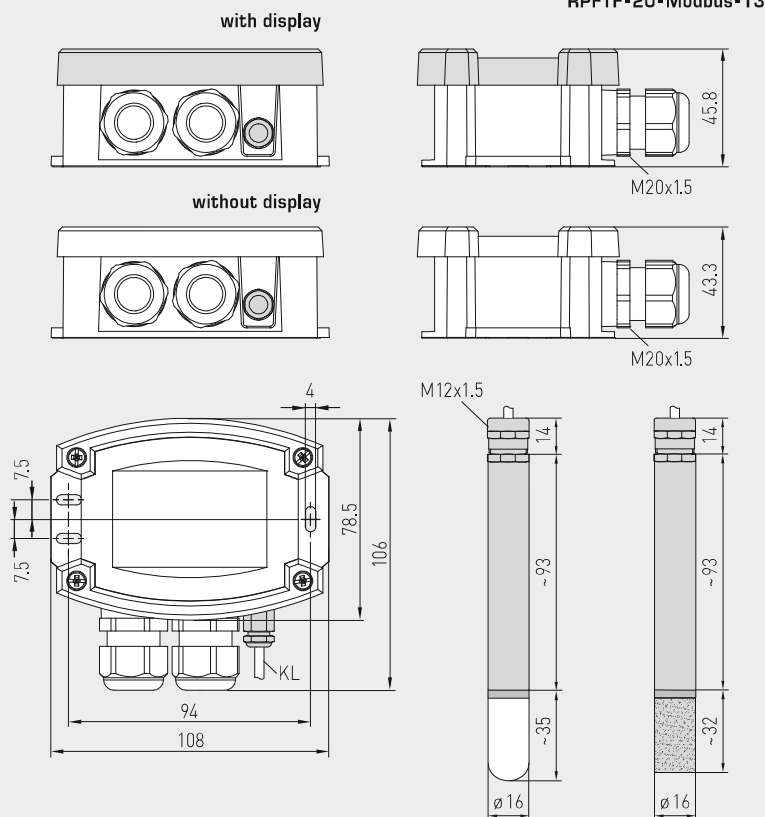
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Dimensional drawing



RPFTF-Modbus-T3 ($\pm 2.0\%$)
RPFTF-20-Modbus-T3 ($\pm 1.8\%$)
with display



MF-16-K
Mounting flange,
plastic (optional)



SF-K
plastic sinter filter
(standard)



SF-M
metal sinter filter
(optional)



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Pendulum room humidity and temperature sensors ($\pm 2.0\%$)
Pendulum room humidity and temperature sensors ($\pm 1.8\%$)

Type / WG01	Measuring Range / Readout	Temperature	Output	Display	Item No.
RPFTF-Modbus-T3	Humidity (switchable)				($\pm 2.0\%$)
RPFTF-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		1201-6246-1000-000
RPFTF-MODBUS-T3 LCD	(5 x as above)	(1 x as above)	Modbus	■	1201-6246-1400-000
RPFTF-20-Modbus-T3					($\pm 1.8\%$)
RPFTF-20-MODBUS-T3	(5 x as above)	(1 x as above)	Modbus		1201-6246-1000-001
RPFTF-20-MODBUS-T3 LCD	(5 x as above)	(1 x as above)	Modbus	■	1201-6246-1400-001
Extra charge:	per running metre of connecting lead (PVC) Cable connection with M12 connector according to DIN EN 61076-2-101				on request 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
SF-M	Metal sinter filter, $\varnothing$ 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)				7000-0050-2200-100
MF-16-K	Mounting flange made of plastic (optional)				7100-0030-0000-000