

# HYGRASGARD® RPFTF - Modbus - T3

## HYGRASGARD® RPFTF - 20 - Modbus - T3

**NEW**



S+**S** REGELTECHNIK

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

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 °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 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 [°C], relative humidity [% r.h.], dew point [°C], absolute humidity [g/m³], mixture ratio [g/kg], enthalpy [kJ/kg]
Sensors:	<b>digital humidity sensor with integrated temperature sensor</b> , low hysteresis, high long-term stability
Sensor protection:	plastic sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional metal sinter filter, Ø 16 mm, L = 32 mm)
Measuring range:	0...100% r.H. (humidity) -35...+80 °C (temperature)
Deviation, humidity:	<b>RPFTF-Modbus:</b> typically $\pm 2.0\%$ (20...80% r. h.) at +25 °C, otherwise $\pm 3.0\%$ <b>RPFTF-20-Modbus:</b> typically $\pm 1.8\%$ (10...90% r. h.) at +25 °C, otherwise $\pm 2.0\%$
Temperature deviation:	typically $\pm 0.2\text{ K}$ at +25 °C
Zero point offset:	$\pm 10\%$ r.h. (humidity); $\pm 5\text{ °C}$ (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
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) <b>or</b> M12 connector according to DIN EN 61076-2-101 (optional on request)
Connection cable:	PVC, LiYY, 6 x 0.14 mm², cable length (KL) = approx. 2 m (other lengths optional)
Protective tube:	stainless steel V2A (1.4301), Ø 16 mm, NL = 142 mm
Electrical connection:	0.2 - 1.5 mm², 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
<b>ACCESSORIES</b>	see table

RPFTF-Modbus-T3 ( $\pm 2,0\%$ )  
RPFTF-20-Modbus-T3 ( $\pm 1,8\%$ )

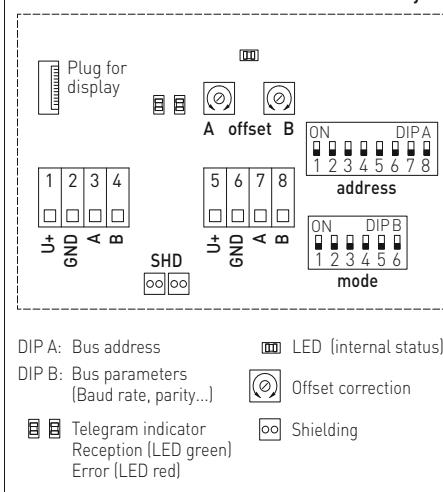


Device version  
with **M12 connector**  
(optional on request)



Schematic diagram

Modbus  
Tyr 3



Programmable display screen

Modbus  
Tyr 3





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NEW

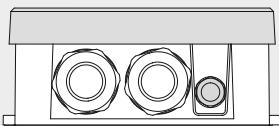
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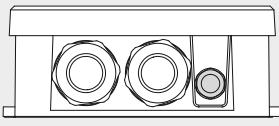
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Dimensional drawing

with display

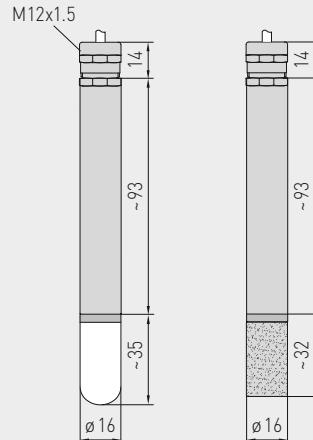
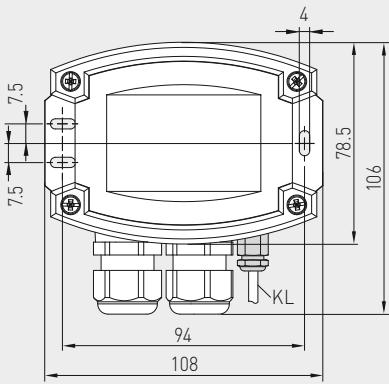


without display

RPFTF-Modbus-T3  
RPFTF-20-Modbus-T3

M20x1.5

M20x1.5



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 Humidity (switchable)	Output Temperature	Item No.	Price
<b>RPFTF-Modbus-T3</b>				
RPFTF-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	1201-6246-1000-000 <b>256,19 €</b>
RPFTF-MODBUS-T3 LCD	(5 x as above)	(1 x as above)	Modbus	■ 1201-6246-1400-000 <b>303,48 €</b>
<b>RPFTF-20-Modbus-T3</b>				
RPFTF-20-MODBUS-T3	(5 x as above)	(1 x as above)	Modbus	1201-6246-1000-001 <b>307,32 €</b>
RPFTF-20-MODBUS-T3 LCD	(5 x as above)	(1 x as above)	Modbus	■ 1201-6246-1400-001 <b>355,10 €</b>
Extra charge:	per running metre of connecting lead (PVC) Cable connection with <b>M12 connector</b> according to DIN EN 61076-2-101		on request on request	
<b>ACCESSORIES</b>				
KA2-Modbus	Communication adapter (USB/RS485) for system connection		1906-1200-0000-100	<b>185,00 €</b>
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination		1906-1300-0000-100	<b>69,00 €</b>
SF-M	Metal sinter filter, Ø 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)		7000-0050-2200-100	<b>36,59 €</b>
MF-16-K	Mounting flange made of plastic (optional)		7100-0030-0000-000	<b>8,26 €</b>