

# 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 ( $-35\ldots+80\text{ }^\circ\text{C}$ ) 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<sup>3</sup>], 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.

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



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

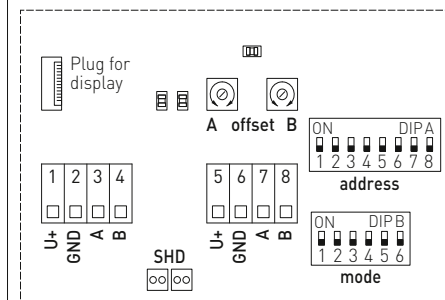


### TECHNICAL DATA

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/m <sup>3</sup> ], 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:	<b>plastic sinter filter</b> , $\varnothing$ 16 mm, L = 35 mm, exchangeable (optional <b>metal sinter filter</b> , $\varnothing$ 16 mm, L = 32 mm)
Measuring range:	0...100% r.H. (humidity) $-35\ldots+80\text{ }^\circ\text{C}$ (temperature)
Deviation, humidity:	<b>RPFTF-Modbus:</b> typically $\pm 2.0\%$ (20...80% r.h.) at $+25\text{ }^\circ\text{C}$ , otherwise $\pm 3.0\%$ <b>RPFTF-20-Modbus:</b> typically $\pm 1.8\%$ (10...90% r.h.) at $+25\text{ }^\circ\text{C}$ , otherwise $\pm 2.0\%$
Temperature deviation:	typically $\pm 0.2\text{ K}$ at $+25\text{ }^\circ\text{C}$
Zero point offset:	$\pm 10\%$ r.h. (humidity); $\pm 5\text{ }^\circ\text{C}$ (temperature)
Ambient temperature:	$-30\ldots+70\text{ }^\circ\text{C}$
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:	<b>cable gland</b> , plastic (2x 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)
Connection cable:	PVC, LiYY, 6 x 0.14 mm <sup>2</sup> , cable length (KL) = approx. 2 m (other lengths optional)
Protective tube:	<b>stainless steel V2A</b> (1.4301), $\varnothing$ 16 mm, NL = 142 mm
Electrical connection:	0.2 - 1.5 mm <sup>2</sup> , using push-in terminals
Permissible air humidity:	< 95% r.H., non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	<b>IP 65</b> (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / EU
Optional:	<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
<b>ACCESSORIES</b>	see table

### 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



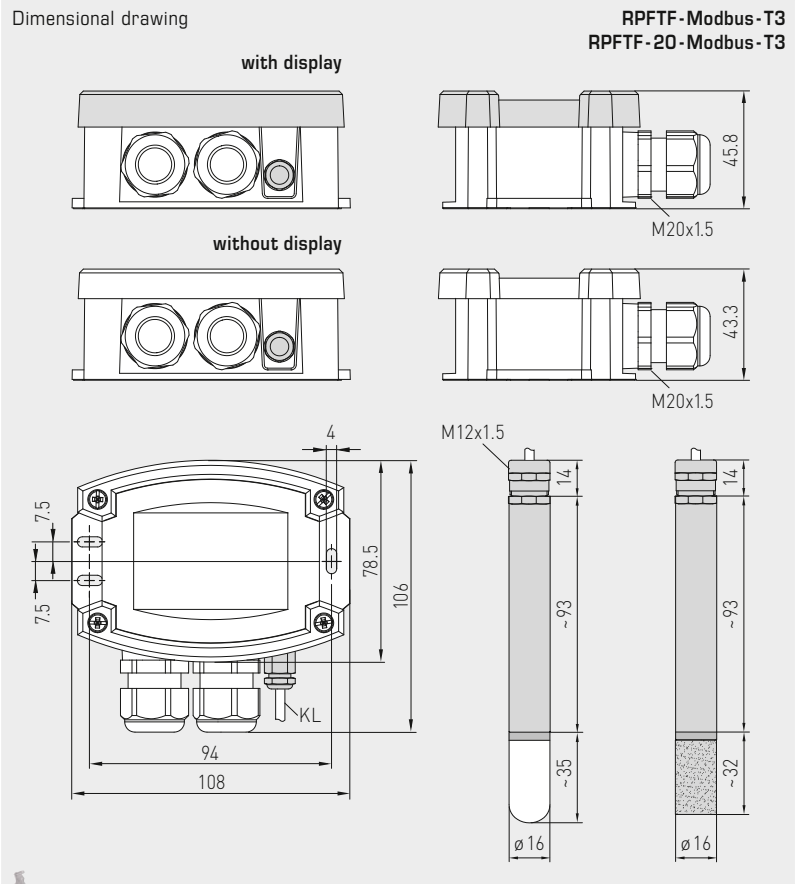


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RPFTF-Modbus-T3 ( $\pm 2,0\%$ )  
RPFTF-20-Modbus-T3 ( $\pm 1,8\%$ )  
with display



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



**SF-K**  
plastic sinter filter  
(standard)



**SF-M**  
metal sinter filter  
(optional)



**HYGRASGARD® RPFTF-Modbus-T3** Pendulum room humidity and temperature sensors ( $\pm 2.0\%$ )  
**HYGRASGARD® RPFTF-20-Modbus-T3** Pendulum room humidity and temperature sensors ( $\pm 1.8\%$ )

Type / WG01	Measuring Range / Readout Humidity (switchable)	Temperature	Output	Display	Item No.	Price
<b>RPFTF-Modbus-T3</b>					<b>(<math>\pm 2,0\%</math>)</b>	
RPFTF-MODBUS-T3	0 ... 100% r. H. (default) 0 ... 80 g / kg (MV) 0 ... 80 g / m <sup>3</sup> (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>					<b>(<math>\pm 1,8\%</math>)</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>						
<b>KA2-Modbus</b>	<b>Communication adapter</b> (USB/RS485) for system connection				1906-1200-0000-100	<b>185,00 €</b>
<b>LA-Modbus</b>	<b>Line termination device</b> (with terminating resistor) as an active bus termination				1906-1300-0000-100	<b>69,00 €</b>
<b>SF-M</b>	<b>Metal sinter filter</b> , $\varnothing$ 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)				7000-0050-2200-100	<b>36,59 €</b>
<b>MF-16-K</b>	<b>Mounting flange</b> made of plastic (optional)				7100-0030-0000-000	<b>8,26 €</b>

