HYGRASGARD® RPFTF - Modbus - SD

Pendulum room humidity and temperature sensors (± 2.0 %), for mixture ratio, relative / absolute humidity, dew point, enthalpy and temperature, calibratable, with Y-adapter, with Modbus connection (not galvanically isolated)

S+S REGELTECHNIK

Calibratable room pendulum humidity and temperature sensor **HYGR**ASGARD® **RPFTF-Modbus-SD** with Modbus connection (Y-adapter), 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) to exactly detect the relative humidity (0...100% RH) and the temperature (–35...+80 °C /–31...+176 °F) and to detect various parameters in humidity measurement. International system of units **SI** (default) can be switched to **Imperial** (via Modbus).

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.

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.

Modbus sensor SD with RS485 Modbus interface (not galvanically isolated), selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, internal LEDs for telegram status display (illuminated, with customised programming). Uses **internal diagnostics** to detect sensor breakage or sensor short circuit as errors. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

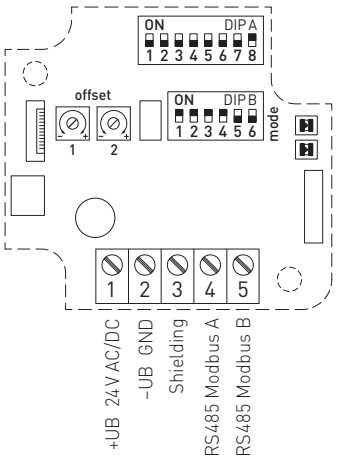
RPFTF-Modbus-SD



TECHNICAL DATA

Voltage supply:	24 V AC (± 20 %) and 15...36 V DC (± 10 %)
Power consumption:	< 1.0 W / 24 V DC; < 2.2 VA / 24 V AC
System of units:	**SI** (default) or **Imperial** (switchable via Modbus)
Data points:	Temperature [°C] [°F], Relative humidity [% RH], Dew point [°C] [°F], Absolute humidity [g/m³] [gr/ft³], Mixing 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 / –31...+176 °F (Temperature)
Accuracy humidity:	typical **± 2.0** % (20...80 % RH) at +25 °C, otherwise ± 3.0 %
Accuracy temperature:	typical ± 0.6 K at +25 °C
Zero point offset:	± 10 % RH (Humidity) ± 10 K (Temperature)
Ambient temperature:	–30...+70 °C
Medium:	clean air and non-aggressive, non-combustible gases
Bus interface:	RS 485, **not galvanically isolated**, bus termination activatable via DIP switches. Up to 32 devices possible in one segment. In case of a greater number of devices, RS485 repeaters must be used.
Bus protocol:	Modbus (RTU mode) address range 0...**247** selectable
Baud rate:	9600, 19200, 38400 Baud
Status display:	LED green = Telegram valid LED red = Telegram error
Signal filtering:	4 s / 32 s
Sensor protection:	**Plastic** sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional **metal** sinter filter, Ø 16 mm, L = 32 mm)
Protective tube:	Stainless steel **V2A** (1.4301), Ø = 16 mm, NL = 142 mm
Sensor cable:	PVC, LiYY, 6 x 0.14 mm², cable length (KL) = approx. 2 m (other lengths optional)
Housing:	Plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-release screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), cover for display is transparent!
Housing dimension:	72 x 64 x 37.8 mm (Typ 1 without display) 72 x 64 x 43.3 mm (Typ 1 with display)
Cable connection:	**Cable gland**, plastic 2x M 12 x 1.5 (Y-adapter); with strain relief, exchangeable, max. inner diameter 6 mm
Electrical connection:	0.14 - 1.5 mm², via terminal screws
Long-term stability:	± 1 % per year
Permissible humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Typ 1)
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU
Optional:	**Display with illumination,** two-line, programmable, cutout approx. 36 x 15 mm (W x H), for displaying the actual temperature, error message or an individually programmable display value
ACCESSORIES	see table

Schematic diagram **HYGR**ASGARD® **xx-Modbus-SD**



DIP A: Bus address

DIP B: Bus parameters (Baud rate, parity ...)

LED (internal status)
Telegram indicator
Reception (LED green)
Error (LED red)

Plug for display (contact on right side)

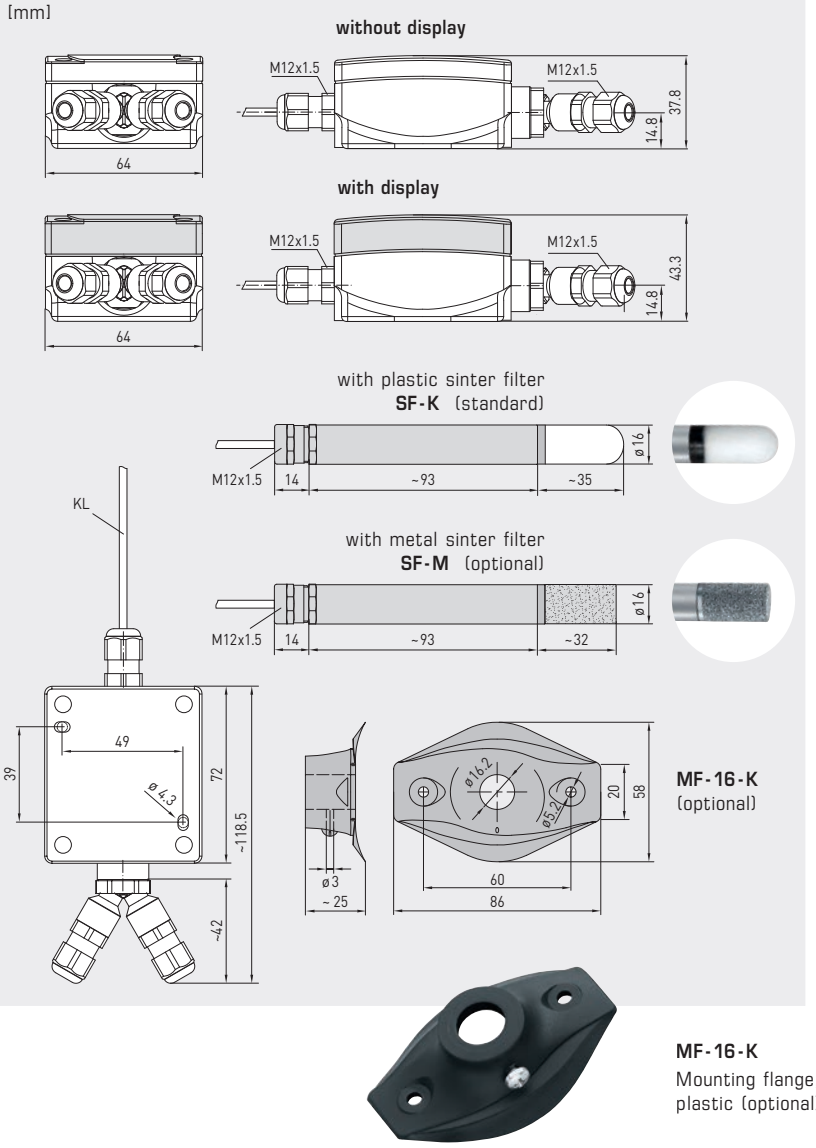
Offset correction 1
ca. ±10 K (temperature)

Offset correction 2
ca. ±10 % of measuring range (humidity)

Pendulum room humidity and temperature sensors (± 2.0 %), for mixture ratio, relative / absolute humidity, dew point, enthalpy and temperature, calibratable, with Y-adapter, with Modbus connection (not galvanically isolated)

Dimensional drawing [mm]

RPFTF - Modbus - SD



MF-16-K (optional)

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

RPFTF - Modbus - SD
with display



HYGRASGARD® RPFTF - Modbus - SD	Pendulum room humidity and temperature sensors with Modbus connection (not galvanically isolated)					
Type / WG01	**Measuring range / Readout** Humidity (switchable)	Temperature	**Output**	**Display**	**Item No.**	**Price**
RPFTF - Modbus - SD						
RPFTF-Modbus-SD	0 ...100 % RH (default) **plus alternative parameters** (switchable) **R:** 0 ... 80 g / kg (Mixing ratio) **A:** 0 ... 80 g / m³ (Absolute humidity) **E:** 0 ... 85 kJ / kg (Enthalpy) **D:** –20...+80 °C (Dew point)	–35...+80 °C	Modbus		1201-127H-1000-000	**317,43 €**
RPFTF-Modbus-SD LCD	(5 x as above)	(1 x as above)	Modbus	■	1201-127H-1200-000	**372,42 €**
Extra charge:	per running metre of connecting lead (**PVC**)				on request	
Note:	System of units **SI** (default) or **imperial** (can be changed via Modbus).					
ACCESSORIES						
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 €**
SF-M	**Metal sinter filter**, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)				7000-0050-2200-100	**46,70 €**
MF-16-K	**Mounting flange**, plastic (optional)				7100-0030-0000-000	**10,55 €**
	For further information, see chapter Accessories!					