

HYGRASGARD® KFTF - Modbus-T3

HYGRASGARD® KFTF - 20 - Modbus-T3

Duct humidity- and temperature sensors ($\pm 1.8\%$ / $\pm 2.0\%$), incl. mounting flange, for mixture ratio, relative / absolute humidity, dew point, enthalpy and temperature, calibratable, with Modbus connection



S+S REGELTECHNIK

Calibratable duct humidity and temperature sensor **HYGRASGARD® KFTF-Modbus-T3** ($\pm 2.0\%$) or **KFTF-20-Modbus-T3** ($\pm 1.8\%$), with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, optionally with /without display, with a plastic sinter filter (exchangeable), incl. mounting flange, to exactly detect the relative humidity (0...100% RH) and the temperature ($-35...+80\text{ }^{\circ}\text{C}$) and to detect various parameters in humidity measurement. International system of units **SI** (default) can be switched to **Imperial** (via Modbus).

The duct 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.

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, internal 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 ($\pm 20\%$); 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 [$^{\circ}\text{C}$] [$^{\circ}\text{F}$], relative humidity [% RH], dew point [$^{\circ}\text{C}$] [$^{\circ}\text{F}$], absolute humidity [g/m^3] [gr/ft^3], 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
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 % RH (humidity); $-35...+80\text{ }^{\circ}\text{C}$ (temperature)
Deviation, humidity:	KFTF-Modbus: typically $\pm 2.0\%$ (20...80 % RH) at $+25\text{ }^{\circ}\text{C}$, otherwise $\pm 3.0\%$ KFTF-20-Modbus: typically $\pm 1.8\%$ (10...90 % RH) 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:	$\pm 10\%$ RH (humidity); $\pm 5\text{ }^{\circ}\text{C}$ (temperature)
Ambient temperature:	$-30...+70\text{ }^{\circ}\text{C}$
Medium:	clean air and non-aggressive, non-combustible gases
Bus protocol:	Modbus (RTU mode), address range 0... 247 selectable
Baud rate:	9600, 19200, 38400 Baud
Signal filtering:	4 s / 32 s
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 (2x M20x1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm) or M12 connector according to DIN EN 61076-2-101 (optional on request)
Protective tube:	PLEUROFORM™ , material polyamide (PA6), with torsion protection, $\varnothing$ 20 mm, NL = 235 mm (optionally 100 mm), $v_{\text{max}} = 30\text{ m/s}$ (air) (optionally made of stainless steel V2A (1.4301), $\varnothing$ 16 mm)
Process connection:	by mounting flange, plastic (included in the scope of delivery)
Electrical connection:	0.2 - 1.5 mm ² , using push-in terminals
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:	CE conformity, electromagnetic compatibility according to EN 61326, according to EMC Directive 2014 / 30 / 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

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

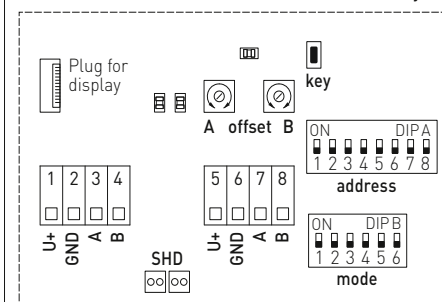


Device version with **M12 connector** (optional on request)



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
- Button „key“ (auto zero)
- Shielding

Programmable display screen

Modbus Tyr 3





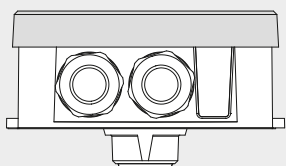
S+S REGELTECHNIK

HYGRASGARD® KFTF-Modbus-T3 HYGRASGARD® KFTF-20-Modbus-T3

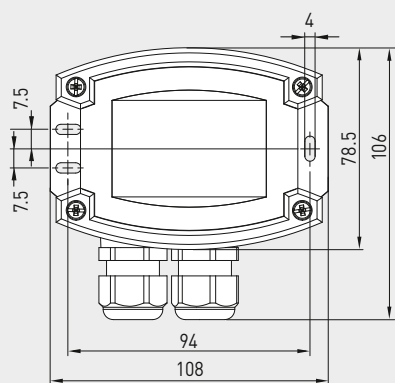
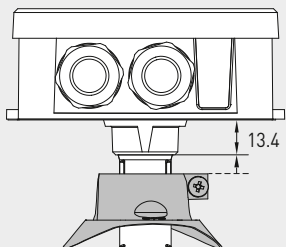
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Dimensional drawing
(mm)

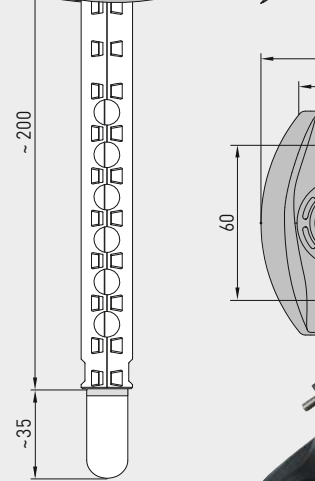
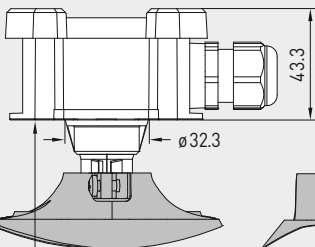
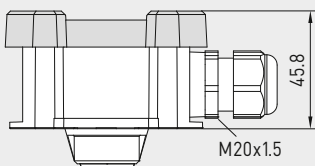
with display



without display



KFTF-Modbus-T3
KFTF-20-Modbus-T3



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



SF-K

Plastic sinter filter
(standard)



SF-M

Metal sinter filter
(optional)



stainless steel
protective tube
(optional on request)

MFT-20-K

Mounting flange,
plastic



HYGRASGARD® KFTF-Modbus-T3 Duct humidity- and temperature sensors ($\pm 2.0\%$)
HYGRASGARD® KFTF-20-Modbus-T3 Duct humidity- and temperature sensors ($\pm 1.8\%$)

Type / WG01	Measuring Range / Readout		Output	Display	Item No.
	Humidity (switchable)	Temperature			
KFTF-Modbus-T3					(± 2,0 %)
KFTF-Modbus-T3	0 ... 100% RH (default) 0 ... 80 g / kg (MV) 0 ... 80 g / m³ (a.F.) 0 ... 85 kJ / kg (ENT.) 0 ... +50 °C (TP)	–35...+80 °C	Modbus		1201-32C6-1000-029
KFTF-Modbus-T3 LCD	(5 x as above)	(1 x as above)	Modbus	■	1201-32C6-1400-029
KFTF-20-Modbus-T3					(± 1,8 %)
KFTF-20-Modbus-T3	(5 x as above)	(1 x as above)	Modbus		1201-32C6-1000-030
KFTF-20-Modbus-T3 LCD	(5 x as above)	(1 x as above)	Modbus	■	1201-32C6-1400-030
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101 shortened protective tube PLEUROFORM™ , NL = 100 mm				on request 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
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination				1906-1300-0000-100
SF-M	Metal sinter filter , Ø 16 mm, L = 32 mm, exchangeable, stainless steel				7000-0050-2200-100
MFT-20-K	Mounting flange , plastic (included in the scope of delivery)				7000-0031-0000-000
For further information, see last chapter Accessories!					