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

Duct humidity- and temperature sensors (± 1.8 % / ± 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** (± 2.0%) or **KFTF-20-Modbus-T3** (± 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 °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 curent-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.
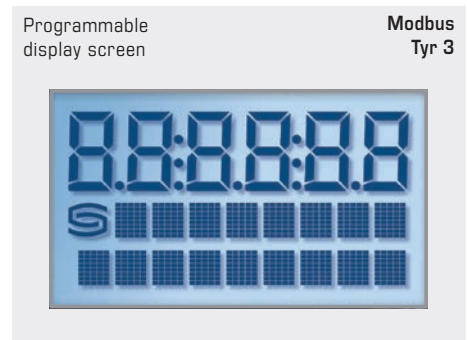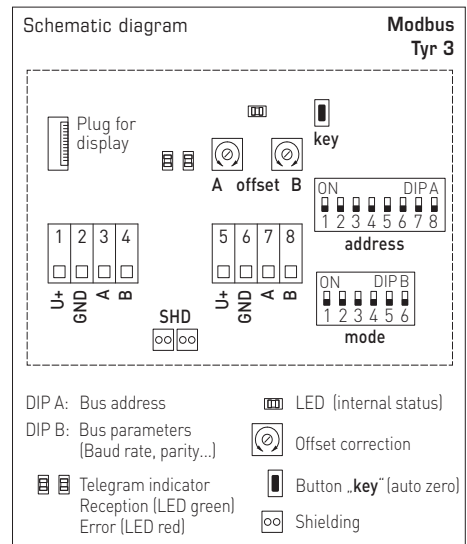
KFTF-Modbus-T3 (± 2,0 %)
KFTF-20-Modbus-T3 (± 1,8 %)

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

TECHNICAL DATA

Voltage supply:	24 V AC (± 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 [°C] [°F], relative humidity [% RH], dew point [°C] [°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, Ø 16 mm, L = 35 mm, exchangeable (optional **metal** sinter filter, Ø 16 mm, L = 32 mm)
Measuring range:	0...100 % RH (humidity); − 35...+80 °C (temperature)
Deviation, humidity:	**KFTF-Modbus:** typically **± 2.0** % (20...80 % RH) at +25 °C, otherwise ± 3.0 % **KFTF-20-Modbus:** typically **± 1.8** % (10...90 % RH) at +25 °C, otherwise ± 2.0 %
Temperature deviation:	typically ± 0.2 K at +25 °C
Zero point offset:	± 10 % RH (humidity); ± 5 °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
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 M 20 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)
Protective tube:	**PLEUROFORM**™, material polyamide (PA6), with torsion protection, Ø 20 mm, NL = 235 mm (optionally 100 mm), v$_{max}$ = 30 m/s (air) (optionally made of stainless steel **V2A** (1.4301), Ø 16 mm)
Process connection:	by mounting flange, plastic (included in the scope of delivery)
Electrical connection:	0.2 - 1.5 mm², 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

Schematic diagram — **Modbus Tyr 3**

Plug for display
key
A offset B
ON DIP A 1 2 3 4 5 6 7 8
address
1 2 3 4
U+ GND A B
SHD
5 6 7 8
U+ GND A B
ON DIP B 1 2 3 4 5 6
mode

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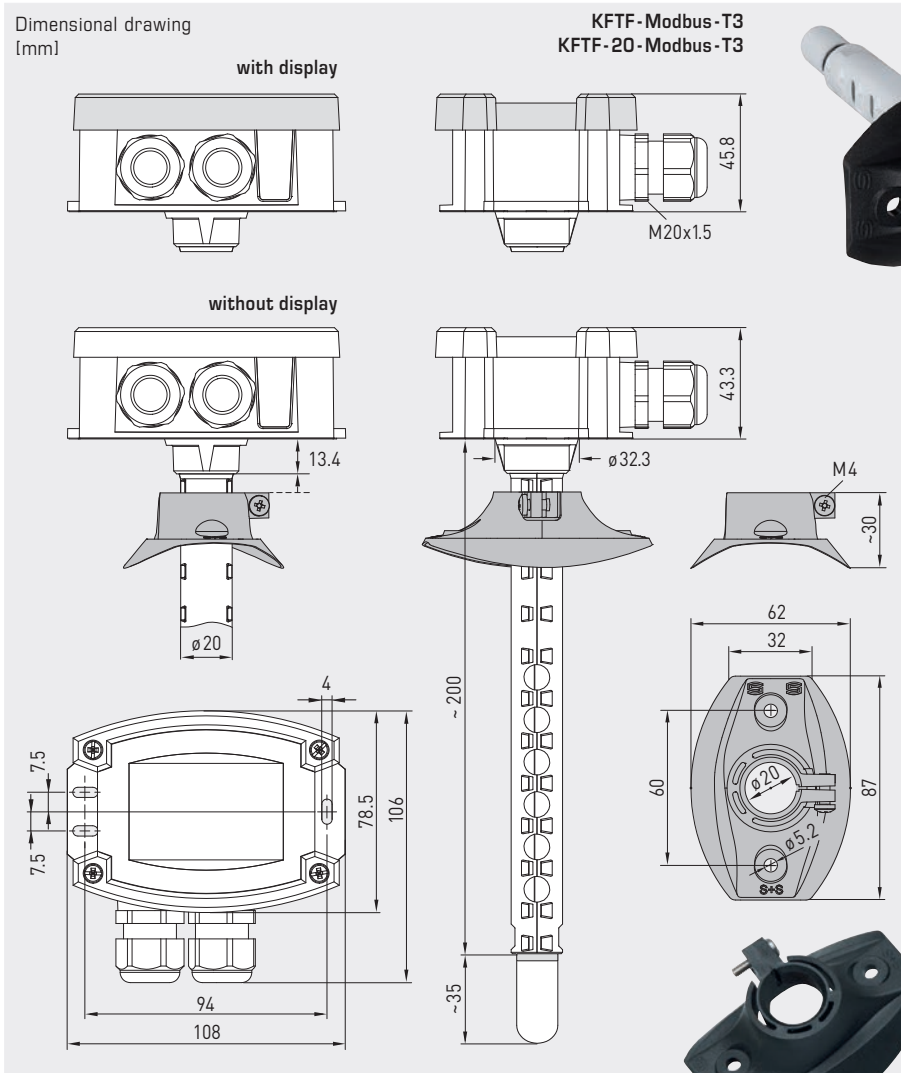
HYGRASGARD® **KFTF - Modbus - T3**
HYGRASGARD® **KFTF - 20 - Modbus - T3**

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Dimensional drawing [mm]

with display

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

M20x1.5

45.8

without display

43.3

ø32.3

13.4

ø20

M4

~30

4

7.5

78.5

106

7.5

94

108

~200

~35

62

32

ø20

ø5.2

60

87

S+S

KFTF-Modbus-T3 (± 2,0 %)
KFTF-20-Modbus-T3 (± 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 (± 2.0 %)
HYGRASGARD® **KFTF - 20 - Modbus - T3**   Duct humidity- and temperature sensors (± 1.8 %)

Type / WG01	Measuring Range / Readout Humidity (switchable)		Temperature	Output	Display	Item No.	Price
KFTF - Modbus - T3						**(± 2,0 %)**	
KFTF-Modbus-T3	0 ...100 % RH 0 ... 80 g / kg 0 ... 80 g / m³ 0 ... 85 kJ / kg 0...+50 °C	(default) (MV) (a.F.) (ENT.) (TP)	−35...+80 °C	Modbus		1201-32C6-1000-029	**209,14 €**
KFTF-Modbus-T3 **LCD**	(5 x as above)		(1 x as above)	Modbus	■	1201-32C6-1400-029	**264,14 €**
KFTF - 20 - Modbus - T3						**(± 1,8 %)**	
KFTF-20-Modbus-T3	(5 x as above)		(1 x as above)	Modbus		1201-32C6-1000-030	**273,39 €**
KFTF-20-Modbus-T3 **LCD**	(5 x as above)		(1 x as above)	Modbus	■	1201-32C6-1400-030	**411,88 €**
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	**213,99 €**
LA-Modbus	**Line termination device** (with terminating resistor) as an active bus termination	1906-1300-0000-100	**79,81 €**
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable, stainless steel	7000-0050-2200-100	**42,33 €**
MFT-20-K	**Mounting flange**, plastic (included in the scope of delivery)	7000-0031-0000-000	**9,56 €**
	For further information, see last chapter Accessories!		