

**In-ceiling humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching
and active output**

The calibratable humidity and temperature sensor **HYGRASGARD® DFF / DFTF** measures the relative humidity and temperature of air. It converts the measurands into a standard signal of 0-10 V or 4...20 mA, and is available with / without an optional display.

It is equipped with four switchable temperature ranges. Relative humidity (in % RH) is the quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature. The measuring transducers are designed for exact detection of temperature and humidity. A digital, long-term stable sensor is used as a measuring element for humidity and temperature measurement. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

The ceiling-installed sensor is used in non-aggressive, dust-free environments and is used for installation in suspended ceilings in corridors, offices, as well as in residential and commercial buildings. The connecting head is pluggable for quick, easy mounting.

The measuring transducer is accommodated in a separate housing.

**DFF
DFTF**



TECHNICAL DATA

Power supply:	24 V AC ($\pm 20\%$) and 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (Ohm) = $(U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant
Load resistance:	$R_L > 5 \text{ kOhm}$ for U variant
Power consumption:	$< 1.1 \text{ VA} / 24 \text{ V DC}$; $< 2.2 \text{ VA} / 24 \text{ V AC}$
Sensors:	digital humidity sensor with integrated temperature sensor, low hysteresis, high long-term stability

HUMIDITY

Measuring range, humidity:	0...100% RH (output corresponding to 0-10 V or 4...20 mA)
Operating range, humidity:	0...95% RH (without formation of dew)
Accuracy in humidity:	typically $\pm 2.0\%$ (20...80% RH) at $+25^\circ\text{C}$, otherwise $\pm 3.0\%$
Output, humidity:	0-10 V for U variant 4...20 mA for I variant, see load resistance diagram

TEMPERATURE

Measuring range, temperature:	multi-range switching with 4 switchable measuring ranges (see table) $-35\text{...}+35^\circ\text{C}$; $-35\text{...}+75^\circ\text{C}$; $0\text{...}+50^\circ\text{C}$; $0\text{...}+80^\circ\text{C}$ (output corresponding to 0-10 V or 4...20 mA)
Accuracy temperature:	typically $\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$
Output, temperature:	0-10 V or 4...20 mA

Ambient temperature:	storage $-5\text{...}+60^\circ\text{C}$; operation $-5\text{...}+60^\circ\text{C}$
Long-term stability:	$\pm 1\%$ per year

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:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)

Cable connection:	cable gland , plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) or M12 connector according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	2-, 3- or 4-wire (see connecting diagram), 0.14 - 1.5 mm ² , via terminal screws

Connecting cable:	PVC, LiYY, 4 x 0.14 mm ² , cable length (KL) = approx. 2 m
Connecting head:	made of plastic, material polycarbonate (PC), colour white, pluggable , \varnothing = approx. 35 mm, H = approx. 29 mm, with metal sinter filter made of stainless steel V4A (1.4404)

Mounting (sensor):	in the suspended ceiling, ceiling cut-out $\varnothing = 30 \text{ mm}$, cover $\varnothing = < 35 \text{ mm}$
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Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according EN 60 529) Housing IP 30 (according EN 60 529) Sensor in the built-in state

Standards:	CE conformity according to EMC Directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
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Optional:	two-line display with illumination , cutout approx. 36 x 15 mm (W x H), to display the ACTUAL temperature and / or ACTUAL humidity
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**DFF
DFTF**
Connecting head,
pluggable

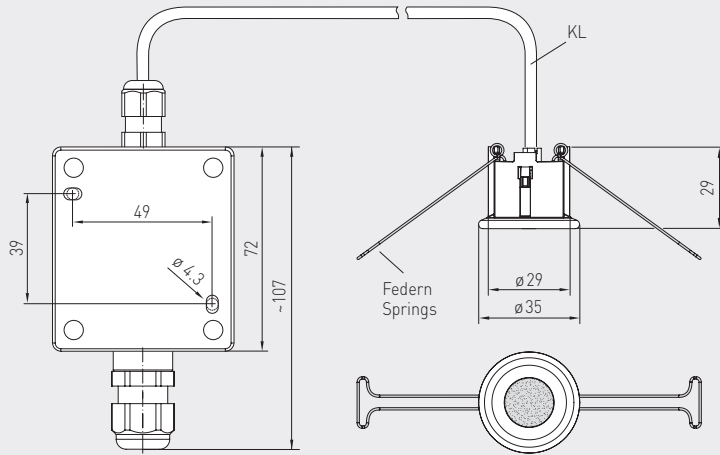
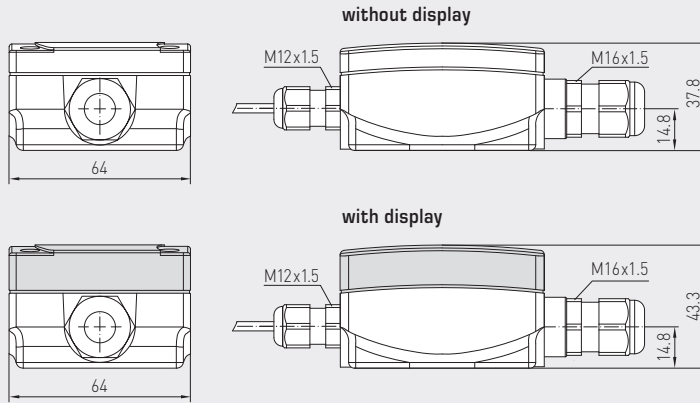




Dimensional drawing

DFF
DFTF

DFF
DFTF
with display



M12 connector
(optional on request)

Temperature table
MR: -35...+75 °C

°C	U _A [V]	I _A [mA]
-35	0.0	4.0
-30	0.5	4.7
-25	0.9	5.5
-20	1.4	6.2
-15	1.8	6.9
-10	2.3	7.6
-5	2.7	8.4
0	3.2	9.1
5	3.6	9.8
10	4.1	10.5
15	4.5	11.3
20	5.0	12.0
25	5.5	12.7
30	5.9	13.5
35	6.4	14.2
40	6.8	14.9
45	7.3	15.6
50	7.7	16.4
55	8.2	17.1
60	8.6	17.8
65	9.1	18.5
70	9.5	19.2
75	10.0	20.0

Temperature table
MR: -35...+35 °C

°C	U _A [V]	I _A [mA]
-35	0.0	4.0
-30	0.7	5.1
-25	1.4	6.3
-20	2.1	7.4
-15	2.9	8.6
-10	3.6	9.7
-5	4.3	10.9
0	5.0	12.0
5	5.7	13.1
10	6.4	14.3
15	7.1	15.4
20	7.9	16.6
25	8.6	17.7
30	9.3	18.9
35	10.0	20.0

Temperature table
MR: 0...+50 °C

°C	U _A [V]	I _A [mA]
0	0.0	4.0
5	1.0	5.6
10	2.0	7.2
15	3.0	8.8
20	4.0	10.4
25	5.0	12.0
30	6.0	13.6
35	7.0	15.2
40	8.0	16.8
45	9.0	18.4
50	10.0	20.0

Temperature table
MR: 0...+80 °C

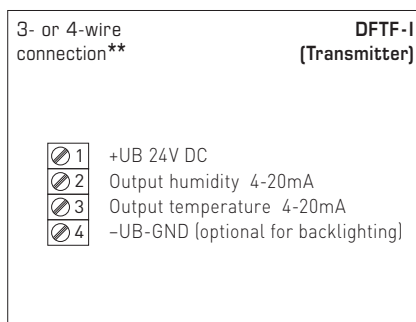
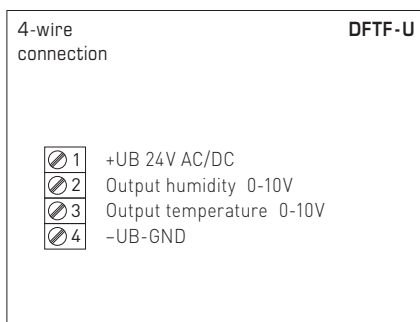
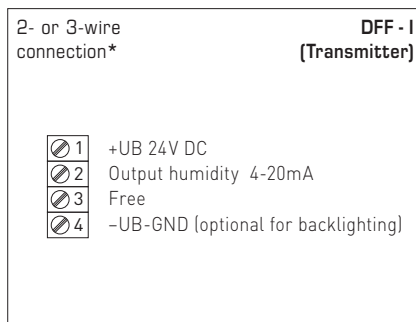
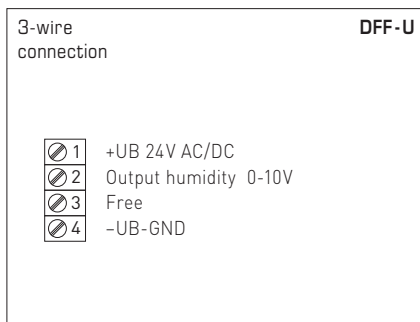
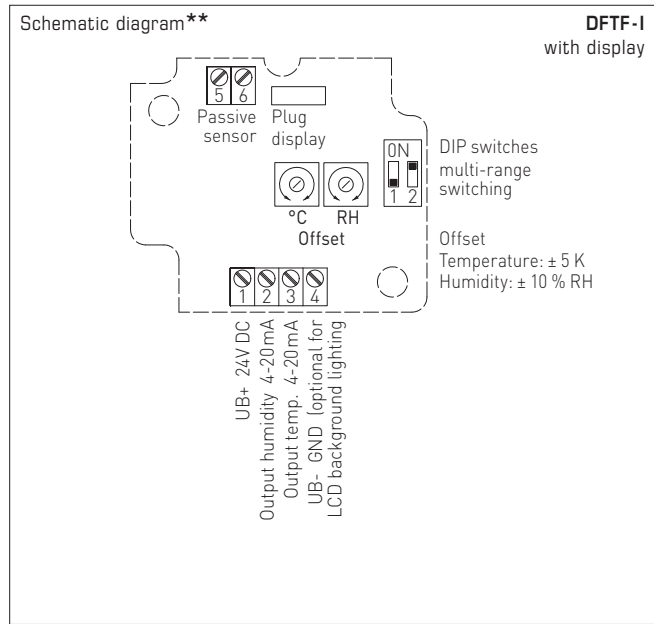
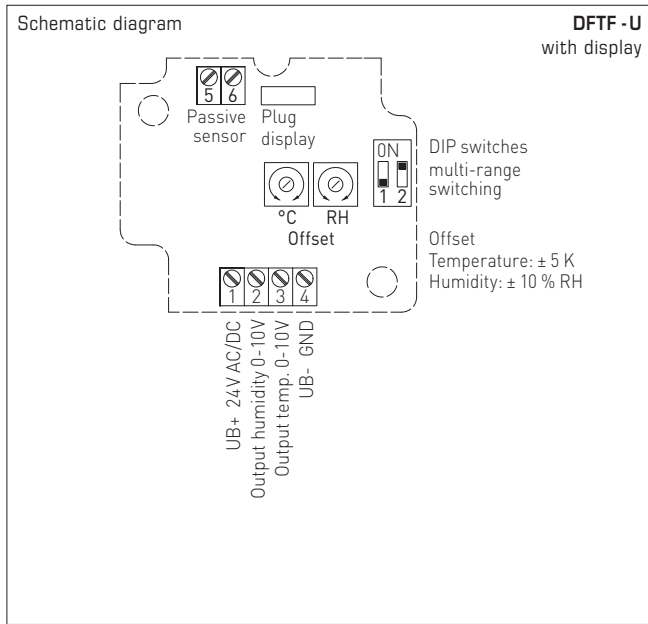
°C	U _A [V]	I _A [mA]
0	0.0	4.0
5	0.6	5.0
10	1.3	6.0
15	1.9	7.0
20	2.5	8.0
25	3.1	9.0
30	3.8	10.0
35	4.4	11.0
40	5.0	12.0
45	5.6	13.0
50	6.3	14.0
55	6.9	15.0
60	7.5	16.0
65	8.1	17.0
70	8.8	18.0
75	9.4	19.0
80	10.0	20.0

Humidity table
MR: 0...100% RH

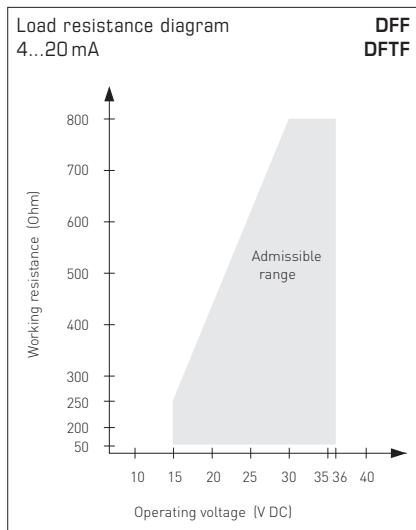
% RH	U _A [V]	I _A [mA]
0	0.0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0



In-ceiling humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching
and active output



Temperature measuring ranges (adjustable)	DIP 1	DIP 2
-35...+75 °C	ON	ON
-35...+35 °C	OFF	OFF
0...+50 °C (default)	OFF	ON
0...+80 °C	ON	OFF



Connection*:
2-wire connection for devices with / without display (not illuminated)
3-wire connection for devices with illuminated display

Connection**:
3-wire connection for devices with / without display (not illuminated)
4-wire connection for devices with illuminated display

For the **I variant** the humidity path must be connected!



S+S REGELTECHNIK

HYGRASGARD® DFF
HYGRASGARD® DFTF

In-ceiling humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching
and active output



DFF
DFTF
with display



HYGRASGARD® DFF		In-ceiling humidity sensors ($\pm 2.0\%$), <i>Premium</i>				
HYGRASGARD® DFTF		In-ceiling humidity and temperature sensors ($\pm 2.0\%$), <i>Premium</i>				
Type / WG01	Measuring Range / Readout	Output	Display	Item No.	Price	
	Humidity	Humidity	Humidity			
	Temperature	Temperature	Temperature			
DFF-I I-variant						
DFF-I	0...100% RH	–	4...20mA	–	1201-6132-0000-100 367,04 €	
DFF-I LCD	0...100% RH	–	4...20mA	–	■ 1201-6132-0200-100 429,26 €	
DFF-U U-variant						
DFF-U	0...100% RH	–	0-10V	–	1201-6131-0000-100 367,04 €	
DFF-U LCD	0...100% RH	–	0-10V	–	■ 1201-6131-0200-100 429,26 €	
DFTF-I I-variant						
DFTF-I	0...100% RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20mA	4...20mA	1201-6132-1000-100 375,93 €	
DFTF-I LCD	0...100% RH	(4x as above)	4...20mA	4...20mA	■ 1201-6132-1200-100 438,16 €	
DFTF-U U-variant						
DFTF-U	0...100% RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V	1201-6131-1000-100 375,93 €	
DFTF-U LCD	0...100% RH	(4x as above)	0-10V	0-10V	■ 1201-6131-1200-100 438,16 €	
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101				on request	