

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

It is equipped with four switchable temperature ranges. Relative humidity (in % r.H.) 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. Fine adjustment by the user 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 enclosure.

TECHNICAL DATA

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

HUMIDITY

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

TEMPERATURE

Measuring range, temperature:	multi-range switching with 4 switchable measuring ranges (see table) $-35...+35^\circ C$; $-35...+75^\circ C$; $0...+50^\circ C$; $0...+80^\circ C$ (output corresponding to 0-10V or 4...20mA)
Deviation temperature:	$\pm 0.2K$ at $+25^\circ C$
Output, temperature:	0-10V or 4...20mA
Ambient temperature:	storage $-5...+60^\circ C$; operation $-5...+60^\circ C$
Long-term stability:	$\pm 1\%$ per year
Enclosure:	plastic, UV-stabilised, material polyamide, 30% glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), enclosure cover for display is transparent!
Enclosure dimensions:	72 x 64 x 37.8mm (Tyr 1 without display) 72 x 64 x 43.3mm (Tyr 1 with display)
Cable gland:	M16 x 1.5; including strain relief, exchangeable, max. inner diameter 10.4mm
Electrical connection:	2-, 3- or 4-wire (see connecting diagram), 0.14 - 1.5mm ² , via terminal screws on circuit board
Connecting cable:	PVC, LiYY, 4 x 0.14mm ² , cable length (KL) = approx. 2m (other lengths optional)
Connecting head:	made of plastic, material polycarbonate (PC), colour white, pluggable , $\varnothing$ = approx. 35mm, H = approx. 29mm, with metal sinter filter made of stainless steel V4A (1.4404)
Mounting (sensor):	in the suspended ceiling, ceiling cut-out $\varnothing = 30mm$, cover $\varnothing < 35mm$
Protection class:	III (according to EN 60730)
Protection type:	IP 65 (according to EN 60529) enclosure only! IP 30 (according to EN 60529) 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
Optional:	two-line display with illumination , cutout approx. 36 x 15mm (W x H), to display the ACTUAL temperature and / or ACTUAL humidity

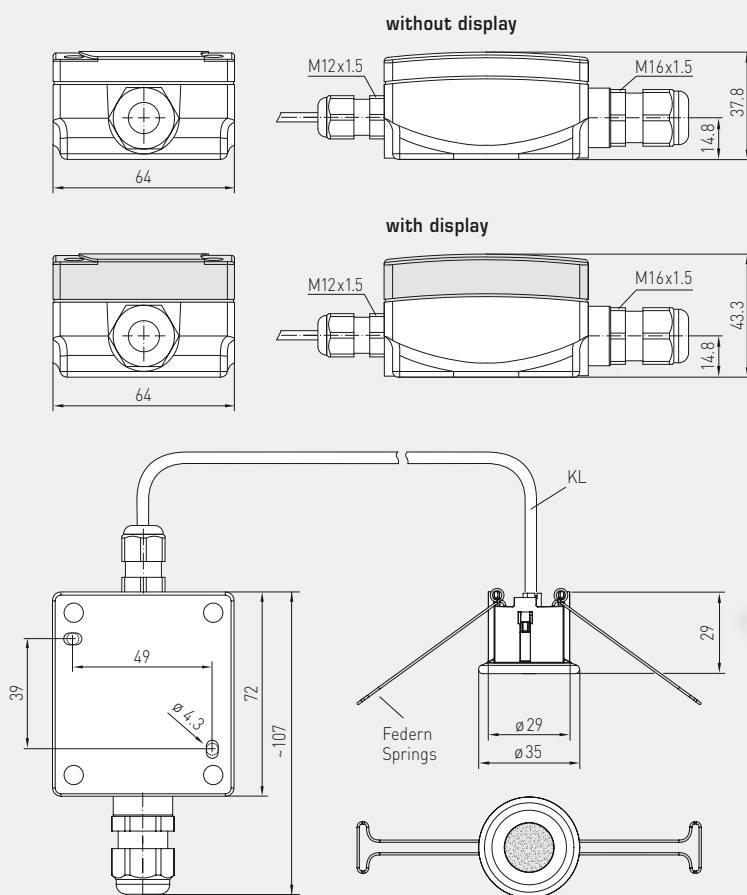
DFF
DFTFDFF
DFTF
Connecting head,
pluggable

**NEW**

S+S REGELTECHNIK

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

Dimensional drawing

DFF
DFTF**DFF**
DFTF
with displayTemperature table
MR: -35...+75 °C

°C	U _A in V	I _A in 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 in V	I _A in 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 in V	I _A in 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

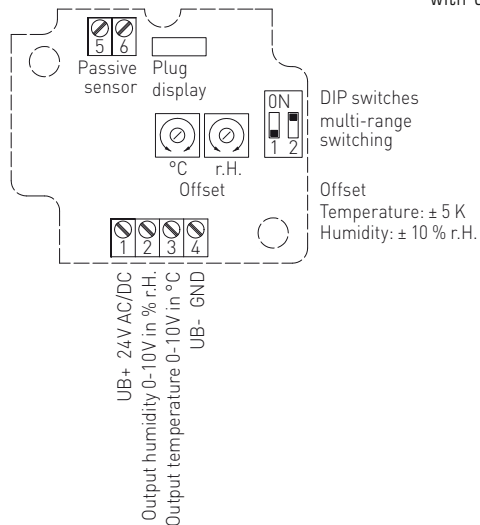
°C	U _A in V	I _A in mA
0	0.0	4.0
5	0.6	5.0
10	1.3	6.0
15	1.9	7.0
20	2.5	8.0
25	3.1	9.0
30	3.8	10.0
35	4.4	11.0
40	5.0	12.0
45	5.6	13.0
50	6.3	14.0
55	6.9	15.0
60	7.5	16.0
65	8.1	17.0
70	8.8	18.0
75	9.4	19.0
80	10.0	20.0

Humidity table
MR: 0...100 % r. H.

% r. H.	U _A in V	I _A in 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

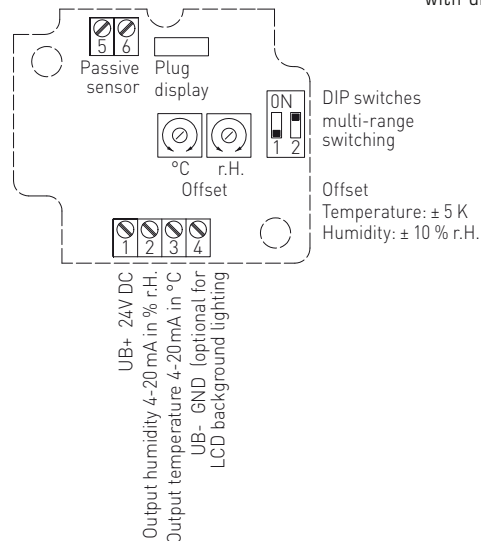
Schematic diagram

DFTF - U
with display



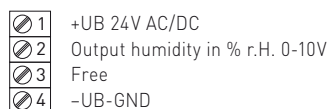
Schematic diagram**

DFTF - I
with display



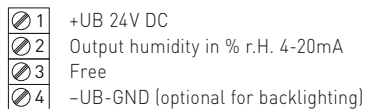
3-wire connection

DFF - U



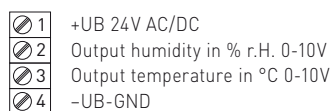
2- or 3-wire connection*

DFF - I
(Transmitter)



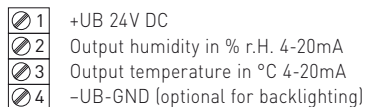
4-wire connection

DFTF - U



3- or 4-wire connection**

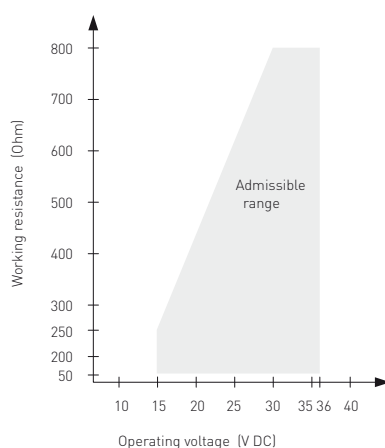
DFTF - I
(Transmitter)



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

Load resistance diagram
4...20mA

DFF
DFTF



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!

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and active output**DFF**
DFTF
with display**HYGRASGARD® DFF** – In-ceiling humidity sensors ($\pm 2.0\%$), *Premium*
HYGRASGARD® DFTF – In-ceiling humidity and temperature sensors ($\pm 2.0\%$), *Premium*

Type / WG01	Measuring Range / Readout Humidity	Readout Temperature	Output Humidity	Temperature	Display	Item No.	Price
DFF-I							I-variant
DFF-I	0...100 % r. H.	–	4...20 mA	–		1201-6132-0000-100	289,00 €
DFF-I DISPLAY	0...100 % r. H.	–	4...20 mA	–	■	1201-6132-0200-100	338,00 €
DFF-U							U-variant
DFF-U	0...100 % r. H.	–	0-10 V	–		1201-6131-0000-100	289,00 €
DFF-U DISPLAY	0...100 % r. H.	–	0-10 V	–	■	1201-6131-0200-100	338,00 €
DFTF-I							I-variant
DFTF-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA		1201-6132-1000-100	296,00 €
DFTF-I DISPLAY	0...100 % r. H.	(4x as above)	4...20 mA	4...20 mA	■	1201-6132-1200-100	345,00 €
DFTF-U							U-variant
DFTF-U	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-6131-1000-100	296,00 €
DFTF-U DISPLAY	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	■	1201-6131-1200-100	345,00 €
Extra charge:							on request
cable length (KL = 2 m), other lengths optional							