

The calibratable humidity and temperature sensor **HYGRASGARD® VFF / VFTF** measures the relative humidity and temperature of air. It converts the measurands humidity and temperature 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 % 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 showcase sensor is used in non-aggressive, dust-free environments and is specifically designed for installation in ceilings, walls, inside showcases or display cabinets in museums, galleries, cinemas or lecture halls or laboratories. The measuring element is contained inside a stainless steel probe and its low height (approx. 2.5 mm) makes it barely noticeable.

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:	$R_a \text{ (Ohm)} = (U_b - 14 \text{ V}) / 0.02 \text{ A}$ 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 % r.H. (output corresponding to 0-10 V or 4...20 mA)
Operating range, humidity:	0...95 % r.H. (without formation of dew)
Deviation in humidity:	typically $\pm 2.0\%$ (20...80 % r.H.) at $+25^\circ\text{C}$, 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) $-35...+35^\circ\text{C}$; $-35...+75^\circ\text{C}$; $0...+50^\circ\text{C}$; $0...+80^\circ\text{C}$ (output corresponding to 0-10 V or 4...20 mA)
Deviation, temperature:	$\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$
Output, temperature:	0-10 V or 4...20 mA
Ambient temperature:	storage $-5...+60^\circ\text{C}$; operation $-5...+60^\circ\text{C}$
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 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
Cable gland:	M 16 x 1.5; including strain relief, exchangeable, max. inner diameter 10.4 mm
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm ² , via terminal screws on circuit board
Connecting cable:	PVC, LiYY, 4 x 0.14 mm ² , cable length (KL) = 2 m (other lengths optional)
Sensor protection:	probe made of stainless steel, V4A (1.4571), pluggable ; sensor head $\varnothing = 17 \text{ mm}$, H = approx. 2.5 mm; protective sleeve $\varnothing = 10 \text{ mm}$, NL = approx. 25 mm, M10 x 1.0; with plastic plug connector $\varnothing = \text{approx. } 11 \text{ mm}$, NL = approx. 25 mm,
Mounting (sensor):	cut-out $\varnothing = 11 - 15 \text{ mm}$, inserted length (EL) = approx. 50 mm, lock nut for fixing is included in the scope of delivery.
Protection class:	III (according to EN 60730)
Protection type:	IP 65 (according to EN 60529)
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 , cut-out approx. 36 x 15 mm (W x H), for displaying ACTUAL temperature and / or ACTUAL humidity

VFF
VFTFVFF
VFTFProbe made of stainless steel,
pluggable



NEW

S+S REGELTECHNIK

HYGRASGARD® VFF
HYGRASGARD® VFTF

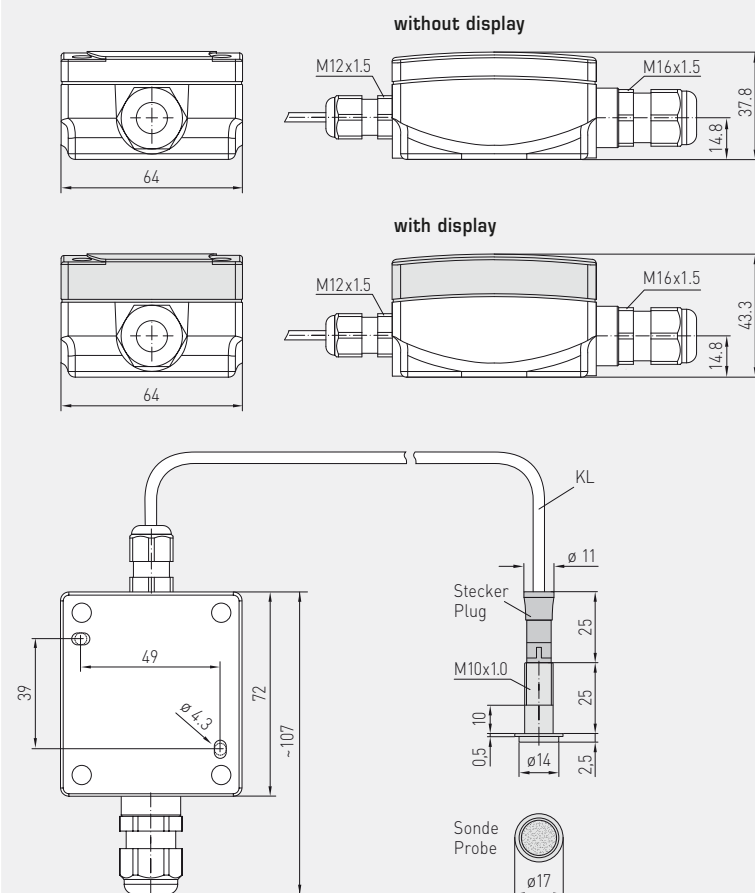
Showcase humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching
and active output



Dimensional drawing

VFF
VFTF

VFF
VFTF
with display



Temperature 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

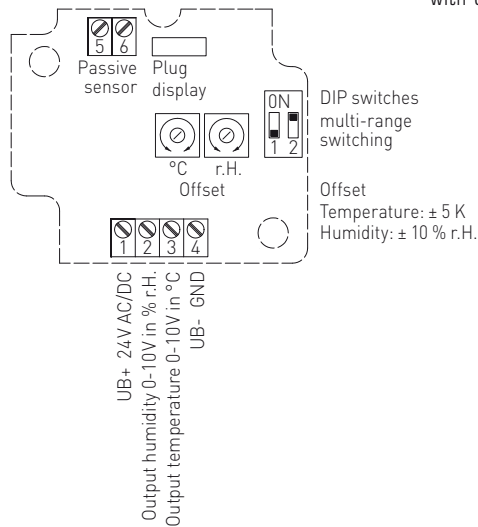
°C	U _A in V	I _A in mA
0	0.0	4.0
5	0.6	5.0
10	1.3	6.0
15	1.9	7.0
20	2.5	8.0
25	3.1	9.0
30	3.8	10.0
35	4.4	11.0
40	5.0	12.0
45	5.6	13.0
50	6.3	14.0
55	6.9	15.0
60	7.5	16.0
65	8.1	17.0
70	8.8	18.0
75	9.4	19.0
80	10.0	20.0

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

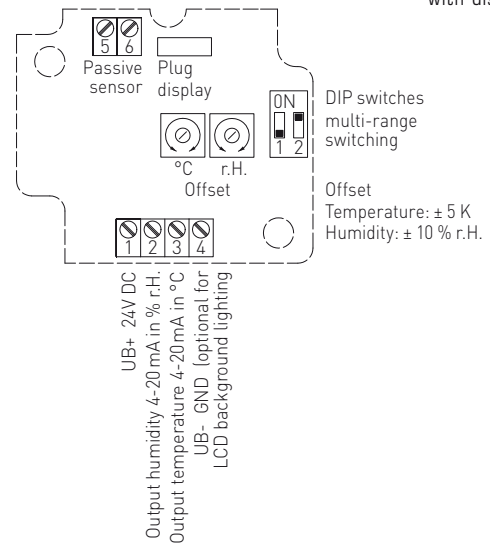
Schematic diagram

VFTF - U
with display



Schematic diagram**

VFTF - I
with display



3-wire connection

VFF - U

1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Free
4	-UB-GND

2- or 3-wire connection*

VFF - I
(Transmitter)

1	+UB 24V DC
2	Output humidity in % r.H. 4-20mA
3	Free
4	-UB-GND (optional for backlighting)

4-wire connection

VFTF - U

1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Output temperature in °C 0-10V
4	-UB-GND

3- or 4-wire connection**

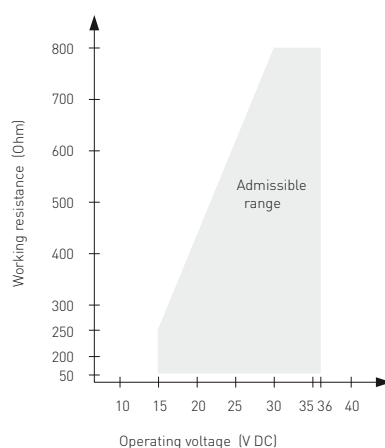
VFTF - I
(Transmitter)

1	+UB 24V DC
2	Output humidity in % r.H. 4-20mA
3	Output temperature in °C 4-20mA
4	-UB-GND (optional for backlighting)

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

VFF
VFTF



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

VFF
VFTF
with display



HYGRASGARD® VFF – Showcase humiditysensor ($\pm 2.0\%$), *Premium*
HYGRASGARD® VFTF – Showcase humidity- and temperature sensor ($\pm 2.0\%$), *Premium*

Type / WG02	Measuring Range / Readout	Output	Display	Item No.	Price
	Humidity	Humidity			
	Temperature	Temperature			
VFF-I				I-variant	
VFF-I	0...100 % r. H.	–	4...20 mA	–	1201-6122-0000-100 390,00 €
VFF-I DISPLAY	0...100 % r. H.	–	4...20 mA	–	■ 1201-6122-0200-100 433,00 €
VFF-U				U-variant	
VFF-U	0...100 % r. H.	–	0-10 V	–	1201-6121-0000-100 390,00 €
VFF-U DISPLAY	0...100 % r. H.	–	0-10 V	–	■ 1201-6121-0200-100 433,00 €
VFTF-I				I-variant	
VFTF-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	1201-6122-1000-100 393,50 €
VFTF-I DISPLAY	0...100 % r. H.	(4x as above)	4...20 mA	4...20 mA	■ 1201-6122-1200-100 436,80 €
VFTF-U				U-variant	
VFTF-U	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	1201-6121-1000-100 393,50 €
VFTF-U DISPLAY	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	■ 1201-6121-1200-100 436,80 €
Extra charge:	cable length (KL=2 m), other lengths optional				on request