

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

The calibratable pendulum room humidity and temperature sensor **HYGRASGARD® RPFF / RPFTF** with plastic sinter filter measures the relative humidity and temperature of air. It converts the measurands humidity and temperature into standard signals of 0-10V or 4...20mA and is available with or without an optional display. It has 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 sensor is applied in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology, hotels, technical rooms, meeting rooms and convention centres. These 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 sensor is appropriate for ceiling and duct installation, or for integrating it into equipment.

**RPFF
RPFTF**
with plastic sinter filter
(standard)

TECHNICAL DATA

Power supply:	24 V AC ($\pm 20\%$); 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 V DC; $< 2.2 \text{ VA}$ / 24 V AC
Sensors:	digital humidity sensor with integrated temperature sensor , low hysteresis, high long-term stability
Sensor protection:	plastic sinter filter, $\varnothing 16 \text{ mm}$, $L = 35 \text{ mm}$, exchangeable (optional metal sinter filter, $\varnothing 16 \text{ mm}$, $L = 32 \text{ mm}$)

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, humidity:	typically $\pm 2.0\%$ (20...80% r.H.) at $+25^\circ\text{C}$, 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) $-35\ldots+35^\circ\text{C}$; $-35\ldots+75^\circ\text{C}$; $0\ldots+50^\circ\text{C}$; $0\ldots+80^\circ\text{C}$ (output corresponding to 0-10V or 4...20mA)
Operating range, temperature:	$-35\ldots+80^\circ\text{C}$
Deviation, temperature:	$\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$
Output, temperature:	0-10V or 4...20mA or Ohm value
Ambient temperature:	storage $-5\ldots+60^\circ\text{C}$ operation $-5\ldots+60^\circ\text{C}$
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
Connection cable:	PVC, LiYY, 6 x 0.14 mm ² , KL = approx. 2 m (other lengths optional)
Protective tube:	stainless steel , $\varnothing 16 \text{ mm}$, NL = 142 mm
Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according to EN 60 529)
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 15 mm (W x H), for displaying ACTUAL temperature and / or ACTUAL humidity

ACCESSORIES see last chapter



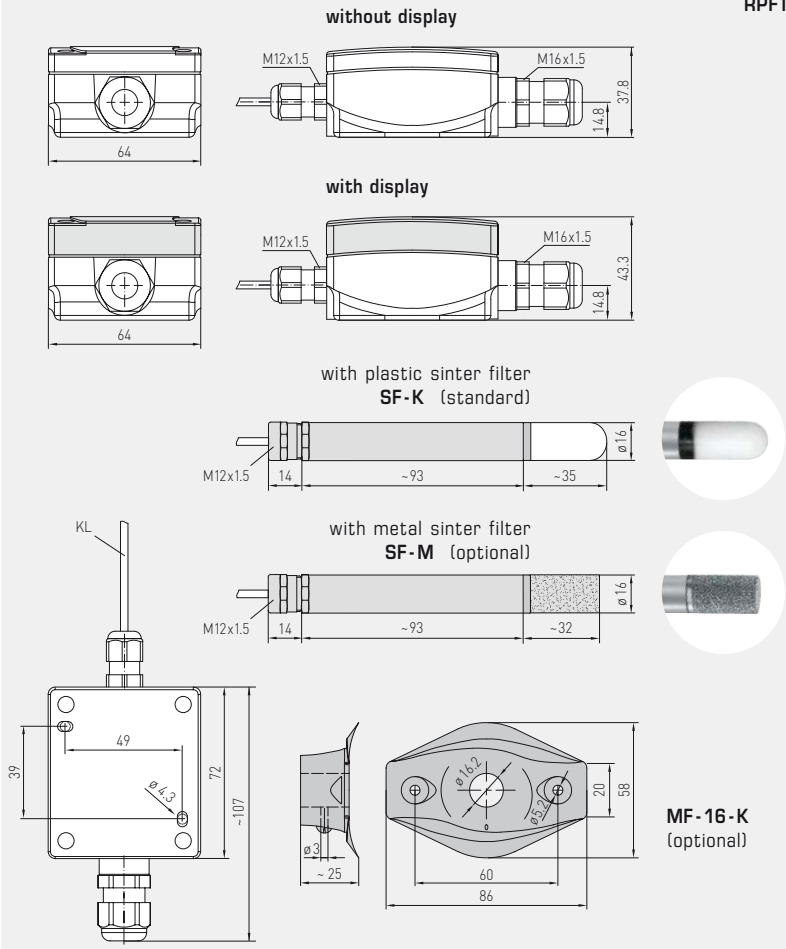
SF-M
Metal sinter filter
(optional)



MF-16-K
Mounting flange,
plastic
(optional)



Dimensional drawing



RPFF
RPFTF

RPFF
RPFTF
with display and
plastic sinter filter
(standard)



Temperature table
MR: -35...+75 °C

$^{\circ}\text{C}$	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

$^{\circ}\text{C}$	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

$^{\circ}\text{C}$	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

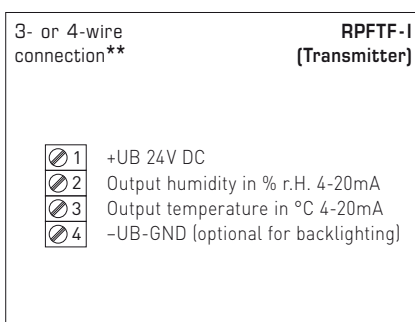
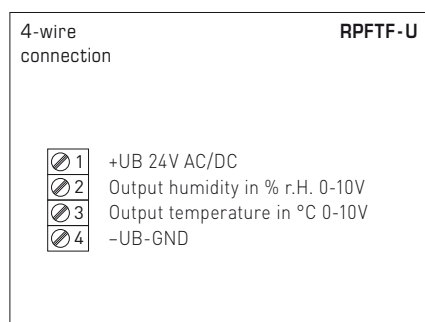
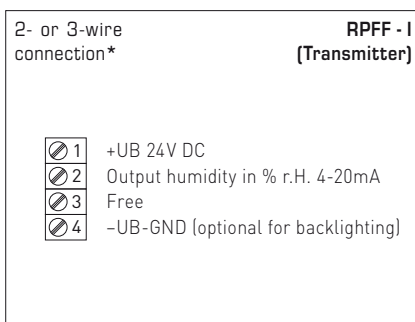
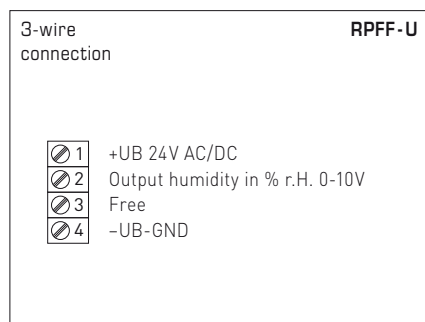
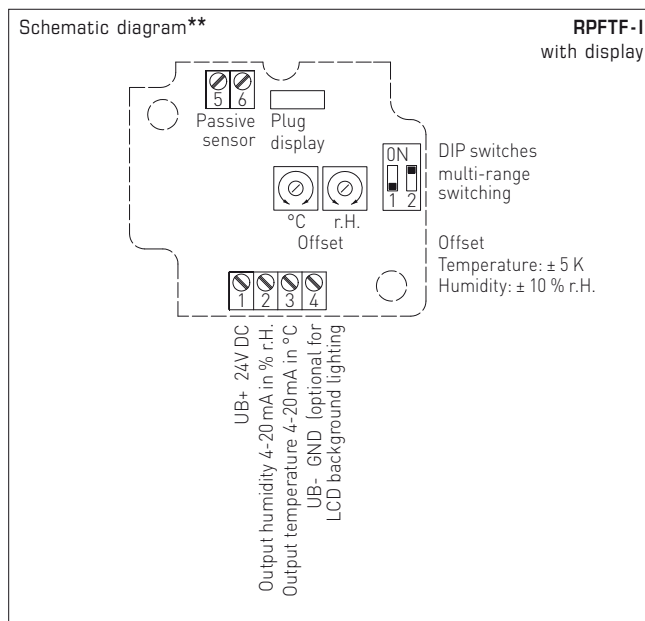
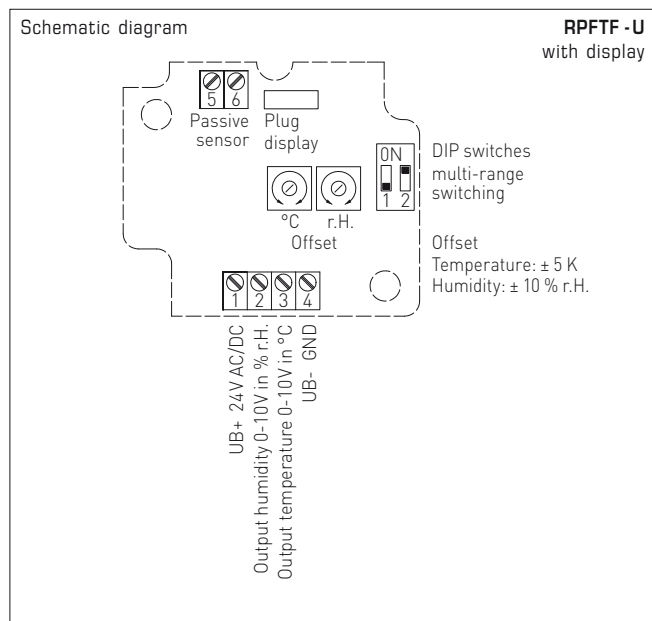
Temperature table
MR: 0...+80 °C

$^{\circ}\text{C}$	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

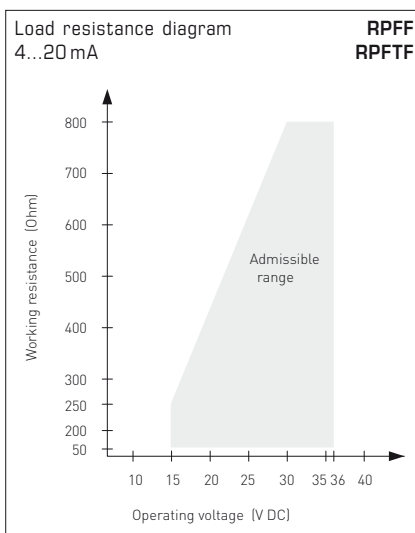
Humidity table
MR: 0...100% r. H.

% 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

Pendulum room 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	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® RPFF
HYGRASGARD® RPFTF

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

RPFF
RPFTF
with display



HYGRASGARD® RPFF – Pendulum room humidity sensors ($\pm 2.0\%$), *Premium*
HYGRASGARD® RPFTF – Pendulum room humidity and temperature sensors ($\pm 2.0\%$), *Premium*

Type / WG01	Measuring Range / Readout		Output		Item No.	Price
	Humidity	Temperature	Humidity	Temperature		
RPFF-I						I-variant
RPFF-I	0...100 % r. H.	–	4...20 mA	–	1201-1172-0000-100	167,50 €
RPFF-U						U-variant
RPFF-U	0...100 % r. H.	–	0-10 V	–	1201-1171-0000-100	167,50 €
RPFTF-I						I-variant
RPFTF-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	1201-1172-1000-100	171,26 €
RPFTF-U						U-variant
RPFTF-U	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	1201-1171-1000-100	171,26 €
Extra charge:	Two-line display with illumination Cable length (KL = 2 m), other lengths optional up to max. 5 m				on request	42,02 €

Accessories

SF-M	Metal sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel V4A (1.4404)	7000-0050-2200-100	35,70 €
MF-16-K	Mounting flange, plastic	7100-0030-0000-000	8,06 €
For further information see last chapter!			