

**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 into standard signals of 0-10 V or 4...20 mA and is available with or without an optional display. It has four switchable temperature ranges. 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. The sensor is appropriate for ceiling and duct installation, or for integrating it into equipment. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

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:	$< 1.1 \text{ VA} / 24 \text{ V DC}$; $< 2.2 \text{ VA} / 24 \text{ V AC}$
Sensors:	digital humidity sensor with integrated temperature sensor , low hysteresis, high long-term stability
Sensor protection:	plastic sinter filter , $\varnothing 16 \text{ mm}$, $L = 35 \text{ mm}$, exchangeable (optional metal sinter filter , $\varnothing 16 \text{ mm}$, $L = 32 \text{ mm}$)

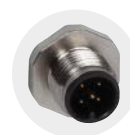
HUMIDITY

Measuring range, humidity:	0...100% RH (output corresponding to 0-10 V or 4...20 mA)
Operating range, humidity:	0...95% RH (without formation of dew)
Deviation, 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) $-35\ldots+35^\circ\text{C}$; $-35\ldots+75^\circ\text{C}$; $0\ldots+50^\circ\text{C}$; $0\ldots+80^\circ\text{C}$ (output corresponding to 0-10 V or 4...20 mA)
Operating range, temperature:	$-35\ldots+80^\circ\text{C}$
Deviation, temperature:	typically $\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$
Output, temperature:	0-10 V or 4...20 mA 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
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 (on request)
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm ² via terminal screws
Connection cable:	PVC, LiYY, 6 x 0.14 mm ² , KL = approx. 2 m (other lengths optional)
Protective tube:	stainless steel V2A (1.4301), $\varnothing = 16 \text{ mm}$, NL = 142 mm
Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)
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

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

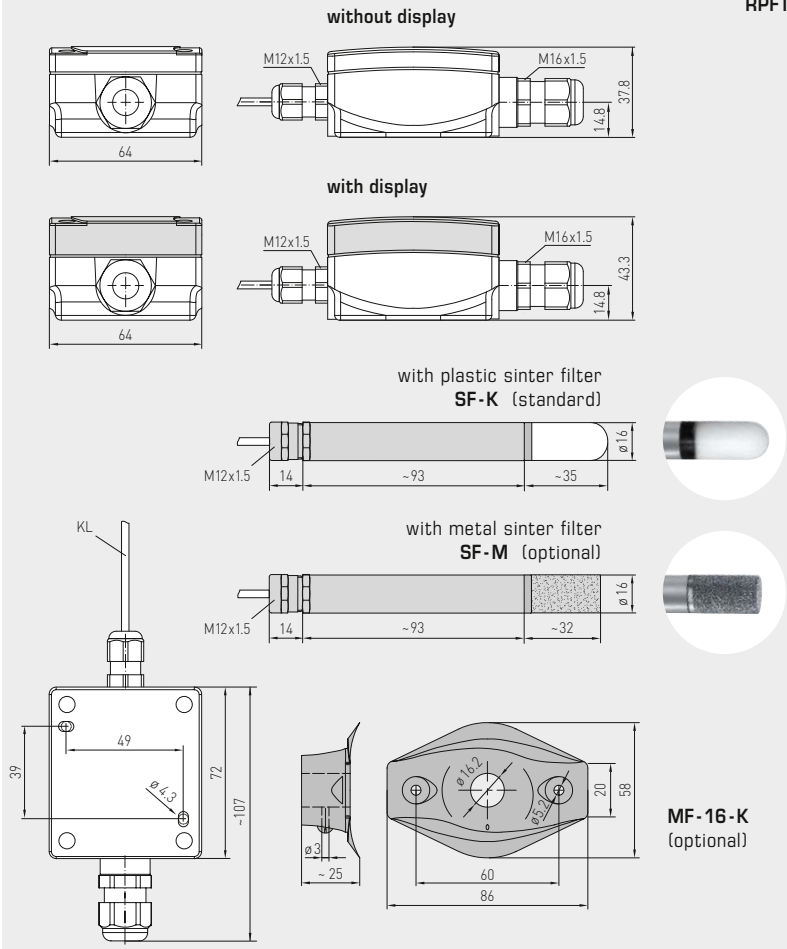


M12 connector
(optional on request)

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 [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

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

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

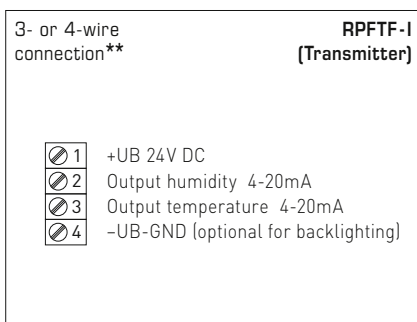
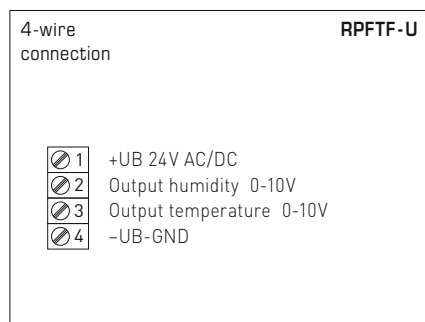
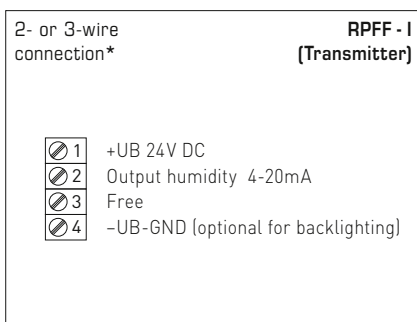
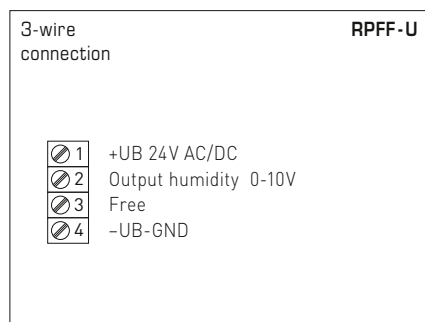
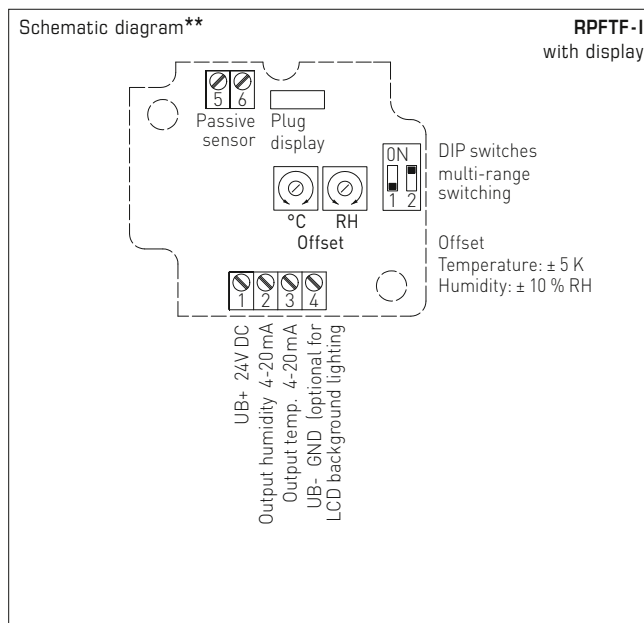
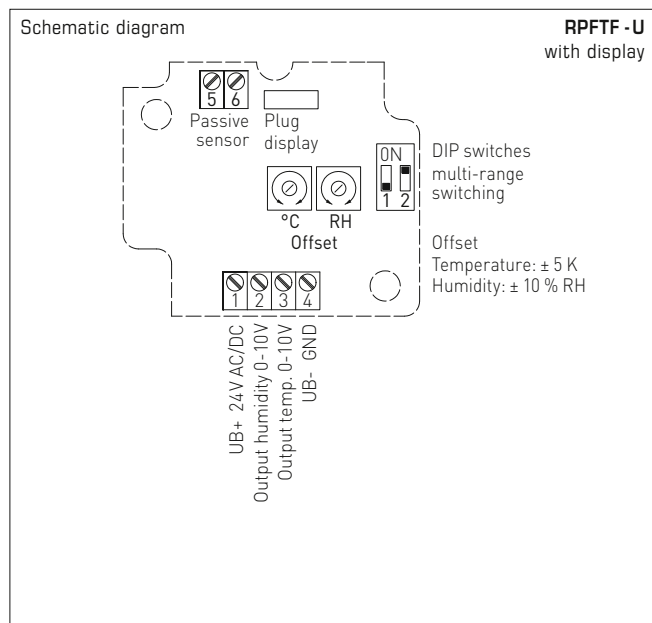
Temperature table
MR: 0...+80 °C

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

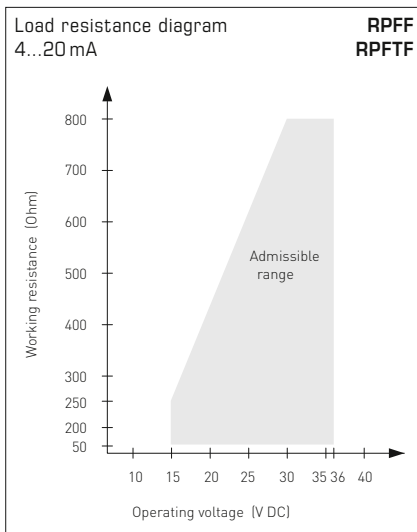
Humidity table
MR: 0...100 % RH

% 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

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 (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® 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 ($\pm 2.0\%$), <i>Premium</i>			
HYGRASGARD® RPFTF		Pendulum room humidity and temperature sensors ($\pm 2.0\%$), <i>Premium</i>			
Type / WG01	Measuring Range / Readout	Output		Item No.	
	Humidity	Humidity	Temperature		
RPFF					
RPFF-I	0...100% RH	–	4...20 mA	–	1201-1172-0000-100
RPFF-U	0...100% RH	–	0-10 V	–	1201-1171-0000-100
RPFTF					
RPFTF-I	0...100% RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	1201-1172-1000-100
RPFTF-U	0...100% RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	1201-1171-1000-100
Extra charge:	Two-line display with illumination Cable length (KL = 2 m), other lengths optional up to max. 5 m				on request
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101				on request

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