

**Pendulum room humidity and temperature sensors ($\pm 1.8\%$),
calibratable, with multi-range switching
and active output**

S+S REGELTECHNIK

The calibratable pendulum room humidity and temperature sensor **HYGRASGARD® RPFF-25 / RPFTF-25** with pluggable metal sinter filter, housing made of impact-resistant plastic, with /without optional display.

It measures the relative humidity and/or the temperature of the air and converts the measurands into a standard signal of 0-10 V or 4...20 mA. It is equipped with 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 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.

RPFF-25 / RPFTF-25 ($\pm 1.8\%$)
pluggable measuring head
with metal sinter filter

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 , small hysteresis, high long-term stability, sensor head pluggable
Sensor protection:	pluggable measuring head (probe) with metal sinter filter , $\varnothing 16 \text{ mm}$, $L = 88.5 \text{ mm}$, exchangeable

HUMIDITY

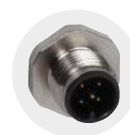
Measuring range, humidity:	0...100 % RH (output corresponding to 0-10 V or 4...20 mA)
Operating range, humidity:	0...95 % RH (without formation of dew)
Deviation, humidity:	typically $\pm 1.8\%$ (10...90 % RH) at $+25^\circ\text{C}$, otherwise $\pm 2.0\%$
Output, humidity:	0-10 V for U variant 4...20 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:	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 $-35...+85^\circ\text{C}$ operation $-30...+70^\circ\text{C}$
Long-term stability:	$\pm 1\%$ per year
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm ² via terminal screws
Connection cable:	KL = 2 m
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:	126 x 90 x 50 mm (Tyr 2)
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)
Protective tube:	stainless steel V2A (1.4301), $\varnothing = 18 \text{ mm}$ (16 mm), $L = 120 \text{ mm}$
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:	three-line display with illumination , cutout approx. 70 x 40 mm (W x H), for displaying ACTUAL temperature and / or ACTUAL humidity

ACCESSORIES

see last chapter



M12 connector
(optional on request)

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





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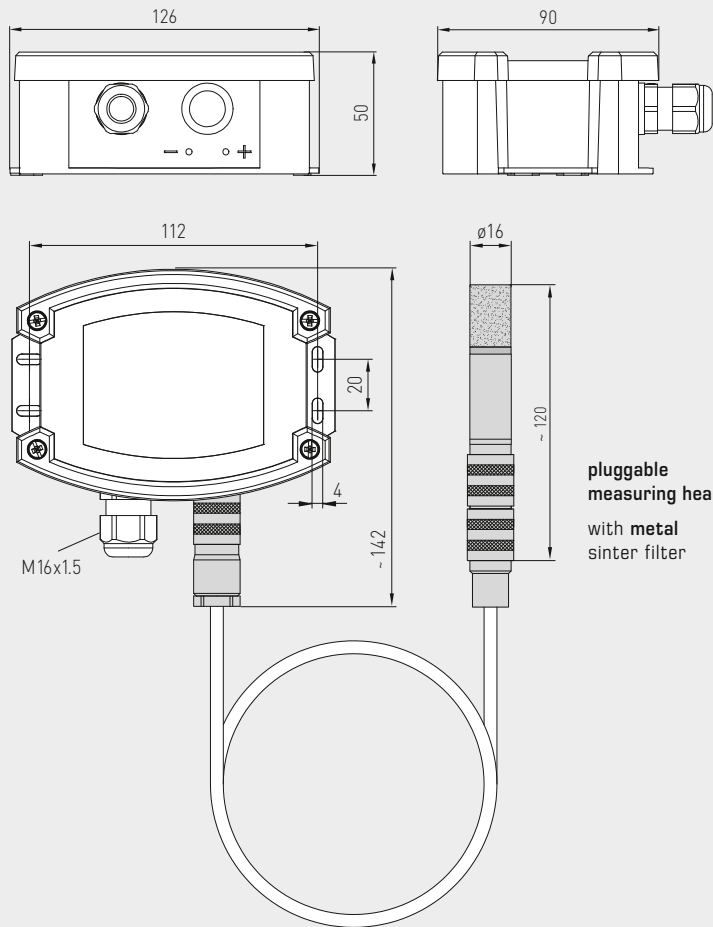
HYGRASGARD® RPFF-25
HYGRASGARD® RPFTF-25

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Dimensional drawing

RPFF-25 / RPFTF-25



pluggable
measuring head
with metal
sinter filter

RPFF-25 / RPFTF-25 ($\pm 1.8\%$)
pluggable measuring head
with metal sinter filter
and display



Temperature table
MR: $-35\ldots+75\text{ }^{\circ}\text{C}$

$^{\circ}\text{C}$	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: $-35\ldots+35\text{ }^{\circ}\text{C}$

$^{\circ}\text{C}$	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: $0\ldots+50\text{ }^{\circ}\text{C}$

$^{\circ}\text{C}$	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: $0\ldots+80\text{ }^{\circ}\text{C}$

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

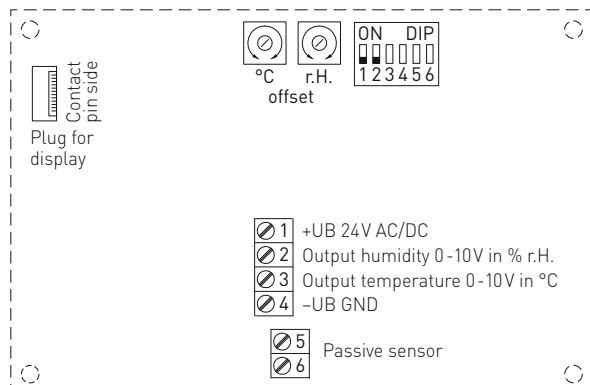
Humidity table
MR: $0\ldots100\text{ }^{\circ}\text{RH}$

% 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

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Schematic diagram

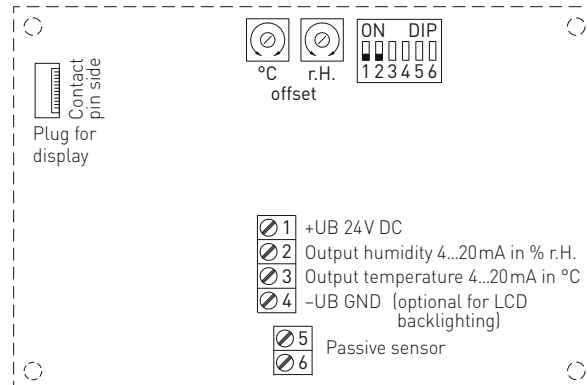
RPFTF-25-U
with display



DIP 3, 4, 5, 6 are not assigned!

Schematic diagram**

RPFTF-25-I
with display



DIP 3, 4, 5, 6 are not assigned!

3-wire
connection

RPFF-25-U

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

2- or 3-wire
connection*

RPFF-25-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

RPFTF-25-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**

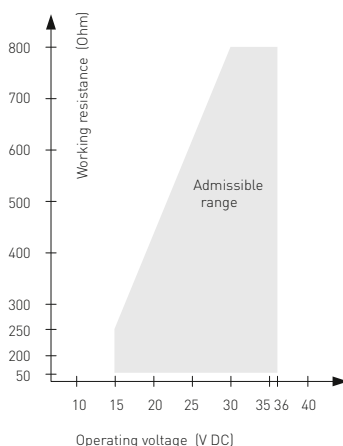
RPFTF-25-I
(Transmitter)

- 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 (default)	OFF	ON
0...+80 °C	ON	OFF

Load resistance diagram
4...20 mA

RPFF-25
RPFTF-25



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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HYGRASGARD® RPFF - 25
HYGRASGARD® RPFTF - 25

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RPFF-25 / RPFTF-25 ($\pm 1.8\%$)
with display



HYGRASGARD® RPFF - 25 Pendulum room humidity sensors, pluggable ($\pm 1.8\%$), *Deluxe*
HYGRASGARD® RPFTF - 25 Pendulum room humidity and temperature sensors, pluggable ($\pm 1.8\%$), *Deluxe*

Type / WG02	Measuring Range / Readout		Output		Display	Item No.
	Humidity	Temperature	Humidity	Temperature		
RPFF-25-I						
I-variant						
RPFF-25-I	0...100 % RH	–	4... 20 mA	–		1201-7122-0000-100
RPFF-25-I LCD	0...100 % RH	–	4... 20 mA	–	■	1201-7122-0400-100
RPFF-25-U						
U-variant						
RPFF-25-U	0...100 % RH	–	0-10 V	–		1201-7121-0000-100
RPFF-25-U LCD	0...100 % RH	–	0-10 V	–	■	1201-7121-0400-100
RPFTF-25-I						
I-variant						
RPFTF-25-I	0...100 % RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA		1201-7122-1000-100
RPFTF-25-I LCD	0...100 % RH	(4x as above)	4... 20 mA	4... 20 mA	■	1201-7122-1400-100
RPFTF-25-U						
U-variant						
RPFTF-25-U	0...100 % RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-7121-1000-100
RPFTF-25-U LCD	0...100 % RH	(4x as above)	0-10 V	0-10 V	■	1201-7121-1400-100
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101					on request

ACCESSORIES		
MSK-25	Pluggable measuring head (sensor), stainless steel V2A (1.4301), metal sinter filter , Ø 16 mm, L = 88.5 mm, exchangeable, as replacement element for RPFF-25 / RPFTF-25	7201-1131-0000-000
MF-16-K	Mounting flange , plastic	7100-0030-0000-000
For further information see last chapter!		