RFF
RFTF

**Room humidity and temperature sensors (± 3 % r.H.),
on-wall, calibratable,
with active / passive output**

Quality product for HVAC sector, accuracy 3 % r.H.

The calibratable room humidity and temperature sensor **HYGR**ASGARD® **RFF / RFT** measures the relative humidity and/or temperature of air. It converts the measurands humidity and temperature into standard signals of 0 -10 V or 4...20 mA and is available with or without an optional display (for displaying actual humidity and actual temperature) in an elegant enclosure made of plastic, with snap-on lid, base with 4-hole attachment for installation on vertically or horizontally installed in-wall flush boxes, with predetermined breaking point for on-wall cable entry. The relative humidity (in % r.H.) is the quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature.

It is used in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology, in interior rooms such as residential rooms, offices, hotels, technical rooms, meeting rooms and convention centres. These measuring transducers are designed for exact detection of air 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.

TECHNICAL DATA

Power supply:	24 V AC (± 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 (ohm) = (U_b -14 V) / 0.02 A for I variant
Load resistance:	R_L > 5 kOhm for U variant
Power consumption:	< 1.1 VA / 24 V DC ; < 2.2 VA / 24 V AC
Sensors:	**digital humidity sensor** **with integrated temperature sensor,** small 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. (non-precipitating air)
Deviation, humidity:	**± 3 % r. H.** (20...80 %) at +20 °C, otherwise ± 5 % r. H.
Output, humidity:	0 -10 V for U variant 4...20 mA for I variant, working resistance < 800 Ω, see load resistance diagram
TEMPERATURE	
Measuring range, temperature:	0...+ 50 °C (output corresponding to 0 -10 V or 4... 20 mA or Ohm value) others upon request!
Operating range, temperature:	0...+ 50 °C
Deviation, temperature:	± 0.2 K at +25 °C
Output, temperature:	0 -10 V or 4 ... 20 mA or Ohm value
Ambient temperature:	storage –25...+50 °C, operation –5...+55 °C
Electrical connection:	2-, 3- or 4-wire connection (see connecting diagram) 0.14 -1.5 mm² via terminal screws on circuit board
Enclosure:	plastic, material ABS, colour pure white (similar to RAL 9010)
Enclosure dimensions:	85 x 85 x 27 mm (Baldur 1)
Installation:	wall mounting or on in-wall flush box, Ø 55 mm, base with 4-hole for mounting on vertically or horizontally installed in-wall flush boxes for cable entry from the back, with predetermined breaking point for on-wall cable entry from top / bottom in case of plain on-wall installation
Long-term stability:	±1 % per year
Protection class:	III (according to EN 60 730)
Protection type:	IP 30 (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, 36 x 15 mm (W x H), for displaying ACTUAL temperature and / or ACTUAL humidity

The two-line display readout switches between the ACTUAL humidity reading in % r. H. and the ACTUAL temperature reading in °C.

Backlighting is installed for better instrument readability.

Display Readout **RFTF**

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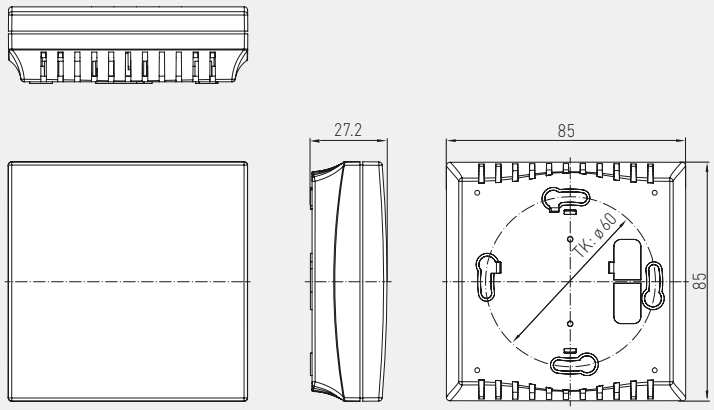
Dimensional drawing
(Baldur 1)

RFF
RFTF



RFF
RFTF

RFF
RFTF
without display

RFF
RFTF
with display

RFF
RFTF
with display

RFF
RFTF

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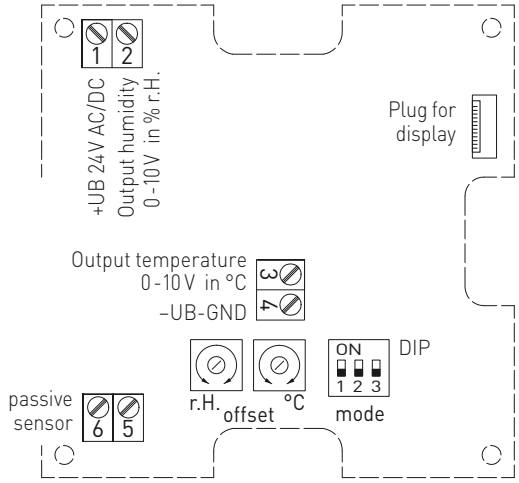
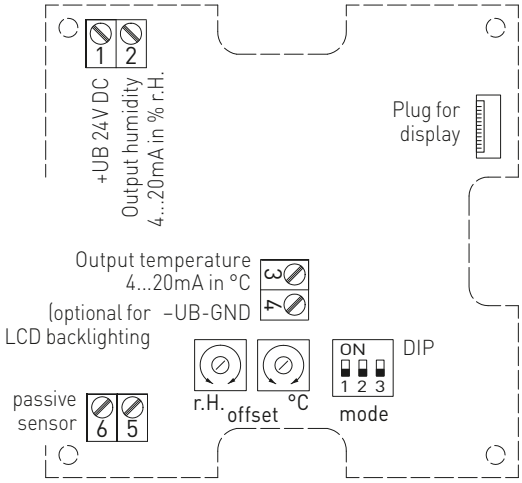
Schematic diagram
(Baldur 1)

RFTF-U-x
RFTF-U-x with display



Schematic diagram
(Baldur 1)

RFTF-I-x
RFTF-I-x with display



3-wire
connection

RFF-U

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

3 Free
4 –UB-GND

2- or 3-wire
connection *

RFF-I
(Transmitter)

1 +UB 24V DC
2 Output humidity in % r.H. 4...20mA

3 Free
4 –UB-GND (optional for backlighting)

4- or 6-wire
connection

RFTF-U
(passive temperature sensor)

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

3 Output temperature in °C 0-10V
4 –UB-GND

5 Passive element
6 e.g. Pt1000, Ni1000, LMZ235Z

4-wire
connection

RFTF-U
RFTF-U with display

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 **

RFTF-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)

4- or 6-wire
connection

RFTF-I
(passive temperature sensor)

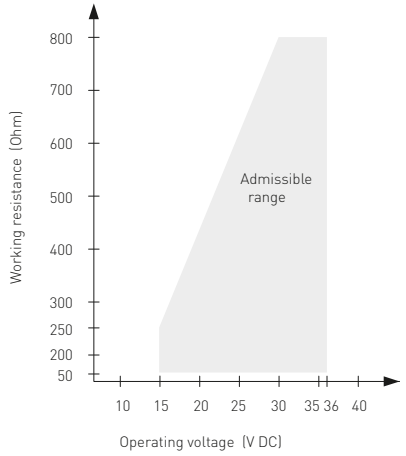
1 +UB 24V DC
2 Output humidity in % r.H. 4...20mA

3 Output temperature in °C 4...20mA
4 –UB-GND (optional for backlighting)

5 Passive element
6 e.g. Pt1000, Ni1000, LMZ235Z

Load resistance diagram
4...20 mA

RFF/ RFTF



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

At the I **variant th**e humidity path
must be connected!