

## Room hygrostats and humidity and temperature sensors ( $\pm 2.0\%$ ), electronic, two-step, with continuous / switching outputs

Electronic room hygrostat and/or room thermostat **HYGRASREG® RHT-30** with one continuous and two switching outputs, adjustable switching thresholds, with / without optional display for indicating ACTUAL humidity and/or ACTUAL temperature (accuracy class  $\pm 2.0\%$  RH).

The setpoints can be allocated to the relative humidity and/or to the temperature.

It is suitable for regulating and monitoring relative humidity (humidifying and dehumidifying) and/or the temperature (heating and cooling), e.g. in ventilation and air conditioning ducts, laboratories, production facilities, climatic test cabinets, indoor swimming pools, greenhouses, etc., to control humidifying and dehumidifying equipment or heating system control. The measuring transducers are designed for exact humidity/temperature measurement. The RHT-30 uses a digital, long-term stable sensor as a measuring element. It is used in dust-free, unpolluted, non-aggressive air.

### TECHNICAL DATA

Power supply:	24 V AC ( $\pm 20\%$ ), 15...36 V DC
Load resistance:	$R_L > 5\text{ k}\Omega$
Power consumption:	$< 1,5\text{ VA} / 24\text{ V DC}$ , $< 3,5\text{ VA} / 24\text{ V AC}$
Sensor:	<b>digital humidity sensor with integrated temperature sensor</b> , low hysteresis, high long-term stability
Setting range:	5...95 % RH (Humidity) +5...+45 °C (Temperature) (switch steps 1 and 2 are separately adjustable)
Operating difference:	<b>Mode 1:</b> both switch steps are freely adjustable (rel. humidity) <b>Mode 2:</b> 5 % between both switch steps (rel. humidity) <b>Mode 3:</b> both switch steps freely adjustable (temperature) <b>Mode 4:</b> switch step 1 (temperature), switch step 2 (rel. humidity) (adjustable via DIP switches)
Output:	potential-free changeover contacts (2x changeover contact 24 V, 1A ohmic load, separately adjustable, 1x 0 - 10 V)
Accuracy, humidity:	typically $\pm 2.0\%$ (20...80 % RH) at +25 °C, otherwise $\pm 3.0\%$
Accuracy, temperature:	typically $\pm 0.2\text{ K}$ at +25 °C
Ambient temperature:	storage -35...+85 °C; operation -30...+70 °C, non-precipitating
Long-term stability:	$\pm 1\%$ per year
Housing:	plastic, flame retardant (UL 94 V-0), PC/ABS material, colour white (similar to RAL 9016)
Housing dimensions:	98 x 98 x 35 mm (Baldur 2)
Installation:	wall mounting or on in-wall flush box, $\varnothing 55\text{ mm}$ , 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
Protection class:	III (according to EN 60 730)
Protection type:	<b>IP30</b> (according to EN 60 529)
Electrical connection:	0.14 - 1.5 mm <sup>2</sup> , via terminal screws
Standards:	CE conformity according to EMC directive 2014 / 30 / EU
Optional:	two-line <b>display with illumination</b> , cutout approx. 36x15 mm (W x H), for displaying ACTUAL humidity and/or ACTUAL temperature respectively for setpoint adjustment

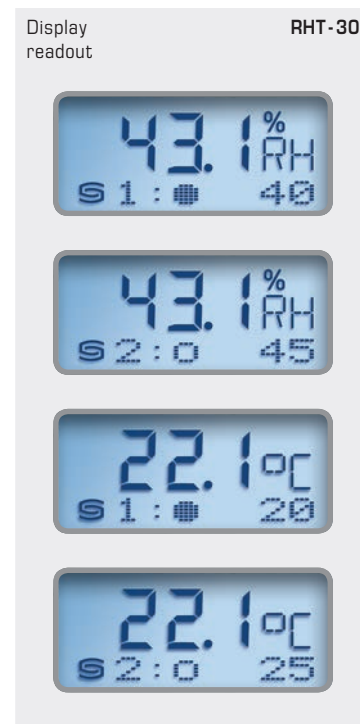
### FUNCTION

Humidifying/heating:	<b>1st step:</b> wire contacts 11 - 12. If actual humidity falls more than 3% RH / 1 K (hysteresis) below switching threshold S1, the changeover contact switches to 11 - 12. <b>2. step:</b> wire contacts 21 - 22. If actual humidity falls more than 3% RH / 1 K (hysteresis) below switching threshold S2, the changeover contact switches to 21 - 22. Terminal 2: output relative humidity / temperature
Dehumidifying/cooling:	<b>1st step:</b> wire contacts 11 - 13. When actual humidity exceeds switching threshold S1, the changeover contact switches to 11 - 13. <b>2. step:</b> wire contacts 21 - 23. When actual humidity exceeds switching threshold S2, the changeover contact switches to 21 - 23. Terminal 2: output relative humidity / temperature

The **1st line** of the display shows the **ACTUAL humidity** in % RH and the **ACTUAL temperature** in °C. The displays showing the ACTUAL values alternate in a 3-second rhythm. Resolution: 1/10 % RH or 1/10 °C.

The **2nd line** shows information about the **switching status of the relay** (as a circuit), and indicates the **switching value** in % RH or °C (adjustable via the corresponding set potentiometer). The readouts of the switching thresholds for the first and second relay are displayed alternately at an interval of twenty seconds.

For improved legibility, backlighting is provided.

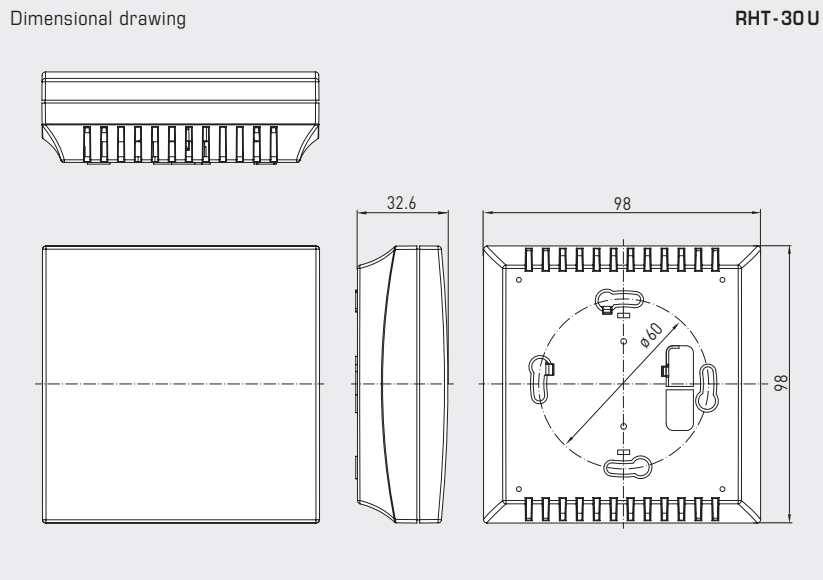




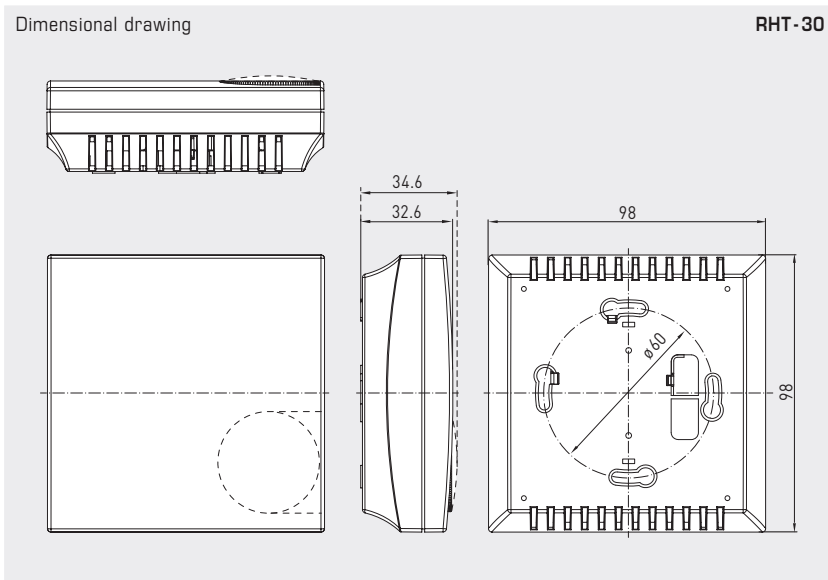
S+S REGELTECHNIK

HYGRASREG® RHT - 30

Room hygrostats and humidity and temperature sensors ( $\pm 2.0\%$ ), electronic, two-step, with continuous/switching outputs



RHT-30U  
with internal setting



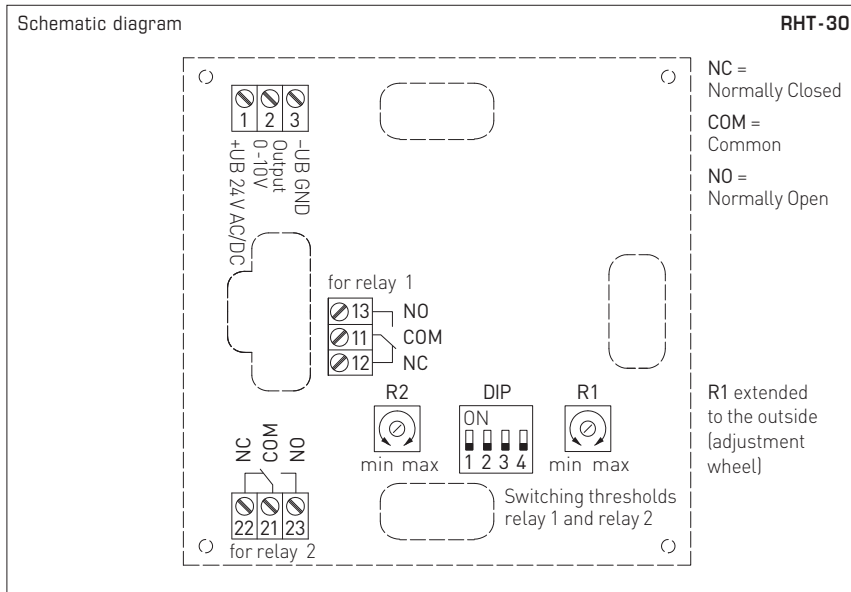
RHT-30



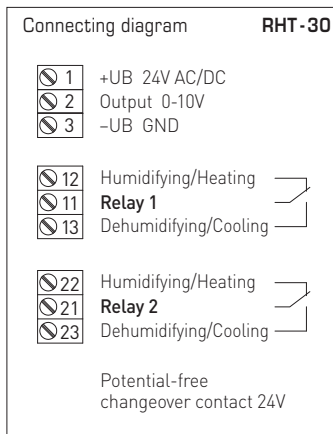
RHT-30  
with display



Room hygrostats and humidity and temperature sensors ( $\pm 2.0\%$ ), electronic, two-step, with continuous / switching outputs



DIP switches	RHT-30	
Function mode	DIP 1	DIP 2
<b>Mode 1</b> (2x 5...95%RH) (default)	OFF	OFF
<b>Mode 2</b> (5...95%RH + 5%RH)	ON	OFF
<b>Mode 3</b> (2x +5...+45°C)	OFF	ON
<b>Mode 4</b> (5...95%RH/+5...+45°C)	ON	ON
Output	DIP 3	
Temperature	ON	
Relative humidity (default)	OFF	
Backlighting	DIP 4	
activated	ON	
deactivated (default)	OFF	



Supply	AC	DC
→ 1	24V~	24V DC
→ 3	0V	GND

12 (A1) →	Relay 1 Breaker contact
11 (W1) →	Relay 1 Changeover contact
13 (B1) →	Relay 1 Normally open contact
22 (A2) →	Relay 2 Breaker contact
21 (W2) →	Relay 2 Changeover contact
23 (B2) →	Relay 2 Normally open contact

**Switching output RHT-30**

**Mode 1:** Independent switchpoints for both relay outputs can be defined in the range of 5...95% RH by the control knobs (setpoint1 for relay1, setpoint2 for relay2, see schematic diagram). When the respective switchpoint is exceeded, the corresponding relay switches over (changeover contact 1 switches from position 2 to position 3). When the pre-set switchpoint is undershot again by more than 3% RH (hysteresis), the respective switching output switches back to the initial position (changeover contact 1 switches from position 3 to position 2).

**Mode 2:** In Mode 2, only control knob setpoint1 is active (setpoint2 without function)! The switchpoint for the first relay is defined in the range of 5...95% RH by the control knob setpoint 1 (see schematic diagram). The switchpoint for the second relay output is invariably defined in mode 2 as "Switchpoint 1 + 5% RH". Hysteresis of 3% RH is also predefined for each switching output in mode 2.

**Mode 3:** Independent switchpoints for both relay outputs can be defined in the range of +5...+45°C by the control knobs (setpoint1 for relay1, setpoint2 for relay2). If the respective switchpoint is exceeded, the corresponding relay switches over. If the pre-set threshold value is undershot again by 1 K (hysteresis), the respective switching output switches back to the initial position. The thresholds of the setting range (temperature) are 5°C above the minimum or below the maximum range value respectively.

**Mode 4:** In mode 4, the control knob is allocated to setpoint1 of the temperature, while control knob is allocated to setpoint2 of the relative humidity. The switchpoints can be adjusted in the range of +5...+45°C or 5...95% RH. The thresholds of the setting range (temperature) are 5°C above the minimum or below the maximum range value respectively. The control knob for the temperature can be operated from outside, if necessary.



**Humidity table**

MR: 0 ...100% RH

% RH	U <sub>A</sub> [V]	% RH	U <sub>A</sub> [V]
0	0.0	50	5.0
5	0.5	55	5.5
10	1.0	60	6.0
15	1.5	65	6.5
20	2.0	70	7.0
25	2.5	75	7.5
30	3.0	80	8.0
35	3.5	85	8.5
40	4.0	90	9.0
45	4.5	95	9.5
Continued at the right...		100	10.0

**Temperature table**

MR: 0 ...+50 °C

°C	U <sub>A</sub> [V]
0	0.0
5	1.0
10	2.0
15	3.0
20	4.0
25	5.0
30	6.0
35	7.0
40	8.0
45	9.0
50	10.0

RHT-30 with display



HYGRASREG® RHT - 30 Room hygrostats and humidity and temperature sensors ( $\pm 2.0\%$ )							
Type / WG02	Setting Range		Output	Steps	Display	Item No.	Price
	Humidity	Temperature					
<b>RHT-30</b>						<b>External setting</b>	
RHT-30W	5...95% RH	+5...+45 °C	2x Changeover contact, 1x 0-10V	two-step		1202-4077-1011-200	203,81 €
RHT-30W LCD	5...95% RH	+5...+45 °C	2x Changeover contact, 1x 0-10V	two-step	■	1202-4077-1211-200	218,46 €
<b>RHT-30-U</b>						<b>Internal setting</b>	
RHT-30W U	5...95% RH	+5...+45 °C	2x Changeover contact, 1x 0-10V	two-step		1202-4077-1021-200	200,86 €

