HYGRASREG® AHT - 30

On-wall hygrostats and humidity and temperature sensors (± 2.0 %), electronic, two-step, with multi-range switching and continuous / switching output

S+S REGELTECHNIK

Electronic on-wall hygrostat and/or on-wall thermostat **HYGR**ASREG® **AHT-30** with a continuous and two switching outputs, adjustable switching thresholds and display for indicating ACTUAL humidity and/or ACTUAL temperature (accuracy class ± 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 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 AHT-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 / DC (± 20 %)
Power consumption:	< 1,5 VA / 24 V DC , < 3,5 VA / 24 V AC
Sensor:	**digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
Sensor protection:	**plastic** sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional **metal** sinter filter, Ø 16 mm, L = 32 mm)
Setting range:	5...95 % RH (humidity) **Multi-range switching with 4 switchable measuring ranges** (see table) –35...+35 °C; –35...+75 °C; 0...+50 °C; 0...+80 °C (temperature) (Switch steps 1 and 2 are separately adjustable)
Operating difference:	**Mode 1:** both switch steps are freely adjustable (rel. humidity) **Mode 2:** 5 % between both switch steps (rel. humidity) **Mode 3:** both switch steps freely adjustable (temperature) **Mode 4:** switch step 1 (temperature), switch step 2 (rel. humidity) (adjustable via DiP switches)
Output:	potential-free changeover contacts (2 x changeover contact 24 V, 1A ohmic load, separately adjustable, 2x 0 - 10 V for U variant or 4...20 mA for I variant)
Accuracy, humidity:	typically **± 2.0** % (20...80 % RH) at +25 °C, otherwise ± 3.0 %
Accuracy, temperature:	typically ± 0.4 K at +25 °C
Ambient temperature:	storage –35...+85 °C; operation – 30...+75 °C, non-precipitating
Long-term stability:	± 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:	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 (optional on request)
Protective tube:	**stainless steel V2A** (1.4301), Ø 16 mm, NL = 55 mm (see dimensional drawing)
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529)
Electrical connection:	0.14 - 1.5 mm^2, via terminal screws
Standards:	CE conformity according to EMC directive 2014 / 30 / EU
Display:	three-line **display with illumination**, cutout approx. 70 x 40 mm (W x H), for displaying ACTUAL humidity and/or ACTUAL temperature or for setpoint adjustment
FUNCTION	
Humidifying/heating:	**1st step:** 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. **2nd step:** 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 / terminal 3: output temperature
Dehumidifying/cooling:	**1st step:** wire contacts 11 - 13. When actual humidity exceeds switching threshold S1, the changeover contact switches to 11 - 13. **2nd step:** wire contacts 21 - 23. When actual humidity exceeds switching threshold S 2, the changeover contact switches to 21 - 23. Terminal 2: output relative humidity / terminal 3: output temperature

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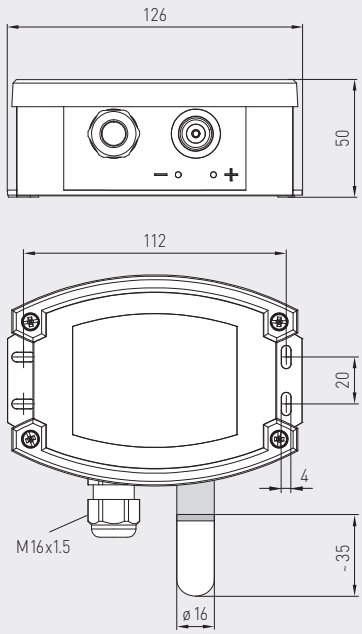
Dimensional drawing **AHT-30**



SF-K
plastic sinter filter
(standard)

SF-M
metal sinter filter
(optional)

M12 connector
(optional on request)

AHT-30
with display and
plastic sinter filter
(standard)

AHT-30
with display and
metal sinter filter
(optional)

WS-03
Weather and sun protection hood
(optional)

Display readout

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.
The resolution is 1/10 % RH or 1/10 °C.

The **3rd line** shows information about the **switching status of relay 1 and 2** (as circuits) on the left, and on the right for the **switching values of relay 1 and 2** in % RH or °C (adjustable via the corresponding set potentiometer). The reference to respective measured value (relative humidity or temperature) is determined by the mode selected.

For improved legibility, backlighting is provided.

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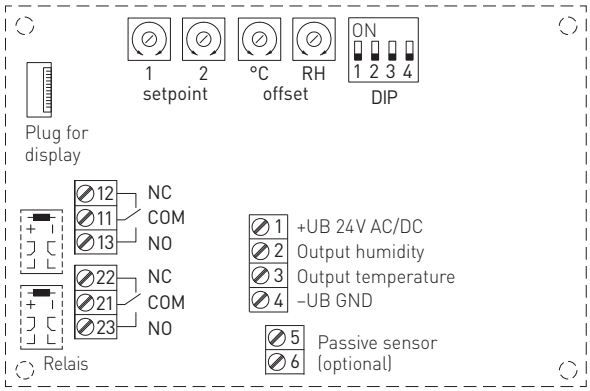
S+S REGELTECHNIK

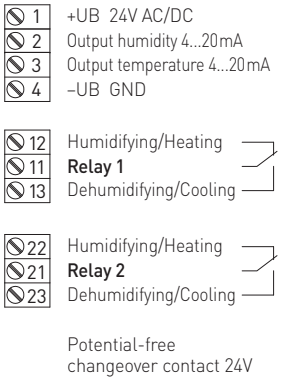
Schematic diagram **AHT-30**



NC = Normally Closed
COM = Common
NO = Normally Open

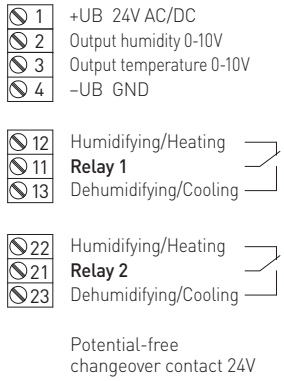
DIP switches	AHT-30	
Function mode	**DIP 1**	**DIP 2**
Mode 1 (**2x** 5...95 % RH) (default)	OFF	OFF
Mode 2 (5...95 % RH **+ 5** % RH)	**ON**	OFF
Mode 3 (**2x** –35...+80 °C)	OFF	**ON**
Mode 4 (5...95 % RH / –35...+80 °C)	**ON**	**ON**
Temperature range	**DIP 3**	**DIP 4**
–35...+35 °C	OFF	OFF
0...+80 °C	**ON**	OFF
0...+50 °C (default)	OFF	**ON**
–35...+75 °C	**ON**	**ON**

Connecting diagram **AHT-30-I**



Potential-free changeover contact 24V

Connecting diagram **AHT-30-U**



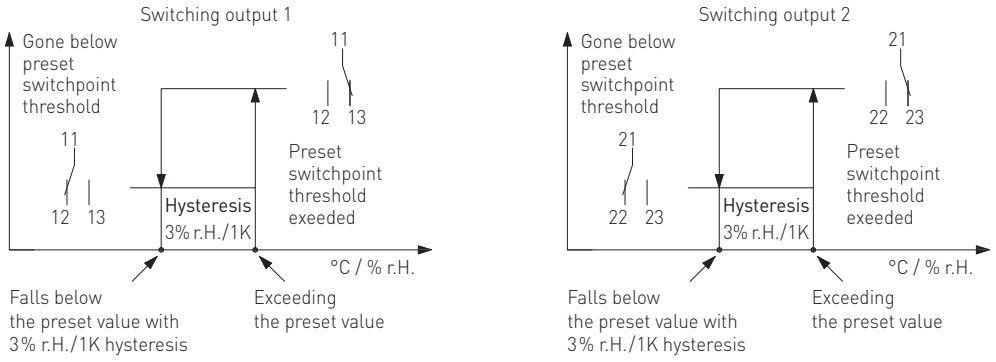
Potential-free changeover contact 24V

Supply	AC	DC
→ **1**	24 V~	24 V DC
→ **4**	0 V	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 **AHT-30**



Mode 1: Independent switchpoints for both relay outputs can be defined in the range of 5...95 % RH by the control knobs (setpoint 1 for relay 1, setpoint 2 for relay 2, 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 setpoint 1 is active (setpoint 2 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 within the temperature range (selectable via DIP switches) for both relay outputs can be defined by the control knobs (setpoint 1 for relay 1, setpoint 2 for relay 2). 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 setpoint 1 of the temperature, while control knob is allocated to setpoint 2 of the relative humidity. The switchpoints can be set within the temperature range (selectable via DIP switches) or from 5...95 % RH (humidity). The thresholds of the setting range (temperature) are 5 °C above the minimum or below the maximum range value respectively.

AHT-30
with display

Temperature table
MR: –35...+75 °C

°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

°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

°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

°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

HYGRASREG® AHT-30 On-wall hygrostat and humidity and temperature sensor (±2.0%), *Deluxe*

Type/WG02	Setting Range Humidity	Setting Range Temperature	Output	Steps	Display	Item No.	Price
AHT-30-I						**I-variant**	
AHT-30W-I **LCD**	5...95% RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	2 x changeover contact, 2x 4...20 mA	two-step	■	1202-7127-2421-000	**252,61 €**
AHT-30-U						**U-variant**	
AHT-30W-U **LCD**	5...95% RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	2 x changeover contact, 2x 0-10 V	two-step	■	1202-7127-1421-000	**252,61 €**
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	**45,34 €**
WS-03	**Weather and sun protection hood**, 200 x 180 x 150 mm, stainless steel **V2A** (1.4301)					7100-0040-6000-000	**47,92 €**