

**On-wall hygrometers and
humidity and temperature sensors ($\pm 2.0\%$),
electronic, two-step, with multi-range switching
and continuous/switching output**

Electronic on-wall thermostat and/or on-wall thermostat **HYGRASREG® AHT-30** with a continuous and two switching outputs, adjustable switching thresholds and 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 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 ($\pm 20\%$) |
| 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, \varnothing 16 mm, L = 35 mm, exchangeable (optional metal sinter filter, \varnothing 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, 1 A ohmic load, separately adjustable, 2x 0 - 10 V for U variant or 4...20 mA for I variant) |
| Deviation, humidity: | typically $\pm 2.0\%$ (20...80% RH) at +25 °C, otherwise $\pm 3.0\%$ |
| Deviation, temperature: | typically ± 0.4 K at +25 °C |
| Ambient temperature: | storage -35...+85 °C; operation -30...+75 °C, non-precipitating |
| 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: | 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), \varnothing 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, 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 S2, the changeover contact switches to 21 - 23. Terminal 2: output relative humidity / terminal 3: output temperature |




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)



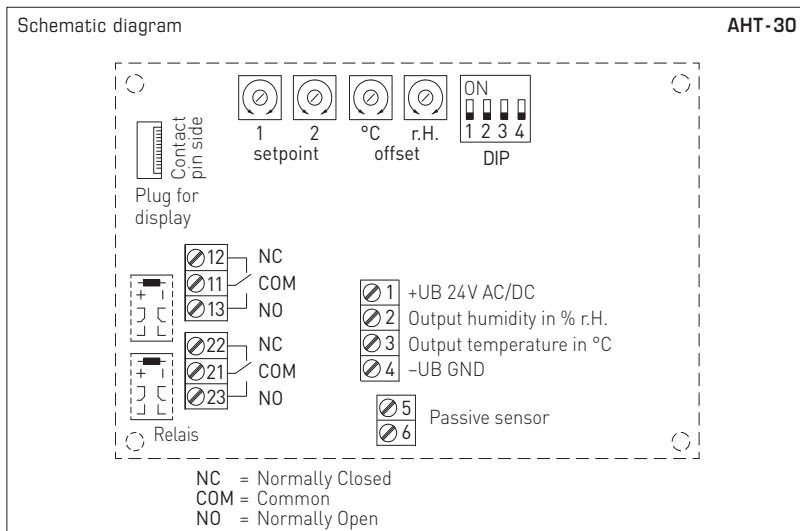
Display readout

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.

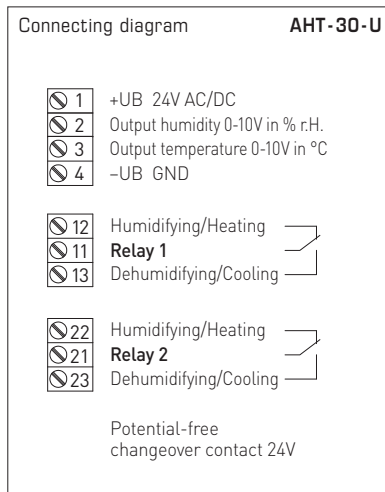
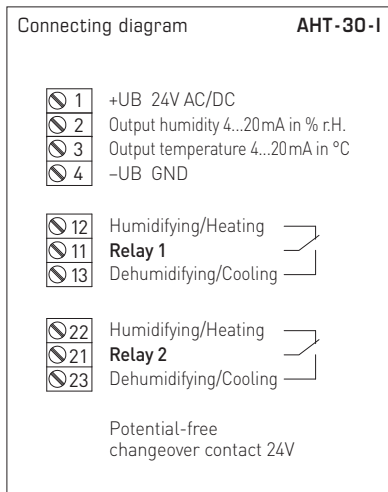
The **3rd line** shows information about the **switching status of relay 1 and 2** (as circuits) on the left, and on the right for the **switching values of relay 1 and 2** in % RH or °C (adjustable via the corresponding set potentiometer). The reference to respective measured value (relative humidity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

For improved legibility, backlighting is provided.

On-wall hygromats and humidity and temperature sensors ($\pm 2.0\%$), electronic, two-step, with multi-range switching and continuous/switching output



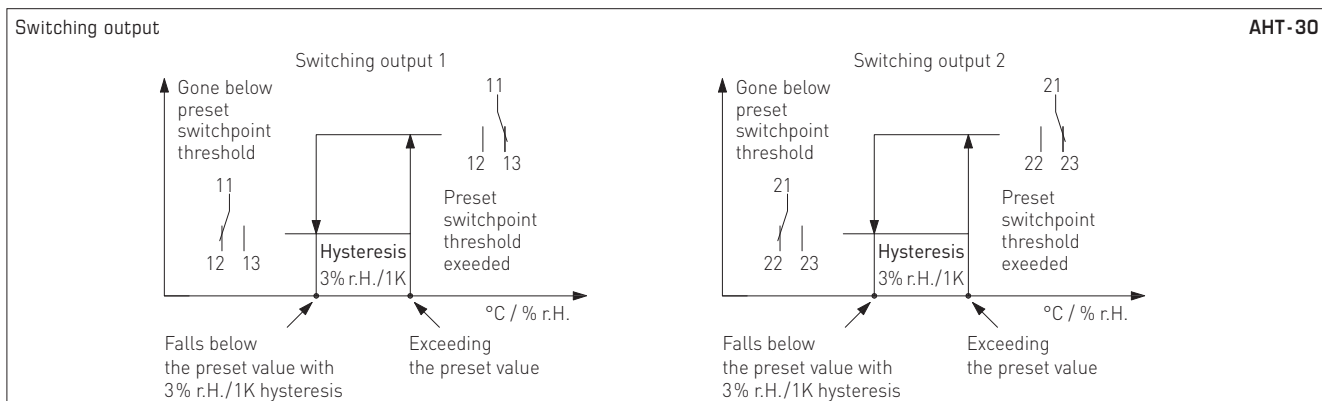
| DIP switches | | AHT-30 | |
|---|-------|--------|--|
| Function mode | DIP 1 | DIP 2 | |
| Mode 1 (2x 5...95% RH) (default) | OFF | OFF | |
| Mode 2 (5...95% RH + 5% RH) | ON | OFF | |
| Mode 3 (2x -35...+80 °C) | OFF | ON | |
| Mode 4 (5...95% RH / -35...+80 °C) | ON | ON | |
| Temperature range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



| Supply | AC | DC |
|--------|-------|---------|
| → 1 | 24 V~ | 24 V DC |
| → 4 | 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 |



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.



S+S REGELTECHNIK

HYGRASREG® AHT - 30

On-wall hygrometers and humidity and temperature sensors ($\pm 2.0\%$), electronic, two-step, with multi-range switching and continuous/switching output

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 hygrometer and humidity and temperature sensor ($\pm 2.0\%$), *Deluxe*

| Type / WG02 | Setting Range Humidity 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 | 235,82 € |
| 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 | 235,82 € |
| Optional: | Cable connection with M12 connector according to DIN EN 61076-2-101 | | | | on request | |
| ACCESSORIES | | | | | | |
| SF-M | Metal sinter filter, \varnothing 16 mm, L = 32 mm, exchangeable stainless steel V4A (1.4404) | | | | 7000-0050-2200-100 | 42,33 € |
| WS-03 | Weather and sun protection hood, 200 x 180 x 150 mm, stainless steel V2A (1.4301) | | | | 7100-0040-6000-000 | 44,74 € |