

Duct hygrometers and
humidity and temperature sensors ($\pm 2.0\%$), incl. mounting flange,
electronic, two-step, with multi-range switching,
with active (Automatic Output Switching) and switching outputs

Patented quality product (AOS patent no. DE 10 2015 015 941 B4)

Electronic duct hygrometer and/or duct thermostat **HYGRASREG® KHT-30** ($\pm 2.0\%$ RH) with two continuous and two switching outputs, configurable relay assignment (4 modes), to exactly detect the relative humidity (0...100% RH) and the temperature with 4 switchable measuring ranges (max. $-35^\circ\text{C}/-31^\circ\text{F}$ to $+80^\circ\text{C}/+176^\circ\text{F}$), incl. mounting flange, with plastic sinter filter (exchangeable), housing made of impact-resistant plastic with quick-locking screws, with cable gland (M12 connector according to DIN EN 61076-2-101 on request), **with display**. The display can be changed from SI to imperial units via DIP switch. The measuring transducer automatically detects the required output type (**Automatic Output Switching**) and converts the measurands into a standard signal of 0–10 V or 4...20 mA.

The duct sensor is applied in a non-aggressive, dust-free environment. 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. A long-term stable, **digital humidity and temperature sensor** guarantees exact measurement results. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

TECHNICAL DATA

Power supply:	24 V AC / DC ($\pm 10\%$)
Power consumption:	typically $< 3\text{ W}$ / 24 V DC; $< 5.5\text{ VA}$ / 24 V AC
System of units:	SI (default) or imperial (switchable via DIP switch)
Data points:	relative humidity [% RH], temperature [$^\circ\text{C}$] [$^\circ\text{F}$]
Outputs:	2x automatic 0–10 V / 4...20 mA (Automatic Output Switching – the unit detects the required output type and automatically switches to U or I output) with offset potentiometer ($\pm 10\%$ of measuring range)
Load resistance:	RL $> 15\text{ k}\Omega$ load at AOS-U; RL = 25...450 Ω working resistance at AOS-I
Relay outputs:	2x potential-free changeover contact (24 V / 1 A), switch steps 1 and 2 are separately adjustable (via Set potentiometer), Setting range is 5...95 % of corresponding measuring range, relay assignment depends on the function mode set
Operating difference:	Mode 1: both switch steps are freely adjustable (humidity) Mode 2: 5 % between both switch steps (humidity) Mode 3: both switch steps freely adjustable (temperature) Mode 4: switching speed 1 (temperature), switching speed 2 (humidity) (function mode adjustable via DIP switches)

HUMIDITY

Sensors:	Digital humidity sensor with integrated temperature sensor , low hysteresis, high long-term stability
Sensor protection:	plastic sinter filter, $\varnothing 16\text{ mm}$, L = 35 mm, exchangeable (optional metal sinter filter, $\varnothing 16\text{ mm}$, L = 32 mm)
Measuring range:	0...100 % RH
Operating range:	0...95 % RH (non-precipitating air)
Accuracy:	typically $\pm 2.0\%$ (20...80 % RH) at $+25^\circ\text{C}$, otherwise $\pm 3.0\%$
Output:	0–10 V / 4...20 mA (automatically via AOS)

TEMPERATURE

Measuring range:	Multi-range switching with 4 measuring ranges (via DIP switch) 0... $+50^\circ\text{C}$ / $+32$... $+122^\circ\text{F}$ 0... $+80^\circ\text{C}$ / $+32$... $+176^\circ\text{F}$ -35 ... $+75^\circ\text{C}$ / -31 ... $+167^\circ\text{F}$ -35 ... $+35^\circ\text{C}$ / -31 ... $+95^\circ\text{F}$
Operating range:	-10 ... $+60^\circ\text{C}$ / $+14$... $+140^\circ\text{F}$
Accuracy:	typically $\pm 0.2\text{ K}$ / $\pm 0.5^\circ\text{F}$ at $+25^\circ\text{C}$ / $+77^\circ\text{F}$
Output:	0–10 V / 4...20 mA (automatically via AOS)
Long-term stability:	$\pm 1\%$ per year
Housing:	plastic, UV-resistant, polyamide material, 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 made of 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:	PLEUROFORM™ , material polyamide (PA6), with torsion protection, $v_{\text{max}} = 30\text{ m/s}$ (air), $\varnothing 20\text{ mm}$, NL = 200 mm (optionally 120 mm), L = 235 mm (with filter) (on request, optional stainless steel V2A (1.4301), $\varnothing 16\text{ mm}$)
Protection class:	III (according to EN 60 730)
Protection type:	IP65 (according to EN 60 529)
Electrical connection:	0.2–1.5 mm ² , via push-in terminals
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU
Display:	Display with illumination , three-line, cutout approx. 70 x 40 mm (W x H), for displaying ACTUAL humidity and/or ACTUAL temperature or for setpoint adjustment.

SF-K

Plastic sinter filter
(standard)



SF-M

Metal sinter filter
(optional)



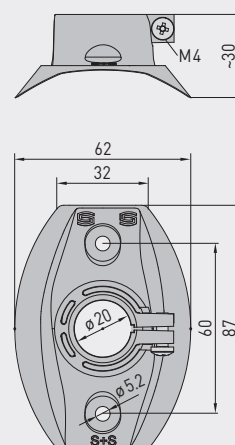
MFT-20-K

Mounting flange,
plastic

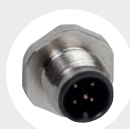
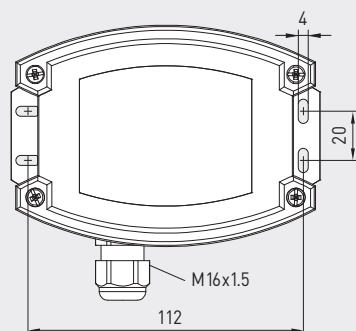
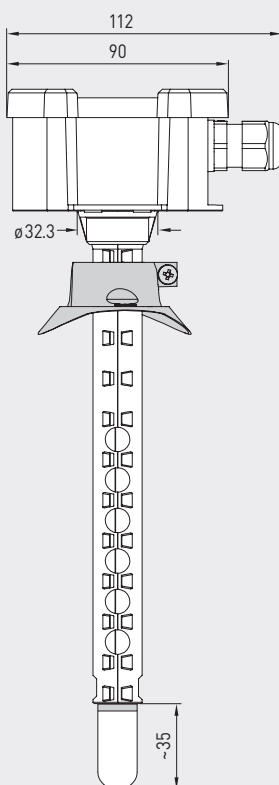
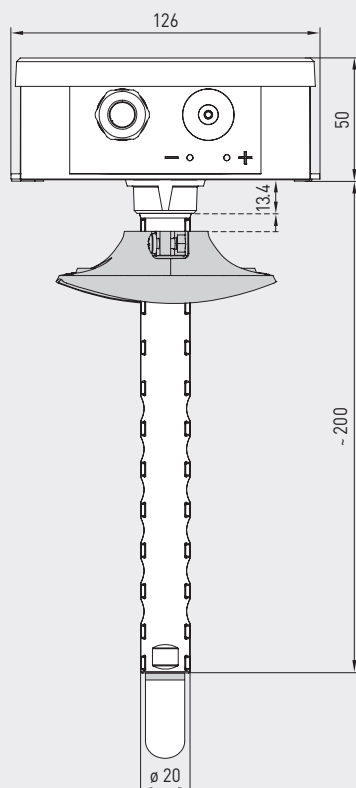


Dimensional
drawing
[mm]

MFT-20-K



Dimensional drawing
[mm]



M12 connector
(optional on request)

KHT-30



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



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



Automatic detection and switching
to standard signal 0...10V or 4...20mA



AOS-PATENTED
AUTOMATIC OUTPUT SWITCHING

TECHNICAL DATA

(continued)

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.

End stop: Wire conducts L1 - L3.
When actual humidity exceeds switching threshold S2,
the changeover contact switches to 21 - 23.

Terminal 2: output relative humidity / terminal 3: output temperature

Readout in the display:

The **1st line** of the display shows the **ACTUAL** humidity [% RH] and the **ACTUAL** temperature in [°C]/[°F].

The displays showing the ACTUAL values alternate in a 3-second rhythm. The resolution is 1/10 measured value.

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 relays 1 and 2 in [% RH] or [°C]/[°F].

The reference to respective measured value (relative humidity or temperature) is determined by the mode selected.

**NEW**

S+S REGELTECHNIK

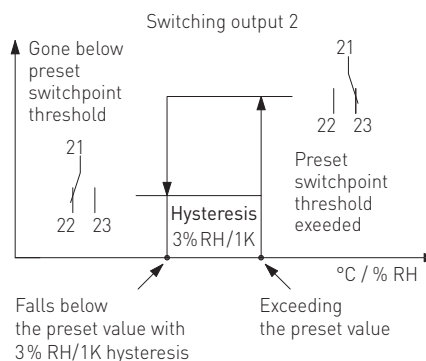
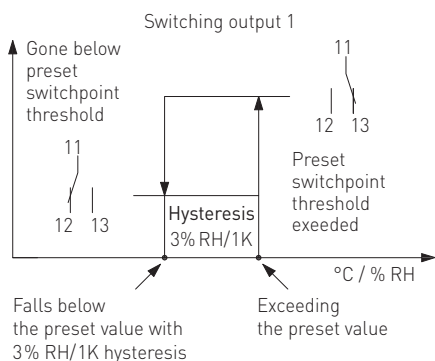
HYGRASREG® KHT - 30

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Switching output

KHT-30



When the respective switching point is exceeded, the corresponding relay switches over (changeover contact 1 switches from position 2 to position 3). When the pre-set switching point is undershot again by more than 3% RH or 1 K (hysteresis), the respective switching output switches back to the initial position (changeover contact 1 switches from position 3 to position 2).

The SET-Potentiometers for **setting the switching points** are assigned to the corresponding relay: **Relay 1** via SET 1 and **relay 2** via SET 2. The setting range is 5...95% of the corresponding measuring range. The assignment of the relays depends on the operating mode (see below).

Mode 1: Both relays are assigned to the **humidity** independently of each other.

The switching points for relay 1 (via SET 1) or relay 2 (via SET 2) can be set individually in the range of 5...95% RH.

Mode 2: Both relays are assigned to the **humidity** depending on each other.

The switching point for relay 1 (via SET 1) can be set individually from 5...95% RH.

The switching point for relay 2 (SET 2 has no function assigned!) is defined with 'Switching point 1 + 5% RH'.

Mode 3: Both relays are assigned to the **temperature** independently of each other.

The switching points for relay 1 (via SET 1) and relay 2 (via SET 2) can be set individually in the range of 5...95% of the selected measuring range.

Mode 4: The relays are assigned to the **temperature** (relay 1) and **humidity** (relay 2) independently of each other.

The switching point for relay 1 (via SET 1) can be individually set in the range of 5...95% of the selected measuring range.

The switching point for relay 2 (via SET 2) can be individually set in the range of 5...95% RH.

HYGRASREG® Duct hygrometers and
KHT - 30 humidity and temperature sensors ($\pm 2.0\%$), *Deluxe*

Type / WG02	Measuring range*	Output	Equipment	Item No.
	Humidity	Temperature	Display	
KHT-30-AW		(switchable)		
KHT-30-AW LCD	0...100% RH	-35...+75 °C / -31...+167 °F -35...+35 °C / -31... +95 °F 0...+50 °C / +32...+122 °F 0...+80 °C / +32...+176 °F	0-10V / 4...20 mA	WW ■ 1202-8127-E421-000
Switching point:	* Setting range corresponds to 0...95% RH (humidity) and 0...95% of measuring range set (temperature).			
Outputs / equipment:	2x 0-10V / 4...20mA (automatically via) – WW = 2x changeover contacts (two-step) display can be switched from SI [°C] to imperial units [°F].			
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101 shortened protective tube PLEUROFORM™ , NL = 120 mm			on request on request

ACCESSORIES

SF-K	Plastic sinter filter, Ø 16 mm, L = 35 mm, exchangeable	7000-0050-2310-000
SF-M	Metal sinter filter, Ø 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)	7000-0050-2200-100