

On-wall humidity and temperature sensors (± 3%)
compact form, calibratable, with multi-range switching
and active output

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

The calibratable outdoor humidity / temperature sensors **HYGRASGARD® AFF-SD / AFTF-SD** measure the relative humidity and / or temperature of air. They convert the measurands into standard signals of 0-10V or 4...20mA and are available with or without an optional display. Terminal box enclosure made of impact-resistant plastic with enclosure cover with quick-locking screws. They have four switchable temperature ranges and are applied in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology. Relative humidity (in % r.H.) is the quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature. These measuring transducers are designed for precise detection of humidity. A digital long-term stable sensor is used as a measuring element for humidity measurement. Fine adjustment by the user is possible.

AFF-SD
AFTF-SD
compact form



SF-M
Metal sinter filter
(optional)



TECHNICAL DATA

Power supply:	24 V AC (±20%); 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:	$R_B(\text{ohm}) = (U_B - 14 \text{ V}) / 0.02 \text{ A}$ for I variant
Load resistance:	$R_L > 5 \text{ kOhm}$ 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, 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)

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, see load resistance diagram

TEMPERATURE

Measuring range, temperature:	multi-range switching (see table) -35...+35 °C; -35...+75 °C; 0...+50 °C; 0...+80 °C (output corresponding to 0 -10 V or 4...20 mA)
Deviation, temperature:	±0.2 K at +25 °C
Output, temperature:	0 -10 V or 4...20 mA or Ohm value
Ambient temperature:	storage -35...+85 °C, operation -30...+70 °C, non-precipitating
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm ² , via terminal screws on circuit board
Enclosure:	plastic, material polyamide, 30% glass-globe-reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), enclosure cover for display is transparent!
Enclosure dimensions:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
Cable gland:	M16 x 1.5, including strain relief, exchangeable, max. inner diameter 10.4 mm
Protective tube:	stainless steel, Ø 16 mm, NL = 55 mm
Process connection:	by screws
Long-term stability:	±1% per year
Protection class:	III (according to EN 60730)
Protection type:	IP 65 (according to EN 60529)
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, cutout approx. 36 x 15 mm (W x H), for displaying ACTUAL temperature and / or ACTUAL humidity
ACCESSORIES:	see last chapter



S+S REGELTECHNIK

HYGRASGARD® AFF-SD
HYGRASGARD® AFTF-SD

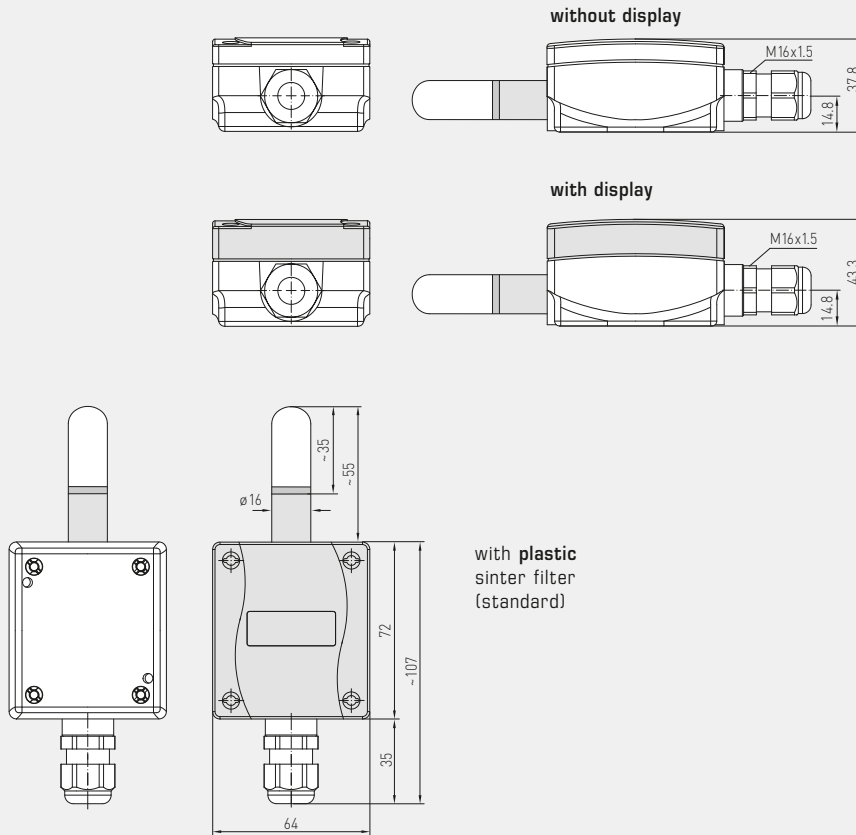
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Dimensional drawing

AFF-SD
AFTF-SD

AFF-SD
AFTF-SD
compact form
with display



SF-M
Metal sinter filter
(optional)



Temperature table
MR: -35...+75 °C

°C	U _A in V	I _A in 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 in V	I _A in 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 in V	I _A in 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

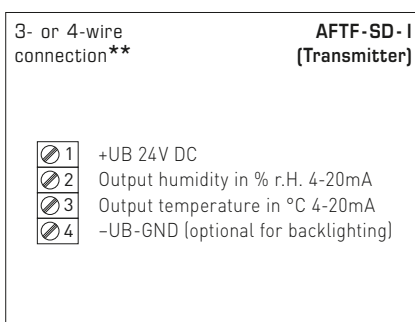
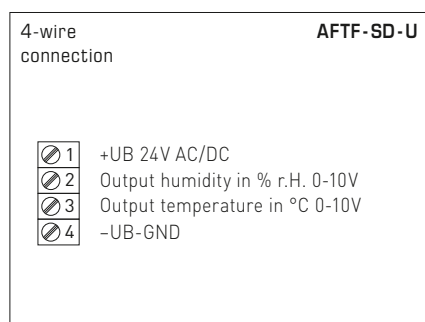
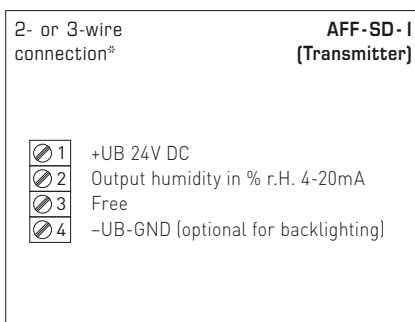
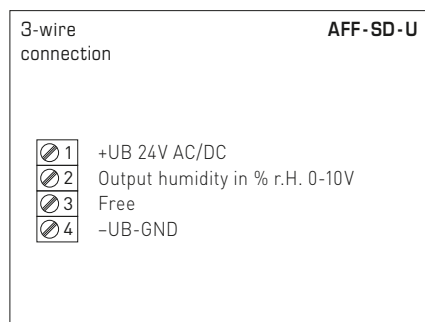
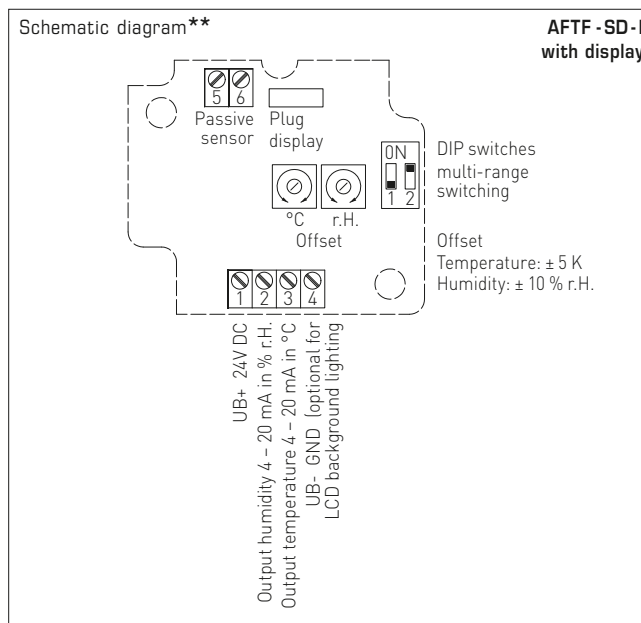
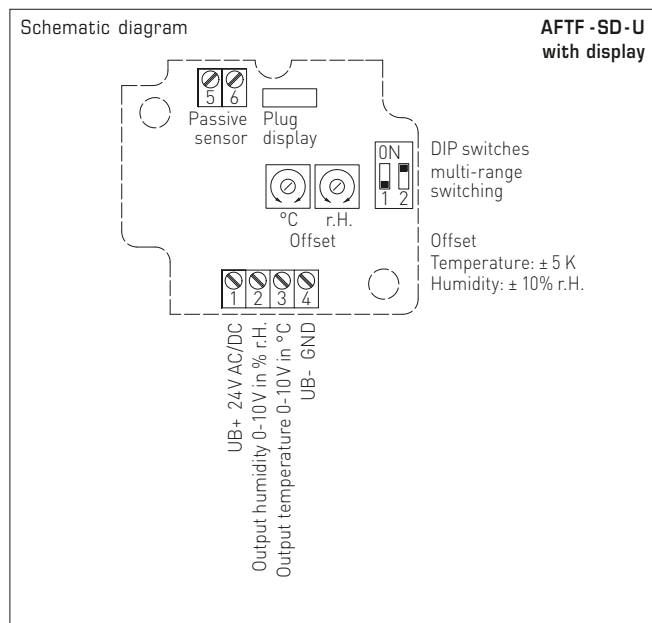
Temperature table
MR: 0...+80 °C

°C	U _A in V	I _A in 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

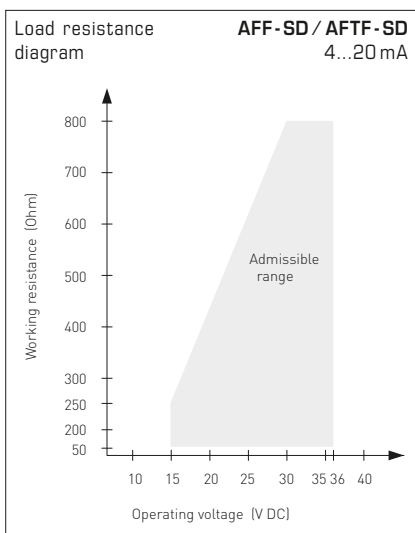
Humidity table
MR: 0...100% r. H.

% r.H.	U _A in V	I _A in 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

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Temperature measuring ranges (adjustable)	DIP 1	DIP 2
-35...+75 °C	ON	ON
-35...+35 °C	OFF	OFF
0...+50 °C	OFF	ON
0...+80 °C	ON	OFF



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

For the **I variant** the humidity path must be connected!



S+S REGELTECHNIK

HYGRASGARD® AFF-SD
HYGRASGARD® AFTF-SD

On-wall humidity and temperature sensors ($\pm 3\%$)
compact form, calibratable, with multi-range switching
and active output

WS-04

Weather and sun protection
(optional)

AFF-SD
AFTF-SD
compact form
with display



HYGRASGARD® AFF-SD – On-wall humidity sensors, compact form ($\pm 3\%$), *Standard*
HYGRASGARD® AFTF-SD – On-wall humidity and temperature sensors, compact form ($\pm 3\%$), *Standard*

Type / WG01	Measuring Range / Readout Humidity	Readout Temperature	Output Humidity	Temperature	Display	Item No.	Price
AFF-SD-I							I-variant
AFF-SD-I	0...100% r. H.	–	4...20 mA	–		1201-1122-0000-100	152,47 €
AFF-SD-I DISPLAY	0...100% r. H.	–	4...20 mA	–	■	1201-1122-0200-000	195,42 €
AFF-SD-U							U-variant
AFF-SD-U	0...100% r. H.	–	0-10 V	–		1201-1121-0000-100	152,47 €
AFF-SD-U DISPLAY	0...100% r. H.	–	0-10 V	–	■	1201-1121-0200-000	195,42 €
AFTF-SD-I							I-variant
AFTF-SD-I	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA		1201-1122-1000-100	155,70 €
AFTF-SD-I DISPLAY	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	■	1201-1122-1200-100	198,64 €
AFTF-SD-U							U-variant
AFTF-SD-U	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-1121-1000-100	155,70 €
AFTF-SD-U DISPLAY	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	■	1201-1121-1200-100	198,64 €

Accessories								
SF-M	Metal sinter filter, \varnothing 16 mm, L = 32 mm, exchangeable stainless steel (VA 1.4404)						7000-0050-2200-100	35,70 €
WS-01	Sunshade and ball game protection, 184 x 180 x 80 mm, stainless steel						7100-0040-2000-000	26,80 €
WS-04	Weather and sun protection, 130 x 180 x 135 mm, stainless steel						7100-0040-7000-000	31,62 €

For further information, see last chapter Accessories!