

**On-wall humidity and temperature sensors ($\pm 1.8\%$ / $\pm 2.0\%$),
calibratable, with multi-range switching
and active/passive output**

Calibratable outdoor humidity/temperature sensor **HYGRASGARD® AFF/AFTF** ($\pm 2.0\%$) and **AFF-20/AFTF-20** ($\pm 1.8\%$) with plastic sinter filter (optional metal sinter filter) or **AFF-25/AFTF-25** ($\pm 1.8\%$) with pluggable measuring head with metal sinter filter; housing made of impact-resistant plastic with quick-locking screws, optionally with /without display, with cable gland (optional M12 connector according to DIN EN 61076-2-101).

It measures the relative humidity and/or temperature of the air and converts the measurand into a standard signal of 0 - 10 V or 4...20 mA. 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 % RH) 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 exact detection of humidity. A digital long-term stable sensor is used as measuring element for humidity measurement. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

AFF / AFTF ($\pm 2.0\%$)
with plastic sinter filter
(standard)



AFF-20 / AFTF-20 ($\pm 1.8\%$)
with plastic sinter filter
(standard)



AFF-25 / AFTF-25 ($\pm 1.8\%$)
pluggable measuring head
with metal sinter filter



TECHNICAL DATA

Power supply: 24 V AC ($\pm 20\%$); 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 (ohm) = $(U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant, see load resistance diagram

Load resistance: $R_L > 5 \text{ k}\Omega$ for U variant

Power consumption: $< 1.1 \text{ VA} / 24 \text{ V DC}$; $< 2.2 \text{ VA} / 24 \text{ V AC}$

Sensors: **digital humidity sensor with integrated temperature sensor**,
low hysteresis, high long-term stability

HUMIDITY

Measuring range, humidity: 0...100% RH

Permitted humidity: $< 95\%$ RH, non-precipitating air

Deviation in humidity: **AFF / AFTF:**
typically $\pm 2.0\%$ (20...80% RH) at $+25^\circ\text{C}$, otherwise $\pm 3.0\%$
AFF-20 / AFTF-20, AFF-25 / AFTF-25:
typically $\pm 1.8\%$ (10...90% RH) at $+25^\circ\text{C}$, otherwise $\pm 2.0\%$

Output humidity: 0-10 V for U variant; 4...20 mA for I variant

TEMPERATURE

Measuring range, temperature: **multi-range switching** (see table)
 $-35...+35^\circ\text{C}$; $-35...+75^\circ\text{C}$; $0...+50^\circ\text{C}$; $0...+80^\circ\text{C}$

Ambient temperature: storage $-35...+85^\circ\text{C}$; operation $-30...+80^\circ\text{C}$, non-precipitating

Deviation, temperature: **AFF / AFTF:**
typically $\pm 0.4 \text{ K}$ at $+25^\circ\text{C}$
AFF-20 / AFTF-20, AFF-25 / AFTF-25:
typically $\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$

Output, temperature: 0-10 V for U variant; 4...20 mA for I variant;
AFTF-Uxx (passive temperature sensor) see table

Electrical connection: 2-, 3-, or 4-wire connection (see connecting diagram),
0.14 - 1.5 mm², via terminal screws

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)

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)

Protective tube: **stainless steel V2A** (1.4301), \varnothing 16 mm
AFF / AFTF: NL = 55 mm
AFF-20 / AFTF-20: NL = 137 mm
AFF-25 / AFTF-25: NL = 88.5 mm

Sensor protection: **AFF / AFTF, AFF-20 / AFTF-20:**
plastic sinter filter, \varnothing 16 mm, L = 35 mm, exchangeable
(optional metal sinter filter, \varnothing 16 mm, L = 32 mm)

AFF-25 / AFTF-25:
pluggable measuring head (probe), stainless steel V2A (1.4301),
with metal sinter filter, \varnothing 16 mm, L = 88.5 mm, exchangeable

Process connection: by screws

Long-term stability: $\pm 1\%$ per year

Protection class: III (according to EN 60 730)

Protection type: **IP 65** (according to EN 60 529)

Standards: CE conformity, according to EMC directive 2014 / 30 / EU,
according to EN 61326-1, according to EN 61326-2-3

Optional: three-line **display with illumination**, cutout 70 x 40 mm (W x H),
for displaying ACTUAL temperature and / or ACTUAL humidity

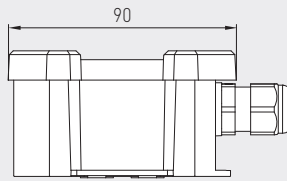
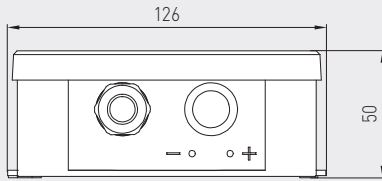
ACCESSORIES see last chapter



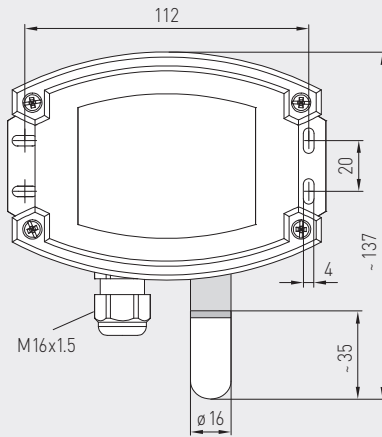
Dimensional drawing

AFF / AFTF
AFF-20 / AFTF-20

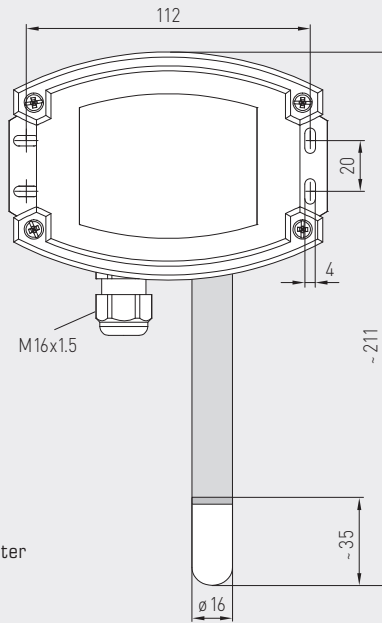
AFF / AFTF ($\pm 2.0\%$)
with display and
plastic sinter filter
(standard)



AFF / AFTF



AFF-20 / AFTF-20



AFF-20 / AFTF-20 ($\pm 1.8\%$)
with display and
plastic sinter filter
(standard)



SF-K
Plastic sinter filter
(standard)



SF-M
Metal sinter filter
(optional)

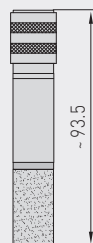
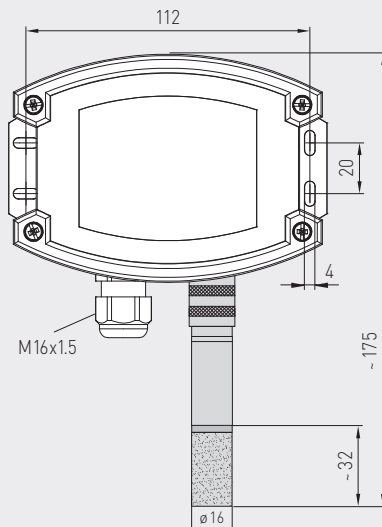


M12 connector
(optional)

Dimensional drawing

AFF-25 / AFTF-25

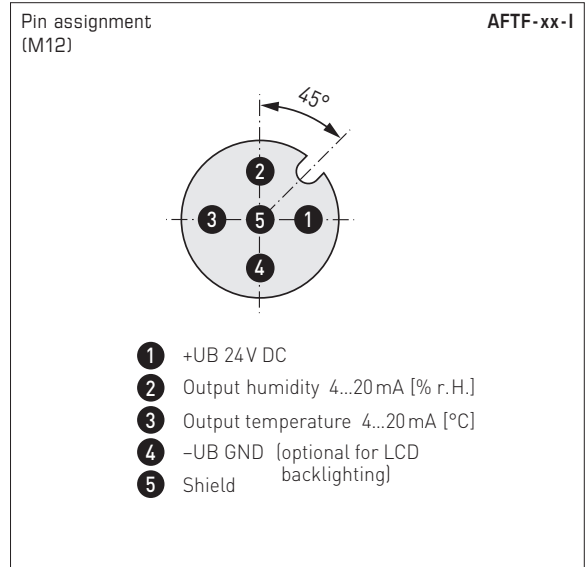
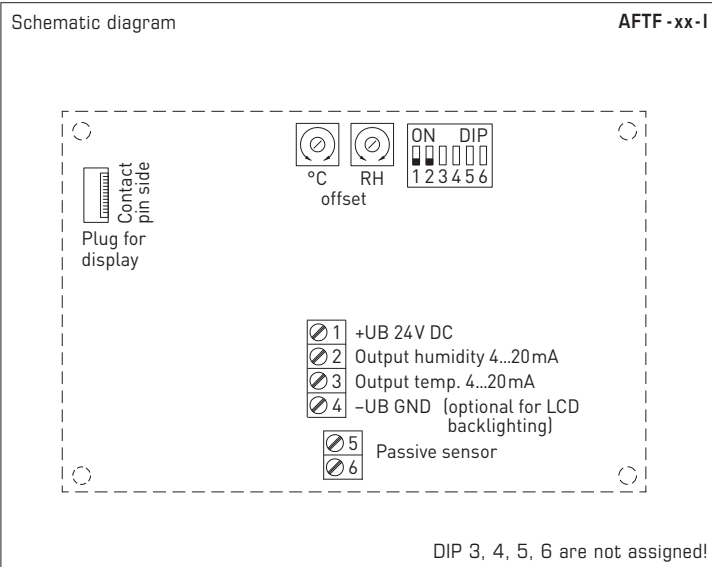
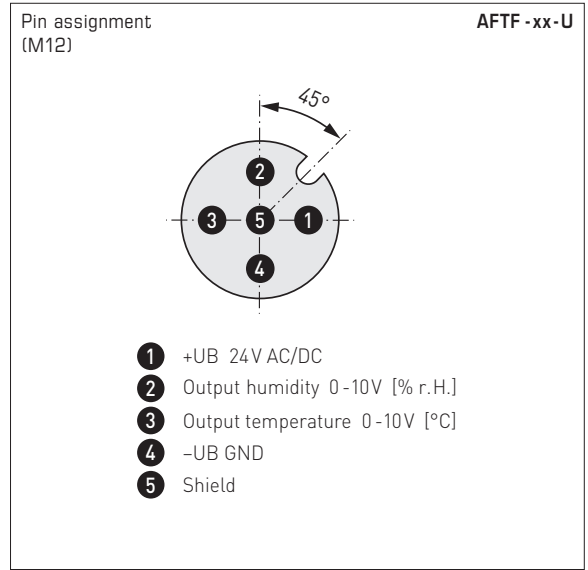
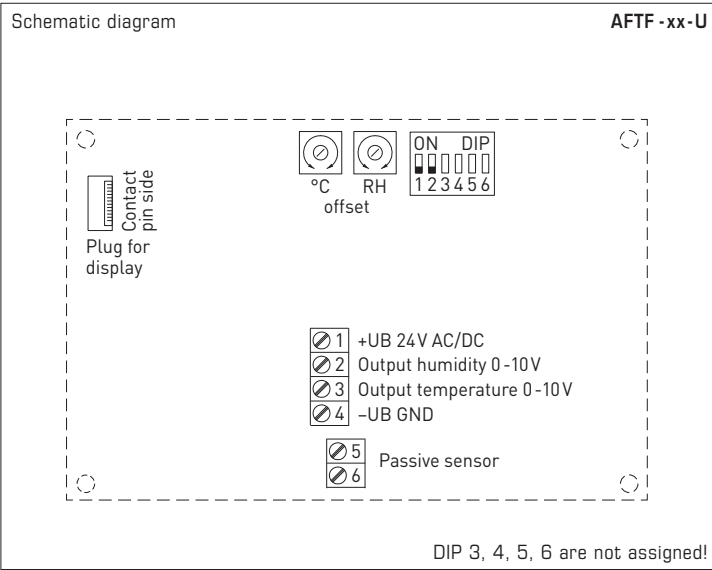
AFF-25 / AFTF-25 ($\pm 1.8\%$)
pluggable measuring head
with metal sinter filter
and display



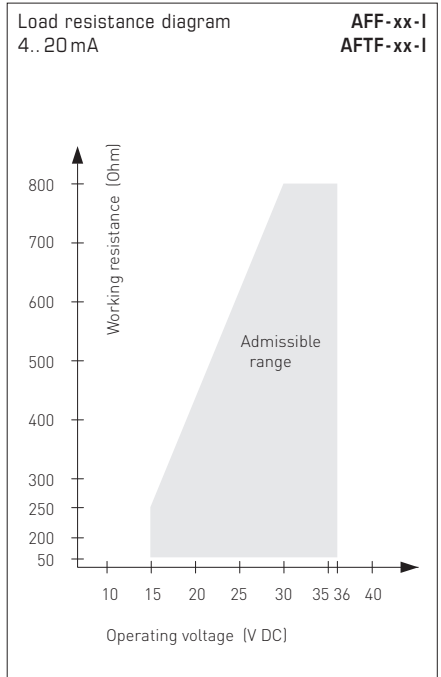
pluggable
measuring head
with metal
sinter filter



On-wall humidity and temperature sensors ($\pm 1.8\%$ / $\pm 2.0\%$),
 calibratable, with multi-range switching
 and active/passive output



AFF-xx / AFTF-xx
 with display,
 hinged





3-wire connection **AFF-xx-U**

1	+UB 24V AC/DC
2	Output humidity 0-10V
3	Free
4	-UB-GND

2- or 3-wire connection * **AFF-xx-I (Transmitter)**

1	+UB 24V DC
2	Output humidity 4...20mA
3	Free
4	-UB-GND (optional for backlighting)

4- or 6-wire connection **AFTF-U (passive temperature sensor)**

1	+UB 24V AC/DC
2	Output humidity 0-10V
3	Output temperature 0-10V
4	-UB-GND
5	Passive element
6	e.g. Pt1000, Ni1000, LMZ235Z

4-wire connection **AFTF-xx-U**

1	+UB 24V AC/DC
2	Output humidity 0-10V
3	Output temperature 0-10V
4	-UB-GND

3- or 4-wire connection ** **AFTF-xx-I (Transmitter)**

1	+UB 24V DC
2	Output humidity 4...20mA
3	Output temp. 4...20mA
4	-UB-GND (optional for backlighting)

4- or 6-wire connection **AFTF-I (passive temperature sensor)**

1	+UB 24V DC
2	Output humidity 4...20mA
3	Output temp. 4...20mA
4	-UB-GND (optional for backlighting)
5	Passive element
6	e.g. Pt1000, Ni1000, LMZ235Z

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

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

On-wall humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching
and active/passive output

AFF / AFTF ($\pm 2.0\%$)
with cable gland



WS-03
Weather and sun
protection hood

HYGRASGARD® AFF On-wall humidity sensors ($\pm 2.0\%$), *Standard*
HYGRASGARD® AFTF On-wall humidity and temperature sensors ($\pm 2.0\%$), *Standard*

Type / WG02	Measuring Range / Readout		Output		Display	Item No.	Price
	Humidity	Temperature	Humidity	Temperature			
AFF							
AFF-I	0...100% RH	-	4...20 mA	-		1201-7112-0000-000	196,03 €
AFF-I LCD	0...100% RH	-	4...20 mA	-	■	1201-7112-0400-000	248,48 €
AFF-U	0...100% RH	-	0-10V	-		1201-7111-0000-000	196,03 €
AFF-U LCD	0...100% RH	-	0-10V	-	■	1201-7111-0400-000	248,48 €
AFTF							
AFTF-I	0...100% RH	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA		1201-7112-1000-000	215,04 €
AFTF-I LCD	0...100% RH	(4x as above)	4...20 mA	4...20 mA	■	1201-7112-1400-000	267,49 €
AFTF-U	0...100% RH	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V		1201-7111-1000-000	215,04 €
AFTF-U LCD	0...100% RH	(4x as above)	0-10V	0-10V	■	1201-7111-1400-000	267,49 €
Housing variant:	Cable connection with cable gland (M12 connector on request)						

HYGRASGARD® AFTF-U xx On-wall humidity and temperature sensors ($\pm 2.0\%$), *Standard*
(passive temperature sensor)

Type / WG02	Measuring Range / Readout		Output		Item No.	Price
	Humidity	Temperature	Humidity	Temperature		
AFTF-U xx	Pt, Ni, LM235Z, NTC		(active / passive)			
AFTF-U Pt100	0...100% RH	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V + Pt100	1201-7111-2001-000	216,35 €
AFTF-U Pt1000	0...100% RH	(4x as above)	0-10V	0-10V + Pt1000	1201-7111-2005-000	217,66 €
AFTF-U Ni1000	0...100% RH	(4x as above)	0-10V	0-10V + Ni1000	1201-7111-2009-000	218,32 €
AFTF-U NiTK	0...100% RH	(4x as above)	0-10V	0-10V + Ni1000TK5000	1201-7111-2010-000	218,97 €
AFTF-U LM235Z	0...100% RH	(4x as above)	0-10V	0-10V + LM235Z , 10mV / K	1201-7111-2021-000	217,79 €
AFTF-U NTC1,8K	0...100% RH	(4x as above)	0-10V	0-10V + NTC 1,8 kOhm	1201-7111-2012-000	218,71 €
AFTF-U NTC10K	0...100% RH	(4x as above)	0-10V	0-10V + NTC 10 kOhm	1201-7111-2015-000	215,70 €
AFTF-U NTC20K	0...100% RH	(4x as above)	0-10V	0-10V + NTC 20 kOhm	1201-7111-2016-000	215,70 €
Housing variant:	Cable connection with cable gland (M12 connector on request)					



S+S REGELTECHNIK

HYGRASGARD® AFF-25
HYGRASGARD® AFTF-25

On-wall humidity sensors and temperature sensors ($\pm 1.8\%$),
calibratable, with multi-range switching
and active output



AFF-25 / AFTF-25 ($\pm 1.8\%$)
with cable gland

HYGRASGARD® AFF-25		On-wall humidity sensors, pluggable ($\pm 1.8\%$), <i>Deluxe</i>				
HYGRASGARD® AFTF-25		On-wall humidity and temperature sensors, pluggable ($\pm 1.8\%$), <i>Deluxe</i>				
Type / WG02	Measuring Range / Readout	Output	Display	Item No.	Price	
	Humidity	Humidity				
	Temperature	Temperature				
AFF-25						
AFF-25-I	0...100 % RH	–	4... 20 mA	–	1201-7132-0000-101 367,13 €	
AFF-25-I LCD	0...100 % RH	–	4... 20 mA	–	■ 1201-7132-0400-101 418,45 €	
AFF-25-U	0...100 % RH	–	0-10 V	–	1201-7131-0000-101 367,13 €	
AFF-25-U LCD	0...100 % RH	–	0-10 V	–	■ 1201-7131-0400-101 418,45 €	
AFTF-25						
AFTF-25-I	0...100 % RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA	1201-7132-1000-101 389,42 €	
AFTF-25-I LCD	0...100 % RH	(4x as above)	4... 20 mA	4... 20 mA	■ 1201-7132-1400-101 440,75 €	
AFTF-25-U	0...100 % RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	1201-7131-1000-101 389,42 €	
AFTF-25-U LCD	0...100 % RH	(4x as above)	0-10 V	0-10 V	■ 1201-7131-1400-101 440,75 €	
Housing variant:	Cable connection with cable gland (M12 connector on request)					

ACCESSORIES					
SF-M	Metal sinter filter, \varnothing 16 mm, L=32 mm, exchangeable stainless steel V4A (1.4404)			7000-0050-2200-100	43,60 €
MSK-25	Pluggable measuring head (probe) stainless steel V2A (1.4301), Metal sinter filter, \varnothing 16 mm, L=88.5 mm, exchangeable replacement element for AFF-25/AFTF-25			7201-1131-0000-000	221,60 €
WS-01	Sun and ball-impact protection hood, 184 x 180 x 80 mm, stainless steel V2A (1.4301)			7100-0040-2000-000	32,72 €
WS-03	Weather and sun protection hood, 200 x 180 x 150 mm, stainless steel V2A (1.4301)			7100-0040-6000-000	46,08 €

For further information see last chapter!

On-wall humidity sensors and temperature sensors ($\pm 1.8\%$),
calibratable, with multi-range switching
and active output

AFTF-20-Q ($\pm 1.8\%$)
with M12 connector



HYGRASGARD® AFTF-20-Q		On-wall humidity sensors and temperature sensors ($\pm 1.8\%$), <i>Premium</i> (with M12 connector)					
Type / WG02	Measuring Range / Readout		Output		Display	Item No.	Price
	Humidity	Temperature	Humidity	Temperature	● = Q		
AFTF-20-Q							
AFTF-20-I Q	0...100% RH	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	●	2003-6121-2100-001	315,96 €
AFTF-20-I Q LCD	0...100% RH	(4x as above)	4...20 mA	4...20 mA	● ■	2003-6122-2100-001	365,78 €
AFTF-20-U Q	0...100% RH	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	●	2003-6121-1100-001	315,96 €
AFTF-20-U Q LCD	0...100% RH	(4x as above)	0-10 V	0-10 V	● ■	2003-6122-1100-001	365,78 €
Housing variant "Q":		Cable connection with M12 connector (male, 5-pin, A-code)					

ACCESSORIES			
SF-M	Metal sinter filter, \varnothing 16 mm, L = 32 mm, exchangeable stainless steel V4A (1.4404)	7000-0050-2200-100	43,60 €
For further information see last chapter!			



S+S REGELTECHNIK

HYGRASGARD® AFF-20
HYGRASGARD® AFTF-20

On-wall humidity sensors and temperature sensors ($\pm 1.8\%$),
calibratable, with multi-range switching
and active output



AFF-20 / AFTF-20 ($\pm 1.8\%$)
with cable gland



HYGRASGARD® AFF-20		On-wall humidity sensors ($\pm 1.8\%$), <i>Premium</i> (with cable gland)					
Type / WG02	Measuring Range / Readout Humidity	Readout Temperature	Output Humidity	Temperature	Display	Item No.	Price
AFF-20							
AFF-20-I	0...100% RH	–	4...20 mA	–		1201-7112-0000-201	248,48 €
AFF-20-I LCD	0...100% RH	–	4...20 mA	–	■	1201-7112-0400-201	300,92 €
AFF-20-U	0...100% RH	–	0-10 V	–		1201-7111-0000-201	248,48 €
AFF-20-U LCD	0...100% RH	–	0-10 V	–	■	1201-7111-0400-201	300,92 €
Housing variant:	Cable connection with cable gland (M12 connector on request)						

HYGRASGARD® AFTF-20		On-wall humidity and temperature sensors ($\pm 1.8\%$), <i>Premium</i> (with cable gland)					
Type / WG02	Measuring Range / Readout Humidity	Readout Temperature	Output Humidity	Temperature	Display	Item No.	Price
AFTF-20							
AFTF-20-I	0...100% RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA		1201-7112-1000-201	272,77 €
AFTF-20-I LCD	0...100% RH	(4x as above)	4...20 mA	4...20 mA	■	1201-7112-1400-201	322,62 €
AFTF-20-U	0...100% RH	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-7111-1000-201	272,77 €
AFTF-20-U LCD	0...100% RH	(4x as above)	0-10 V	0-10 V	■	1201-7111-1400-201	322,62 €
Housing variant:	Cable connection with cable gland (M12 connector see AFTF-20-Q)						

ACCESSORIES								
SF-M	Metal sinter filter, \varnothing 16 mm, L = 32 mm, exchangeable stainless steel V4A (1.4404)						7000-0050-2200-100	43,60 €
For further information see last chapter!								