

HYGRASGARD® AFF/AFTF HYGRASGARD® AFF-20/AFTF-20, AFF-25/AFTF-25

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



S+S REGELTECHNIK

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 metal sinter filter; housing made of impact-resistant plastic, with/without optional display.

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 % 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 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 $\pm 0.3\text{V}$
Working resistance:	$R_a(\text{ohm}) = (U_b - 14\text{V}) / 0.02\text{A}$ for I variant
Load resistance:	$R_L > 5\text{kOhm}$ for U variant
Power consumption:	$< 1.1\text{VA} / 24\text{V DC}$; $< 2.2\text{VA} / 24\text{V AC}$
Sensors:	digital humidity sensor with integrated temperature sensor, low hysteresis, high long-term stability
Sensor protection:	AFF / AFTF, AFF-20 / AFTF-20: plastic sinter filter, $\varnothing 16\text{ mm}$, $L = 35\text{ mm}$, exchangeable (optional metal sinter filter, $\varnothing 16\text{ mm}$, $L = 32\text{ mm}$) AFF-25 / AFTF-25: pluggable measuring head (probe), stainless steel V2A (1.4301), with metal sinter filter, $\varnothing 16\text{ mm}$, $L = 88.5\text{ mm}$, exchangeable

HUMIDITY

Measuring range, humidity:	0...100% r. H. (output corresponding to 0 -10 V or 4...20 mA)
Permissible air humidity:	$< 95\%$ r. H., non-precipitating air
Deviation, humidity:	AFF / AFTF: typically $\pm 2.0\%$ (20...80% r. H.) at $+25\text{ }^\circ\text{C}$, otherwise $\pm 3.0\%$ AFF-20 / AFTF-20, AFF-25 / AFTF-25: typically $\pm 1.8\%$ (10...90% r. H.) at $+25\text{ }^\circ\text{C}$, otherwise $\pm 2.0\%$
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) $-35...+35\text{ }^\circ\text{C}$; $-35...+75\text{ }^\circ\text{C}$; $0...+50\text{ }^\circ\text{C}$; $0...+80\text{ }^\circ\text{C}$ (output corresponding to 0 -10 V or 4...20 mA)
Ambient temperature:	storage $-35...+85\text{ }^\circ\text{C}$; operation $-30...+80\text{ }^\circ\text{C}$, non-precipitating
Deviation, temperature:	AFF / AFTF: typically $\pm 0.4\text{ K}$ at $+25\text{ }^\circ\text{C}$ AFF-20 / AFTF-20, AFF-25 / AFTF-25: typically $\pm 0.2\text{ K}$ at $+25\text{ }^\circ\text{C}$
Output, temperature:	0 -10 V or 4...20 mA or Ohm value
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm ² , via terminal screws
Housing:	plastic, UV-stabilised, 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), $\varnothing 16\text{ mm}$ AFF / AFTF: NL = 55 mm AFF-20 / AFTF-20: NL = 137 mm AFF-25 / AFTF-25: NL = 88.5 mm
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



S+S REGELTECHNIK

HYGRASGARD® AFF/AFTF HYGRASGARD® AFF-20/AFTF-20, AFF-25/AFTF-25

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Dimensional drawing

AFF / AFTF
AFF-20 / AFTF-20

AFF / AFTF
112
20
4
~137
M16x1.5
~35
 $\varnothing 16$

AFF-20 / AFTF-20
112
20
4
~211
M16x1.5
~35
 $\varnothing 16$

SF-K
Plastic sinter filter
(standard)

SF-M
Metal sinter filter
(optional)

M12 connector
(optional on request)

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



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



Dimensional drawing

AFF-25 / AFTF-25

112
20
4
~175
M16x1.5
~32
 $\varnothing 16$

~93.5

**pluggable
measuring head**
with metal
sinter filter

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

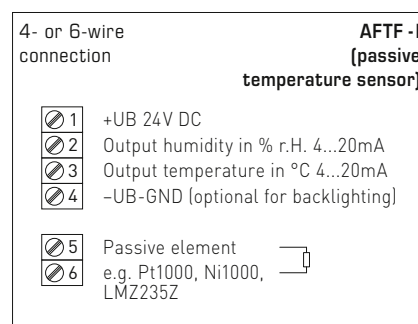
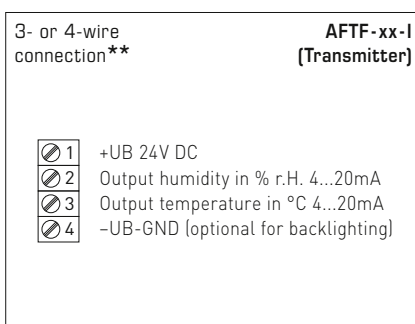
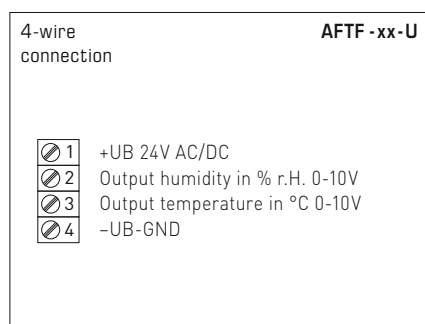
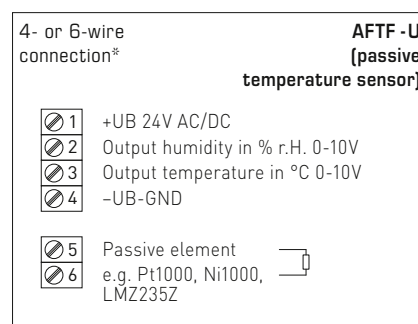
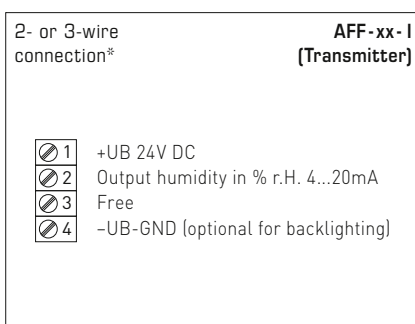
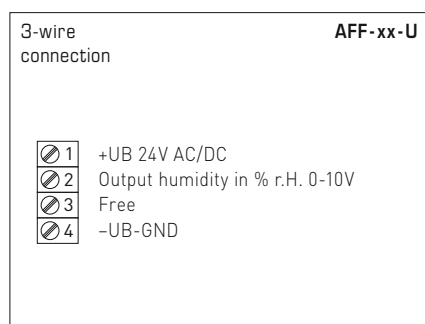
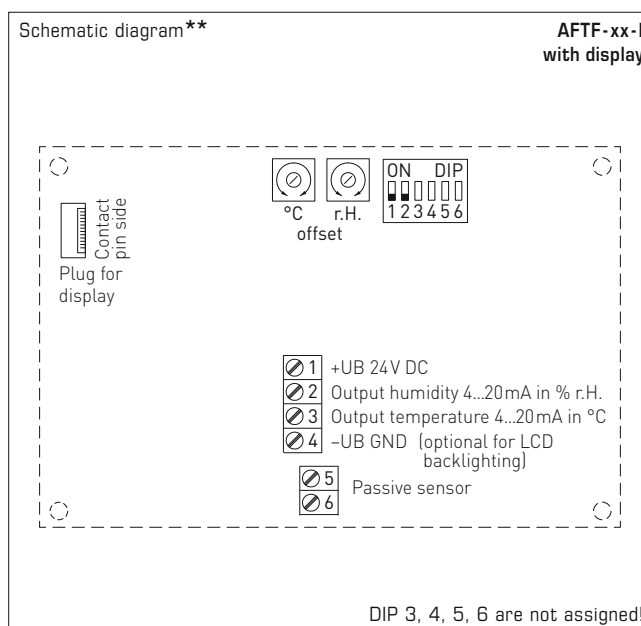
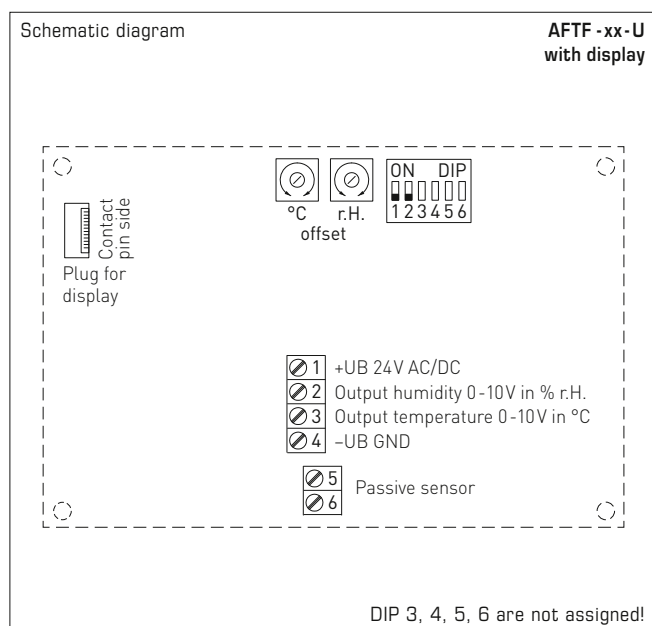


HYGRASGARD® AFF/AFTF HYGRASGARD® AFF-20/AFTF-20, AFF-25/AFTF-25

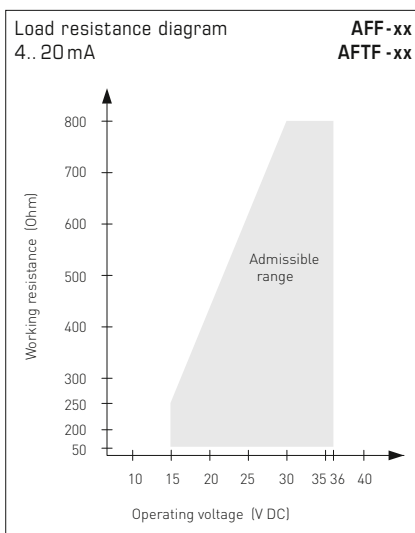


S+S REGELTECHNIK

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



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!



S+S REGELTECHNIK

HYGRASGARD® AFF/AFTF HYGRASGARD® AFF-20/AFTF-20, AFF-25/AFTF-25

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

AFF/AFTF ($\pm 2.0\%$)
AFF-20/AFTF-20 ($\pm 1.8\%$)
with display



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



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

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

HYGRASGARD® AFF		On-wall humidity sensors ($\pm 2.0\%$), <i>Standard</i>					
HYGRASGARD® AFTF		On-wall humidity and temperature sensors ($\pm 2.0\%$), <i>Standard</i>					
Type/WG02	Measuring Range/Readout		Output		Display	Item No.	Price
	Humidity	Temperature	Humidity	Temperature			
AFF-I						(active)	
AFF-I TYR-2	0...100% r. H.	–	4...20 mA	–		1201-7112-0000-000	164,54 €
AFF-I TYR-2 DISPLAY	0...100% r. H.	–	4...20 mA	–	■	1201-7112-0400-000	208,56 €
AFF-U						(active)	
AFF-U TYR-2	0...100% r. H.	–	0-10V	–		1201-7111-0000-000	164,54 €
AFF-U TYR-2 DISPLAY	0...100% r. H.	–	0-10V	–	■	1201-7111-0400-000	208,56 €
AFTF-I						(active)	
AFTF-I TYR 2	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA		1201-7112-1000-000	180,50 €
AFTF-I TYR 2 DISPLAY	0...100% r. H.	(4x as above)	4...20 mA	4...20 mA	■	1201-7112-1400-000	224,52 €
AFTF-U						(active)	
AFTF-U TYR-2	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V		1201-7111-1000-000	180,50 €
AFTF-U TYR-2 DISPLAY	0...100% r. H.	(4x as above)	0-10V	0-10V	■	1201-7111-1400-000	224,52 €
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101					on request	

HYGRASGARD® AFTF-U xx		On-wall humidity and temperature sensors ($\pm 2.0\%$), <i>Standard</i>					
Type/WG02	Measuring Range/Readout		Output		Item No.	Price	
	Humidity	Temperature	Humidity	Temperature			
AFTF-U xx						(active/passive)	
AFTF-U PT100	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V + Pt100		1201-7111-2001-000	181,60 €
AFTF-U PT1000	0...100% r. H.	(4x as above)	0-10V	0-10V + Pt1000		1201-7111-2005-000	182,70 €
AFTF-U NI1000	0...100% r. H.	(4x as above)	0-10V	0-10V + Ni1000		1201-7111-2009-000	183,25 €
AFTF-U NITK	0...100% r. H.	(4x as above)	0-10V	0-10V + Ni1000TK5000		1201-7111-2010-000	183,79 €
AFTF-U LM235Z	0...100% r. H.	(4x as above)	0-10V	0-10V + LM235Z, 10mV/K		1201-7111-2021-000	182,80 €
AFTF-U xx						(active/passive)	
AFTF-U NTC1,8K	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V + NTC 1.8 kOhm		1201-7111-2012-000	183,58 €
AFTF-U NTC10K	0...100% r. H.	(4x as above)	0-10V	0-10V + NTC 10 kOhm		1201-7111-2015-000	181,06 €
AFTF-U NTC20K	0...100% r. H.	(4x as above)	0-10V	0-10V + NTC 20 kOhm		1201-7111-2016-000	181,06 €
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	36,59 €
WS-01	Sun and ball-impact protection hood, 184 x 180 x 80 mm, stainless steel V2A (1.4301)	7100-0040-2000-000	27,47 €
WS-03	Weather and sun protection hood, 200 x 180 x 150 mm, stainless steel V2A (1.4301)	7100-0040-6000-000	38,68 €

For further information see last chapter!



HYGRASGARD® AFF-20		On-wall humidity sensors ($\pm 1.8\%$), <i>Premium</i>					
HYGRASGARD® AFTF-20		On-wall humidity and temperature sensors ($\pm 1.8\%$), <i>Premium</i>					
Type/ WG02	Measuring Range/ Readout		Output		Display	Item No.	Price
	Humidity	Temperature	Humidity	Temperature			
AFF-20-I						(active)	
AFF-20-I TYR-2	0...100% r. H.	–	4... 20 mA	–		1201-7112-0000-201	208,56 €
AFF-20-I TYR-2 DISPLAY	0...100% r. H.	–	4... 20 mA	–	■	1201-7112-0400-201	252,59 €
AFF-20-U						(active)	
AFF-20-U TYR-2	0...100% r. H.	–	0-10 V	–		1201-7111-0000-201	208,56 €
AFF-20-U TYR-2 DISPLAY	0...100% r. H.	–	0-10 V	–	■	1201-7111-0400-201	252,59 €
AFTF-20-I						(active)	
AFTF-20-I TYR-2	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA		1201-7112-1000-201	228,96 €
AFTF-20-I TYR-2 DISPLAY	0...100% r. H.	(4x as above)	4... 20 mA	4... 20 mA	■	1201-7112-1400-201	270,78 €
AFTF-20-U						(active)	
AFTF-20-U TYR-2	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-7111-1000-201	228,96 €
AFTF-20-U TYR-2 DISPLAY	0...100% r. H.	(4x as above)	0-10 V	0-10 V	■	1201-7111-1400-201	270,78 €
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101					on request	

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	Temperature	Humidity	Temperature			
AFF-25-I						(active)	
AFF-25-I TYR-2	0...100% r. H.	–	4... 20 mA	–		1201-7132-0000-101	308,16 €
AFF-25-I TYR-2 DISPLAY	0...100% r. H.	–	4... 20 mA	–	■	1201-7132-0400-101	351,23 €
AFF-25-U						(active)	
AFF-25-U TYR-2	0...100% r. H.	–	0-10 V	–		1201-7131-0000-101	308,16 €
AFF-25-U TYR-2 DISPLAY	0...100% r. H.	–	0-10 V	–	■	1201-7131-0400-101	351,23 €
AFTF-25-I						(active)	
AFTF-25-I TYR-2	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA		1201-7132-1000-101	326,87 €
AFTF-25-I TYR-2 DISPLAY	0...100% r. H.	(4x as above)	4... 20 mA	4... 20 mA	■	1201-7132-1400-101	369,94 €
AFTF-25-U						(active)	
AFTF-25-U TYR-2	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-7131-1000-101	326,87 €
AFTF-25-U TYR-2 DISPLAY	0...100% r. H.	(4x as above)	0-10 V	0-10 V	■	1201-7131-1400-101	369,94 €
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	36,59 €
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	186,00 €
WS-01	Sun and ball-impact protection hood, 184 x 180 x 80 mm, stainless steel V2A (1.4301)	7100-0040-2000-000	27,47 €
WS-03	Weather and sun protection hood, 200 x 180 x 150 mm, stainless steel V2A (1.4301)	7100-0040-6000-000	38,68 €

For further information see last chapter!