

FUGTIGHED



RUMFØLERE

Room humidity and temperature sensors ($\pm 2.0\%$),
on-wall, calibratable,
with active/passive output

The calibratable room humidity and temperature sensor **HYGRASGARD® RFF/RFTF** measures the relative humidity and/or temperature of air. It converts the measurands humidity and temperature into standard signals of 0-10V or 4...20mA and is available with or without an optional display (for displaying actual humidity and actual temperature) in an elegant housing made of plastic, with snap-on lid, base with 4-hole attachment for installation on vertically or horizontally installed in-wall flush boxes, with predetermined breaking point for on-wall cable entry. The relative humidity (in % r.H.) is the quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature.

It is used in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology, in interior rooms such as residential rooms, offices, hotels, technical rooms, meeting rooms and convention centres. These measuring transducers are designed for exact detection of air temperature and humidity. A digital long-term stable sensor is used as a measuring element for humidity and temperature measurement. Fine adjustment by the user is possible.

TECHNICAL DATA

Power supply:	24 V AC ($\pm 20\%$) and 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:	$R_a \text{ (ohm)} = (U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant
Load resistance:	$R_L > 5 \text{ kOhm}$ for U variant
Power consumption:	< 1.1 VA / 24 V DC ; < 2.2 VA / 24 V AC
Sensors:	digital humidity sensor with integrated temperature sensor, small hysteresis, high long-term stability

HUMIDITY

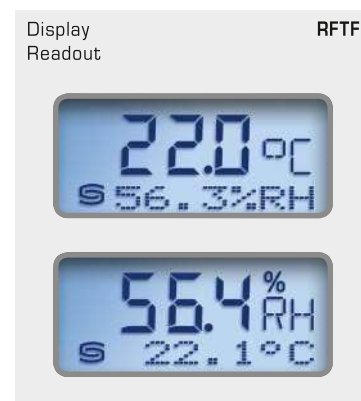
Measuring range, humidity:	0...100% r. H. (output corresponding to 0 -10 V or 4...20 mA)
Operating range, humidity:	0...95% r. H. (non-precipitating air)
Deviation, humidity:	typically $\pm 2.0\%$ (20...80% r. H.) at +25 °C, otherwise $\pm 3.0\%$
Output, humidity:	0-10 V for U variant 4...20 mA for I variant, working resistance < 800 Ω , see load resistance diagram

TEMPERATURE

Measuring range, temperature:	0...+50 °C (output corresponding to 0 -10V or 4...20 mA or Ohm value) others upon request!
Operating range, temperature:	0...+50 °C
Deviation, temperature:	typically ± 0.2 K at +25 °C
Output, temperature:	0 -10V or 4...20 mA or Ohm value
Ambient temperature:	storage -25...+50 °C, operation -5...+55 °C
Electrical connection:	2-, 3- or 4-wire connection (see connecting diagram) 0.14 -1.5 mm ² via terminal screws
Housing:	plastic, material ABS, colour pure white (similar to RAL 9010)
Housing dimensions:	85 x 85 x 27 mm (Baldur 1)
Installation:	wall mounting or on in-wall flush box, $\varnothing 55$ mm, base with 4-hole for mounting on vertically or horizontally installed in-wall flush boxes for cable entry from the back, with predetermined breaking point for on-wall cable entry from top/bottom in case of plain on-wall installation
Long-term stability:	$\pm 1\%$ per year
Protection class:	III (according to EN 60730)
Protection type:	IP30 (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, 36x15 mm (W x H), for displaying ACTUAL temperature and/or ACTUAL humidity

The two-line display readout switches between the ACTUAL humidity reading in % r. H. and the ACTUAL temperature reading in °C.

Backlighting is installed for better instrument readability.

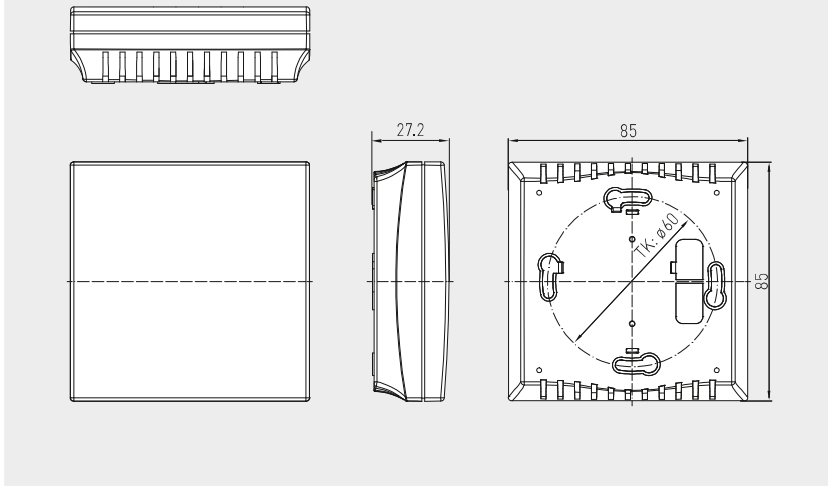




Dimensional drawing
(Balduur 1)

RFF
RFTF

RFF
RFTF



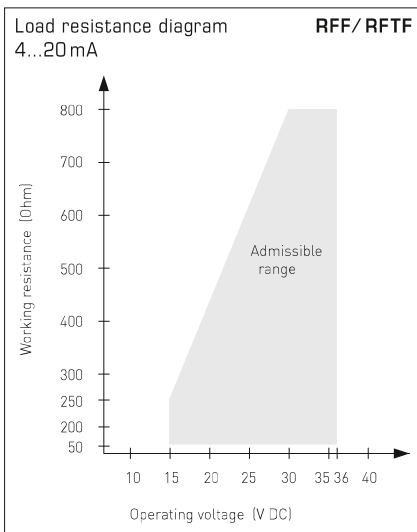
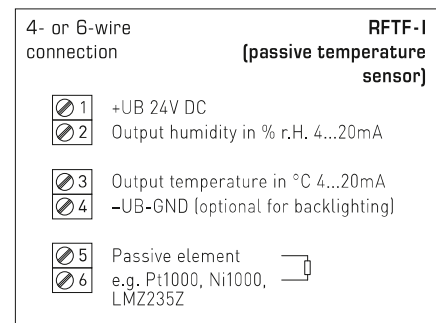
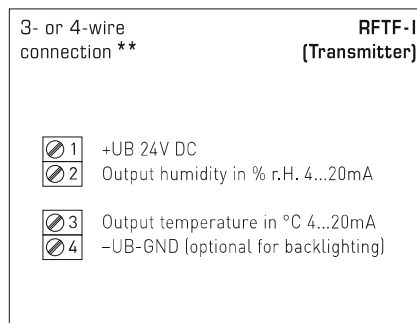
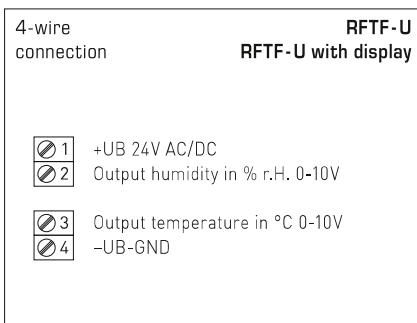
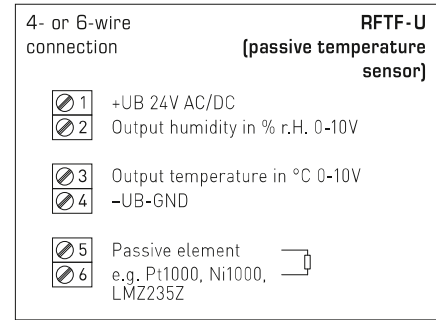
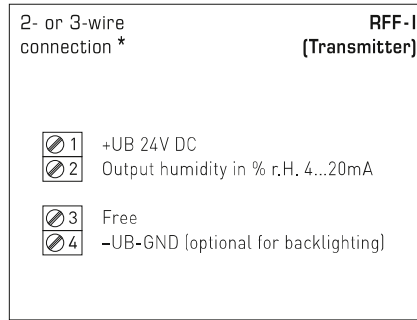
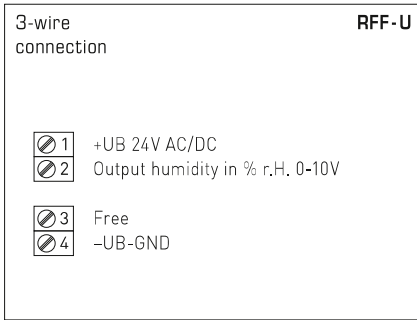
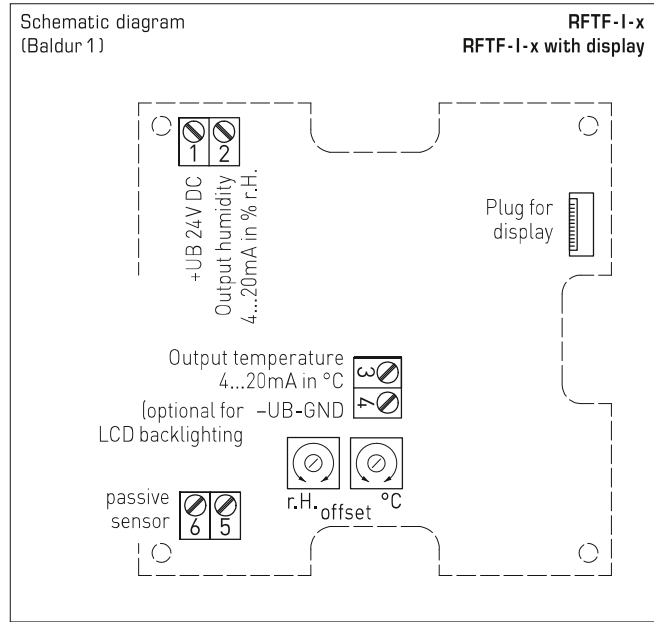
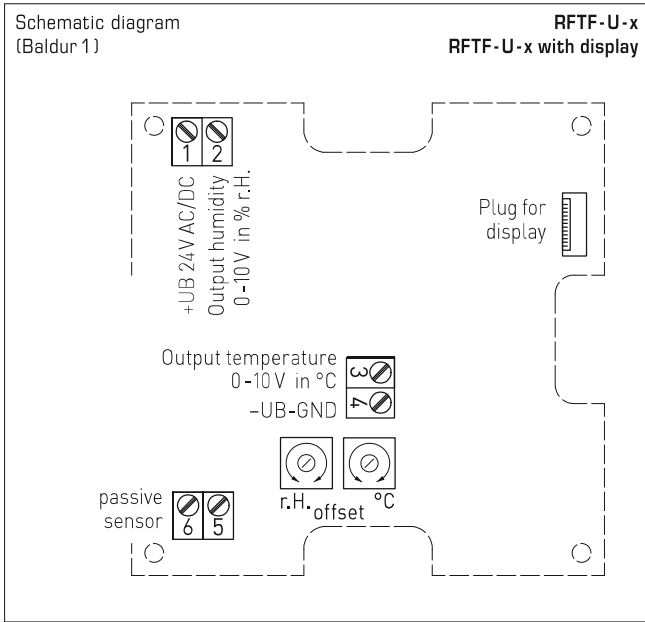
RFF
RFTF
without display

RFF
RFTF
with display

RFF
RFTF
with display



Room humidity and temperature sensors ($\pm 2.0\%$),
on-wall, calibratable,
with active/passive output



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

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



Humidity table

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

% r.H.	U _A in V	I _A in mA
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
Continued at the right...		

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

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

HYGRASGARD® RFF		Room humidity sensors					
HYGRASGARD® RFTF		Room humidity and temperature sensors					
Type/WG01	Measuring Range / Readout		Output		Display	Item No. (Baldur 1)	Price
	Humidity	Temperature	Humidity	Temperature			
RFF							(active)
RFF-I	0...100% r. H.	–	4...20 mA	–		1201-41A2-0000-000	113,25 €
RFF-I LCD	0...100% r. H.	–	4...20 mA	–	■	1201-41A2-0200-000	166,10 €
RFF-U	0...100% r. H.	–	0-10 V	–		1201-41A1-0000-000	113,25 €
RFF-U LCD	0...100% r. H.	–	0-10 V	–	■	1201-41A1-0200-000	166,10 €
RFTF							(active)
RFTF-I	0...100% r. H.	0...+50 °C	4...20 mA	4...20 mA		1201-41A2-1000-000	116,77 €
RFTF-I LCD	0...100% r. H.	0...+50 °C	4...20 mA	4...20 mA	■	1201-41A2-1200-000	169,73 €
RFTF-U	0...100% r. H.	0...+50 °C	0-10 V	0-10 V		1201-41A1-1000-000	116,77 €
RFTF-U LCD	0...100% r. H.	0...+50 °C	0-10 V	0-10 V	■	1201-41A1-1200-000	169,73 €

HYGRASGARD® RFTF - U xx		Room humidity and temperature sensors					
Type/WG01	Measuring Range / Readout		Output			Item No. (Baldur 1)	Price
	Humidity	Temperature	Humidity	Temperature			
RFTF - U xx							(active / passive)
Pt, Ni, LM235Z							
RFTF-U Pt100	0...100% r. H.	0...+50 °C	0-10 V	0-10 V + Pt100		1201-41A1-2001-000	155,50 €
RFTF-U Pt1000	0...100% r. H.	0...+50 °C	0-10 V	0-10 V + Pt1000		1201-41A1-2005-000	158,71 €
RFTF-U Ni1000	0...100% r. H.	0...+50 °C	0-10 V	0-10 V + Ni1000		1201-41A1-2009-000	159,80 €
RFTF-U NiTK	0...100% r. H.	0...+50 °C	0-10 V	0-10 V + Ni1000TK5000		1201-41A1-2010-000	160,03 €
RFTF-U LM235Z	0...100% r. H.	0...+50 °C	0-10 V	0-10 V + LM235Z, 10mV / K		1201-41A1-2021-000	159,43 €
RFTF - U xx							(active / passive)
NTC							
RFTF-U NTC1,8K	0...100% r. H.	0...+50 °C	0-10 V	0-10 V + NTC 1,8kOhm		1201-41A1-2012-000	159,92 €
RFTF-U NTC10K	0...100% r. H.	0...+50 °C	0-10 V	0-10 V + NTC 10kOhm		1201-41A1-2015-000	156,45 €
RFTF-U NTC20K	0...100% r. H.	0...+50 °C	0-10 V	0-10 V + NTC 20kOhm		1201-41A1-2016-000	156,45 €
Extra charge:	Two-line display with illumination						47,46 €

**Room humidity and temperature sensor or measuring transducer,
in-wall in the panel switch programme,
with active output**

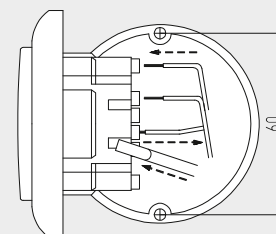
The room sensor **HYGRASGARD® FSFM / FSFTM** in the in-wall housing is used for measuring the relative humidity and temperature of the air. It converts the measured values into a standard signal of 0-10 V.

A digital, long-term stable sensor is used for humidity and temperature measurement. Relative humidity [% r.H.] is the quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature.

The in-wall sensor is mounted in high-quality panel switch programmes, ideally of the brands Gira, Berker, Merten, Jung, Siemens or Busch-Jaeger (using in-wall adapters) either individually or in combination with light switches, socket outlets, etc.

It is used in non-aggressive, dust-free environments, in refrigeration, air conditioning and clean room technology, and in interior rooms, such as living rooms, offices, hotels, etc

Mounting diagram in-wall



TECHNICAL DATA

Power supply:	24 V AC / DC (± 10 %)
Power consumption:	< 1.1 W / 24 V DC; < 2.2 VA / 24 V AC

HUMIDITY

Sensor:	digital humidity sensor, with integrated temperature sensor, low hysteresis, high long-term stability
Long-term stability:	± 1 % per year
Measuring range, humidity:	0...100 % r.H.
Operating range, humidity:	0...95 % r.H. (non-precipitating air)
Deviation, humidity:	typically ± 3.0 % (20...80 % r.H.) at +25 °C, otherwise ± 5.0 %
Output, humidity:	0-10 V

TEMPERATURE

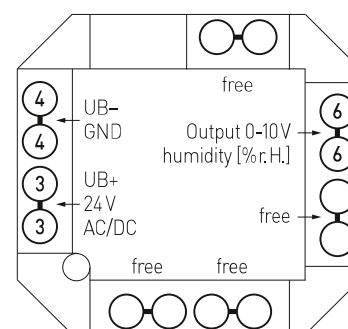
Measuring range:	0...+50 °C
Deviation, temperature:	typically ± 0.8 K at +25 °C
Output, temperature:	0-10 V

Mounting:	in-wall flush box Ø 55 mm
Electrical connection:	1.0-2.5 mm ² , via plug terminals
Ambient temperature:	Storage -35...+85 °C; Operation 0...+50 °C
Permitted humidity:	max. 90 % r.H., non-precipitating air
Medium:	clean air and other non-aggressive, non-combustible gases
Protection class:	III (according to EN 60 730)
Protection type:	IP 20 (according to 60 529)
Standards:	CE-conformity, electromagnetic compatibility according to EN 61 326, EMC Directive 2014 / 30 / EU

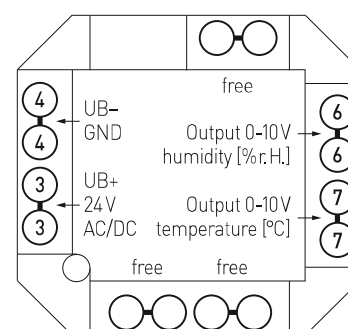
SWITCH PROGRAMME

Manufacturer:	GIRA System 55 (other switch programmes, manufacturers, colours as well as prices available upon request)
Housing:	plastic, the standard colour is pure glossy white (similar to RAL 9010) (other colours are available upon request with colour variants depending on the respective light switch programme)

Connection diagram FSFM

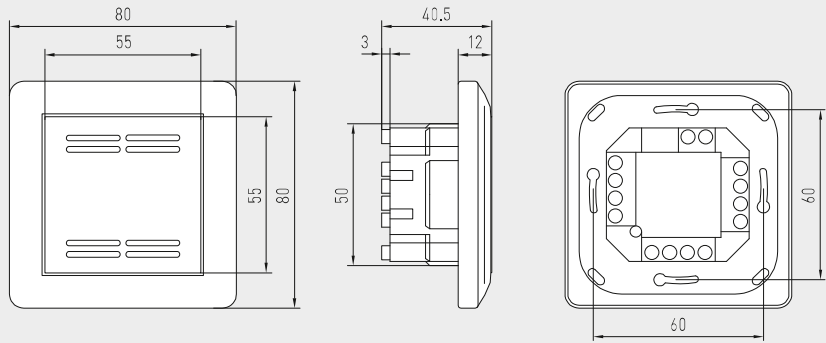


Connection diagram FSFTM





Dimensional drawing



FSFM
FSFTM

FSFM
FSFTM



Humidity table

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

% r.H.	U _A [V]	% r.H.	U _A [V]
0	0	50	5.0
5	0.5	55	5.5
10	1.0	60	6.0
15	1.5	65	6.5
20	2.0	70	7.0
25	2.5	75	7.5
30	3.0	80	8.0
35	3.5	85	8.5
40	4.0	90	9.0
45	4.5	95	9.5
Continued to the right ...		100	10.0

Temperature table

MR: 0...+50 °C

°C	U _A [V]
0	0.0
5	1.0
10	2.0
15	3.0
20	4.0
25	5.0
30	6.0
35	7.0
40	8.0
45	9.0
50	10.0

HYGRASGARD® FSFM Room humidity sensor or measuring transducer, in-wall
HYGRASGARD® FSFTM Room humidity and temperature sensor or measuring transducer, in-wall

Type / WG02	Measuring Range Humidity	Temperature	Output Humidity	Temperature	Item No.	Price
FSFM						
FSFM-U	0...100% r. H.	-	0-10V	-	1201-9121-0000-162	228,09 €
FSFTM						
FSFTM-U	0...100% r. H.	0...+50 °C	0-10V	0-10V	1201-9121-1000-162	234,86 €

**In-ceiling humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching
and active output**

The calibratable humidity and temperature sensor **HYGRASGARD® DFF / DFTF** measures the relative humidity and temperature of air. It converts the measurands into a standard signal of 0-10 V or 4...20 mA, and is available with / without an optional display.

It is equipped with four switchable temperature ranges. Relative humidity (in % r.H.) is the quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature. The measuring transducers are designed for exact detection of temperature and humidity. A digital, long-term stable sensor is used as a measuring element for humidity and temperature measurement. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

The ceiling-installed sensor is used in non-aggressive, dust-free environments and is used for installation in suspended ceilings in corridors, offices, as well as in residential and commercial buildings. The connecting head is pluggable for quick, easy mounting. The measuring transducer is accommodated in a separate housing.

**DFF
DFTF**



TECHNICAL DATA

Power supply:	24 V AC ($\pm 20\%$) and 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
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

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. (without formation of dew)
Deviation in humidity:	typically $\pm 2.0\%$ (20...80% r.H.) at $+25^\circ\text{C}$, otherwise $\pm 3.0\%$
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 with 4 switchable measuring ranges (see table) $-35...+35^\circ\text{C}$; $-35...+75^\circ\text{C}$; $0...+50^\circ\text{C}$; $0...+80^\circ\text{C}$ (output corresponding to 0-10 V or 4...20 mA)
Deviation temperature:	typically $\pm 0.2 \text{ K}$ at $+25^\circ\text{C}$
Output, temperature:	0-10 V or 4...20 mA
Ambient temperature:	storage $-5...+60^\circ\text{C}$; operation $-5...+60^\circ\text{C}$
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:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
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)
Electrical connection:	2-, 3- or 4-wire (see connecting diagram), 0.14 - 1.5 mm ² , via terminal screws
Connecting cable:	PVC, LiYY, 4 x 0.14 mm ² , cable length (KL) = approx. 2 m
Connecting head:	made of plastic, material polycarbonate (PC), colour white, pluggable , \varnothing = approx. 35 mm, H = approx. 29 mm, with metal sinter filter made of stainless steel V4A (1.4404)
Mounting (sensor):	in the suspended ceiling, ceiling cut-out $\varnothing = 30 \text{ mm}$, cover $\varnothing < 35 \text{ mm}$
Protection class:	III (according to EN 60 730)
Protection type:	IP 67 (according EN 60 529) Housing tested TÜV SÜD, Report No. 713139052 IP 30 (according EN 60 529) Sensor in the built-in state
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), to display the ACTUAL temperature and / or ACTUAL humidity

**DFF
DFTF**
Connecting head,
pluggable

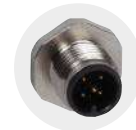
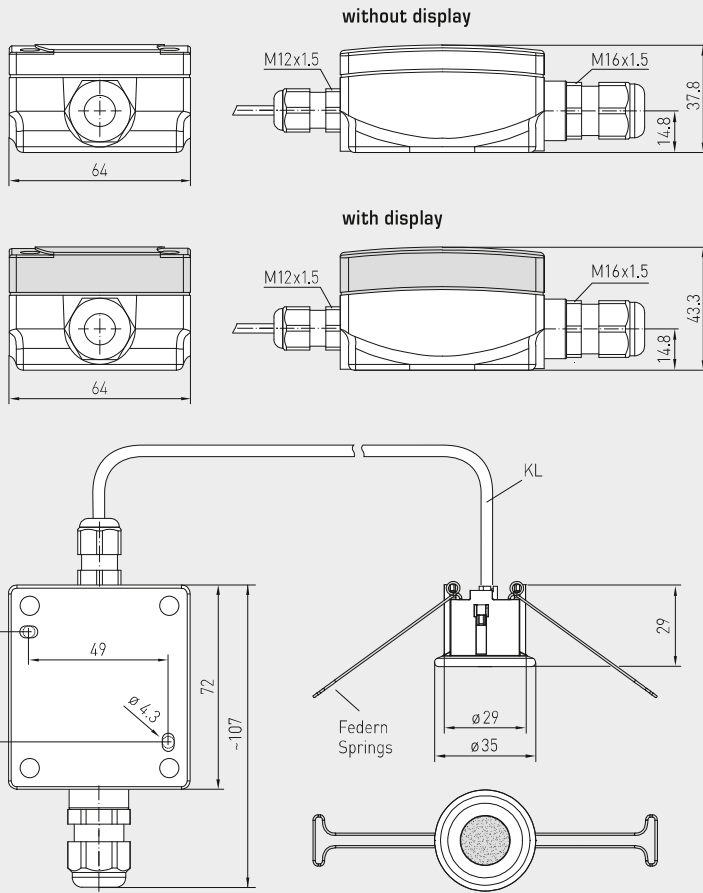




Dimensional drawing

DFF
DFTF

DFF
DFTF
with display



M12 connector
(optional on request)

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

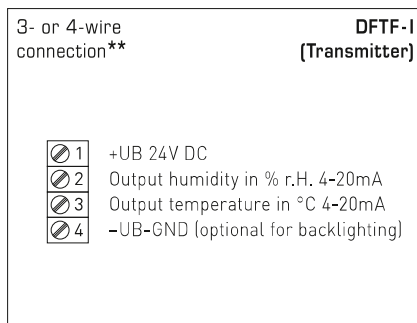
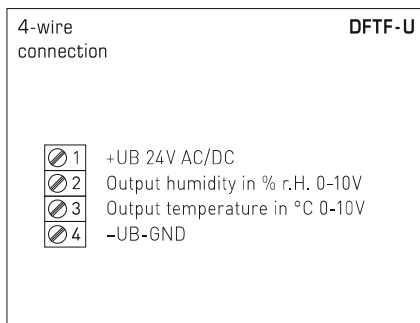
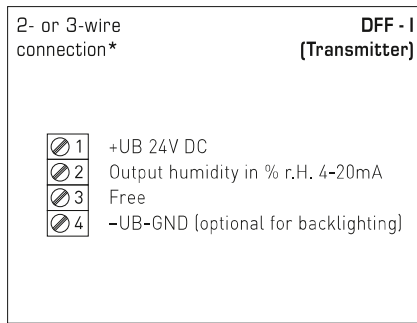
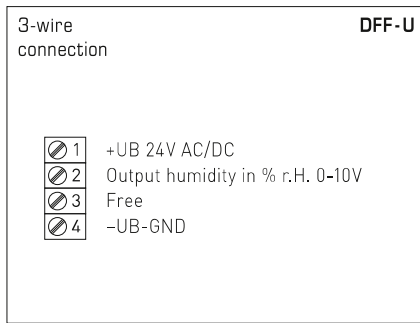
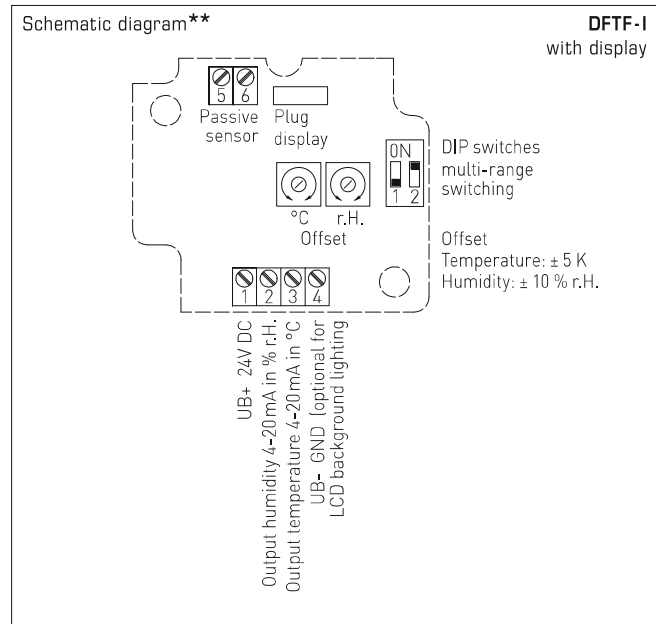
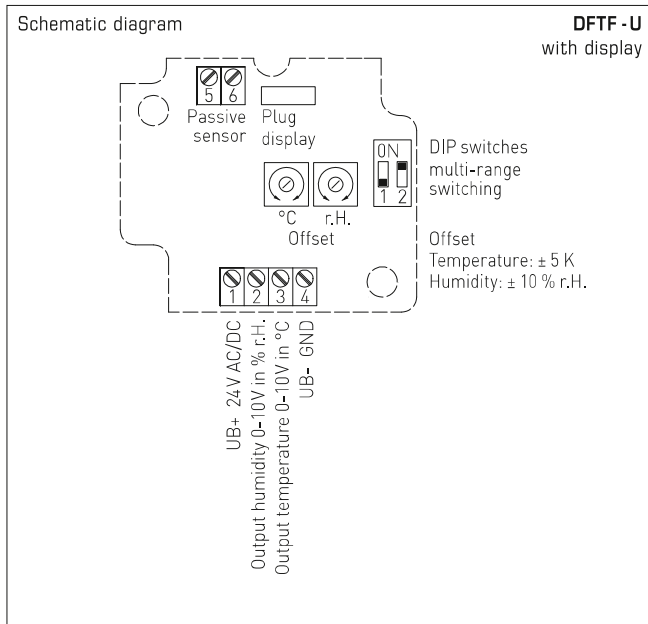
Temperature table
MR: 0...+80°C

°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

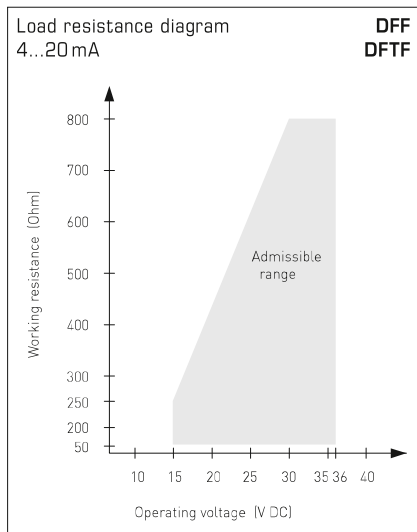
Humidity table
MR: 0...100% r. H.

% 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

In-ceiling humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching
and active 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!



DFF
DFTF
with display



HYGRASGARD® DFF		In-ceiling humidity sensors ($\pm 2.0\%$), <i>Premium</i>				
HYGRASGARD® DFTF		In-ceiling humidity and temperature sensors ($\pm 2.0\%$), <i>Premium</i>				
Type / WG01	Measuring Range / Readout	Output	Display	Item No.	Price	
	Humidity	Humidity	Temperature			
DFF-I						
I-variant						
DFF-I	0...100% r. H.	–	4...20mA	–	1201-6132-0000-100 326,32 €	
DFF-I LCD	0...100% r. H.	–	4...20mA	–	■ 1201-6132-0200-100 381,65 €	
DFF-U						
U-variant						
DFF-U	0...100% r. H.	–	0-10V	–	1201-6131-0000-100 326,32 €	
DFF-U LCD	0...100% r. H.	–	0-10V	–	■ 1201-6131-0200-100 381,65 €	
DFTF-I						
I-variant						
DFTF-I	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20mA	4...20mA	1201-6132-1000-100 334,23 €	
DFTF-I LCD	0...100% r. H.	(4x as above)	4...20mA	4...20mA	■ 1201-6132-1200-100 389,56 €	
DFTF-U						
U-variant						
DFTF-U	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V	1201-6131-1000-100 334,23 €	
DFTF-U LCD	0...100% r. H.	(4x as above)	0-10V	0-10V	■ 1201-6131-1200-100 389,56 €	
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101				on request	

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

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 housing made of impact-resistant plastic with housing 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. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

AFF-SD
AFTF-SD
compact form



SF-M
Metal sinter filter (optional)



TECHNICAL DATA

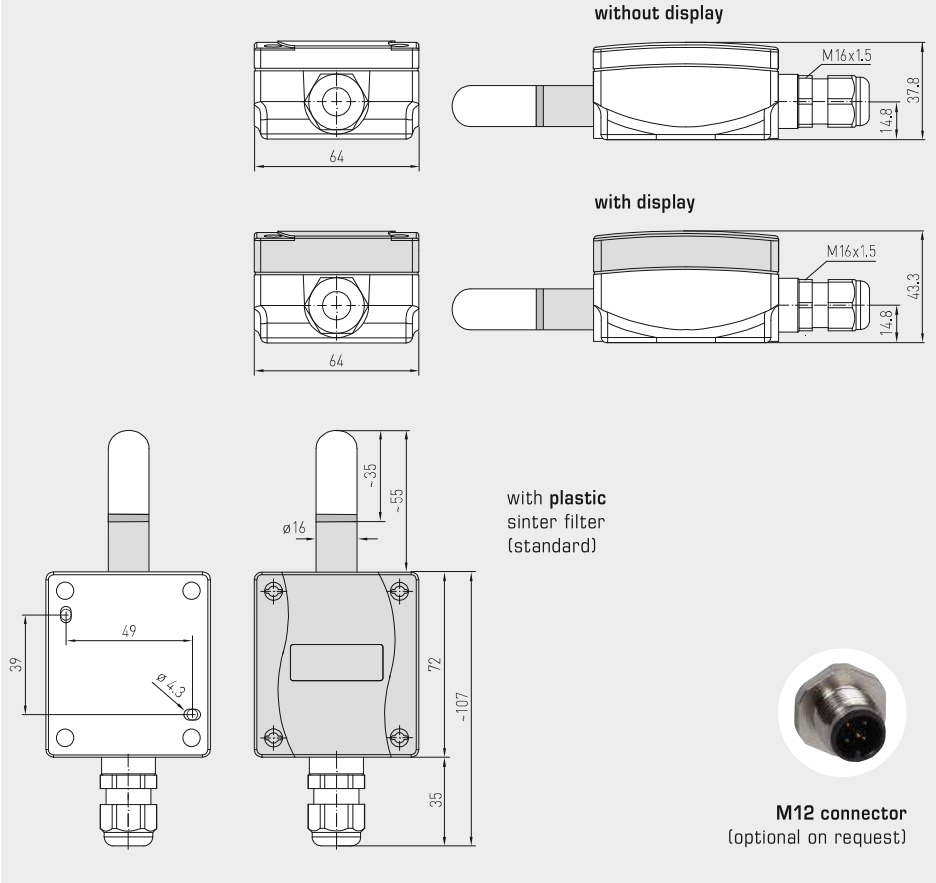
Power supply:	24 V AC ($\pm 20\%$); 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (ohm) = $(U_b - 14 \text{ V}) / 0.02 \text{ A}$ for I variant
Load resistance:	$R_L > 5 \text{ k}\Omega$ for U variant
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
Sensor protection:	plastic sinter filter, $\varnothing 16 \text{ mm}$, $L = 35 \text{ mm}$, exchangeable (optional metal sinter filter, $\varnothing 16 \text{ mm}$, $L = 32 \text{ mm}$)
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. (without dew formation)
Deviation, humidity:	typically $\pm 2.0\%$ (20...80% r.H.) at $+25^\circ\text{C}$, otherwise $\pm 3.0\%$
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) $-35...+35^\circ\text{C}$; $-35...+75^\circ\text{C}$; $0...+50^\circ\text{C}$; $0...+80^\circ\text{C}$ (output corresponding to 0-10 V or 4...20 mA)
Deviation, temperature:	typically $\pm 0.6 \text{ K}$ at $+25^\circ\text{C}$
Output, temperature:	0-10 V or 4...20 mA or Ohm value
Ambient temperature:	storage $-35...+85^\circ\text{C}$, operation $-30...+70^\circ\text{C}$, non-precipitating
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm ² , via terminal screws
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:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
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), $\varnothing = 16 \text{ mm}$, $NL = 55 \text{ mm}$
Process connection:	by screws
Long-term stability:	$\pm 1\%$ per year
Protection class:	III (according to EN 60730)
Protection type:	IP 65 (according to EN 60529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)
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



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

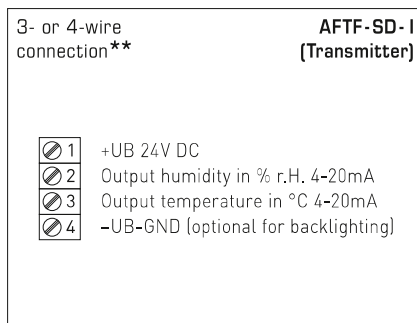
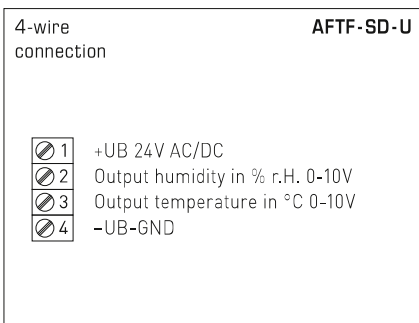
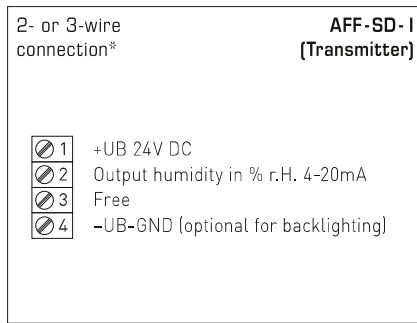
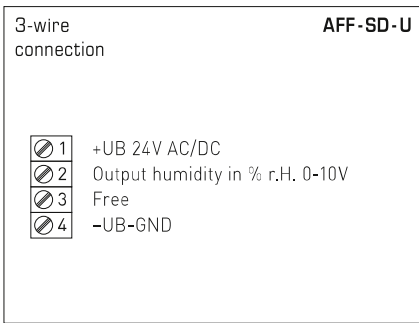
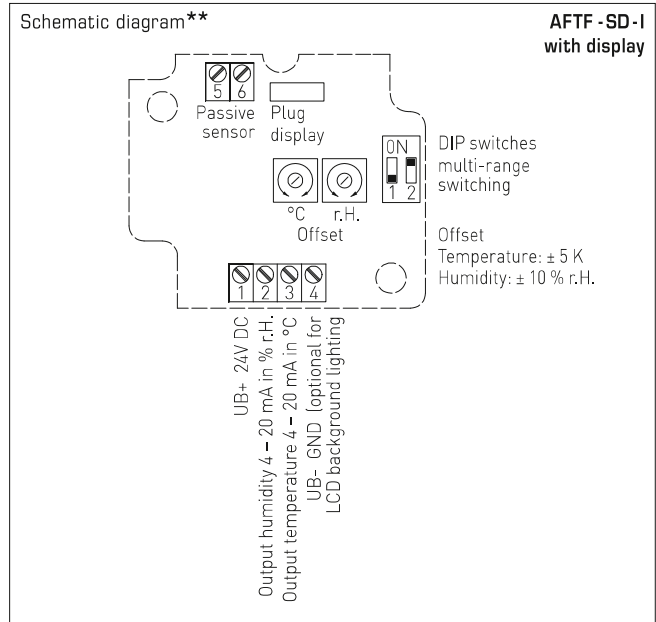
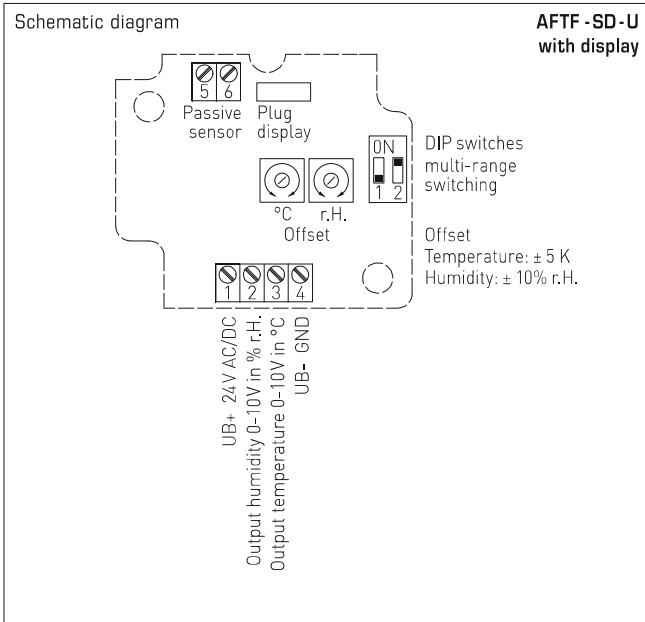
Temperature table
MR: 0...+80°C

°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

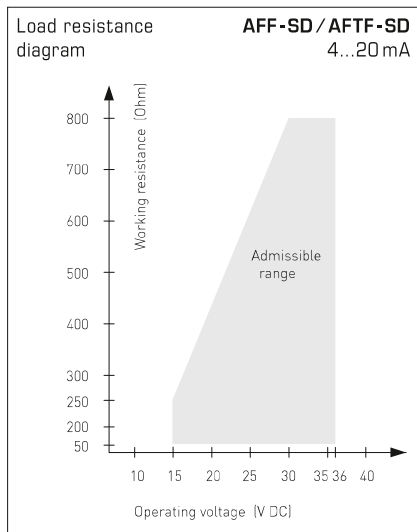
Humidity table
MR: 0...100% r. H.

% 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

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

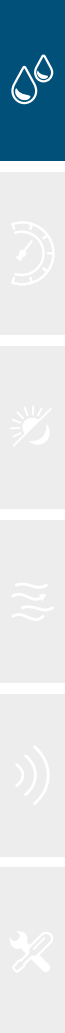
For the **I variant** the humidity path must be connected!



WS-04

Weather and sun protection hood (optional)

AFF-SD
AFTF-SD
compact form with display



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

Type/ WG01B	Measuring Range/ Readout		Output		Display	Item No.	Price
	Humidity	Temperature	Humidity	Temperature			
AFF-SD-I							I-variant
AFF-SD-I	0...100% r. H.	-	4...20 mA	-		1201-1122-0000-100	172,16 €
AFF-SD-I LCD	0...100% r. H.	-	4...20 mA	-	■	1201-1122-0200-000	220,67 €
AFF-SD-U							U-variant
AFF-SD-U	0...100% r. H.	-	0-10 V	-		1201-1121-0000-100	172,16 €
AFF-SD-U LCD	0...100% r. H.	-	0-10 V	-	■	1201-1121-0200-000	220,67 €
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	175,80 €
AFTF-SD-I LCD	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	224,29 €
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	175,80 €
AFTF-SD-U LCD	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	224,29 €
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101						on request

ACCESSORIES								
SF-M	Metal sinter filter, Ø 16 mm, L=32 mm, exchangeable stainless steel V4A (1.4404)						7000-0050-2200-100	40,31 €
WS-01	Sun and ball-impact protection hood, 184 x 180 x 80 mm, stainless steel V2A (1.4301)						7100-0040-2000-000	30,26 €
WS-04	Weather and sun protection hood, 130 x 180 x 135 mm, stainless steel V2A (1.4301)						7100-0040-7000-000	35,70 €
For further information, see last chapter Accessories!								

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 - 10V 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 ± 0.3 V

Working resistance: R_b (ohm) = $(U_b - 14 V) / 0.02 A$ for I variant, see load resistance diagram

Load resistance: $R_L > 5 k\Omega$ 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

HUMIDITY

Measuring range, humidity: 0...100% r. H.

Permitted humidity: $< 95\%$ r. H., non-precipitating air

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

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

TEMPERATURE

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

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

Deviation, temperature: **AFF / AFTF**:
typically $\pm 0.4 K$ at $+25^\circ C$

AFF-20 / AFTF-20, AFF-25 / AFTF-25:
typically $\pm 0.2 K$ at $+25^\circ C$

Output, temperature: 0-10V 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

AFF-20 / AFTF-20

M16x1.5

$\phi 16$

~137

~20

4

~35

SF-K
Plastic sinter filter
(standard)

SF-M
Metal sinter filter
(optional)

M12 connector
(optional)



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

M16x1.5

$\phi 16$

~175

~20

4

~32

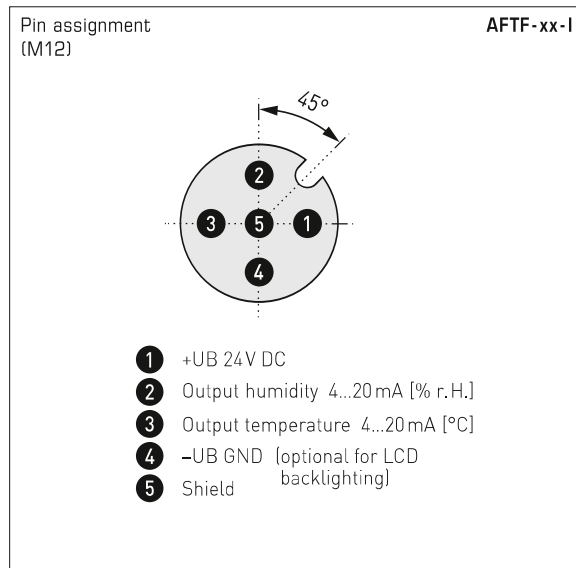
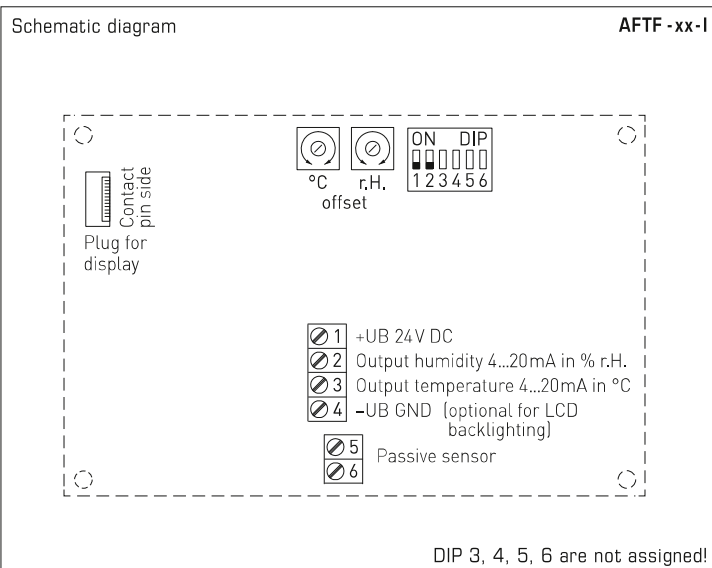
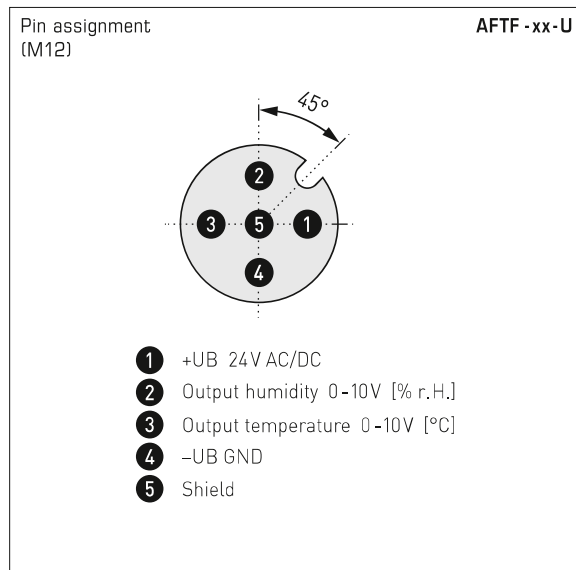
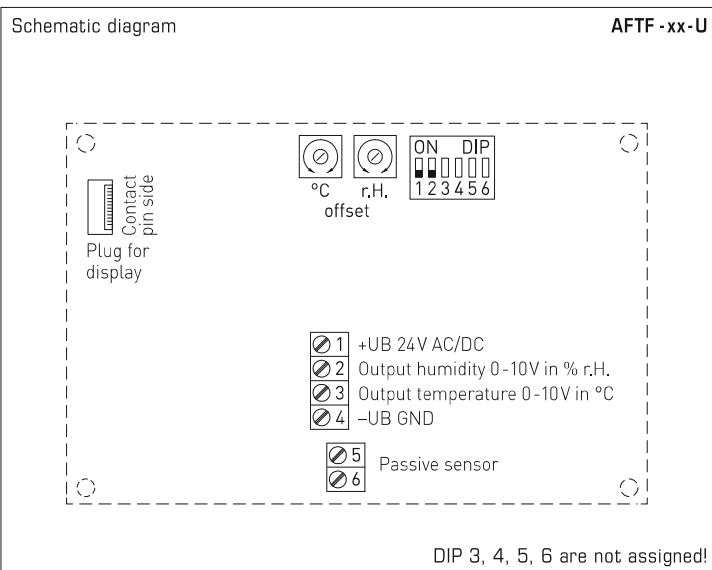
~93.5

**pluggable
measuring head**
with metal
sinter filter

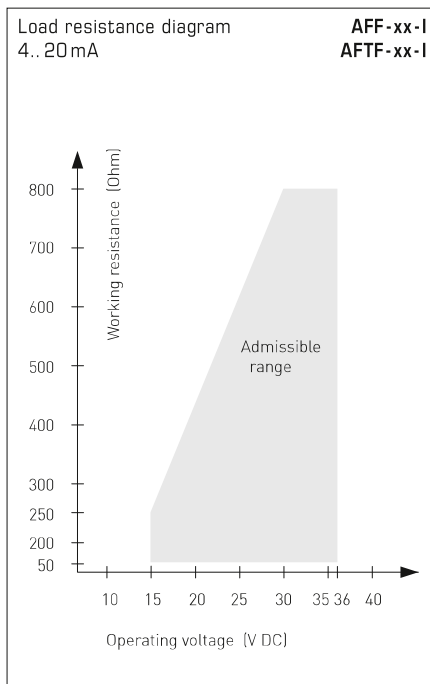


AFF-25 / AFTF-25 ($\pm 1.8\%$)
pluggable measuring head
with metal sinter filter
and display

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 in % r.H. 0-10V
3	Free
4	-UB-GND

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

1	+UB 24V DC
2	Output humidity in % r.H. 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 in % r.H. 0-10V
3	Output temperature in °C 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 in % r.H. 0-10V
3	Output temperature in °C 0-10V
4	-UB-GND

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

1	+UB 24V DC
2	Output humidity in % r.H. 4...20mA
3	Output temperature in °C 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 in % r.H. 4...20mA
3	Output temperature in °C 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 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

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% r. H.	-	4...20 mA	-		1201-7112-0000-000	181,26 €
AFF-I LCD	0...100% r. H.	-	4...20 mA	-	■	1201-7112-0400-000	229,75 €
AFF-U	0...100% r. H.	-	0-10V	-		1201-7111-0000-000	181,26 €
AFF-U LCD	0...100% r. H.	-	0-10V	-	■	1201-7111-0400-000	229,75 €
AFTF							
AFTF-I	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	198,84 €
AFTF-I LCD	0...100% r. H.	(4x as above)	4...20 mA	4...20 mA	■	1201-7112-1400-000	247,33 €
AFTF-U	0...100% r. H.	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V		1201-7111-1000-000	198,84 €
AFTF-U LCD	0...100% r. H.	(4x as above)	0-10V	0-10V	■	1201-7111-1400-000	247,33 €
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% r. H.	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V + Pt100	1201-7111-2001-000	200,05 €
AFTF-U Pt1000	0...100% r. H.	(4x as above)	0-10V	0-10V + Pt1000	1201-7111-2005-000	201,26 €
AFTF-U Ni1000	0...100% r. H.	(4x as above)	0-10V	0-10V + Ni1000	1201-7111-2009-000	201,87 €
AFTF-U NiTK	0...100% r. H.	(4x as above)	0-10V	0-10V + Ni1000TK5000	1201-7111-2010-000	202,47 €
AFTF-U LM235Z	0...100% r. H.	(4x as above)	0-10V	0-10V + LM235Z , 10mV / K	1201-7111-2021-000	201,38 €
AFTF-U NTC1,8K	0...100% r. H.	(4x as above)	0-10V	0-10V + NTC 1,8 kOhm	1201-7111-2012-000	202,23 €
AFTF-U NTC10K	0...100% r. H.	(4x as above)	0-10V	0-10V + NTC 10 kOhm	1201-7111-2015-000	199,45 €
AFTF-U NTC20K	0...100% r. H.	(4x as above)	0-10V	0-10V + NTC 20 kOhm	1201-7111-2016-000	199,45 €
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	Temperature	Humidity	Temperature		
AFF-25						
AFF-25-I	0...100% r. H.	–	4...20 mA	–	1201-7132-0000-101 339,47 €	
AFF-25-I LCD	0...100% r. H.	–	4...20 mA	–	■ 1201-7132-0400-101 386,91 €	
AFF-25-U	0...100% r. H.	–	0-10 V	–	1201-7131-0000-101 339,47 €	
AFF-25-U LCD	0...100% r. H.	–	0-10 V	–	■ 1201-7131-0400-101 386,91 €	
AFTF-25						
AFTF-25-I	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	1201-7132-1000-101 360,08 €	
AFTF-25-I LCD	0...100% r. H.	(4x as above)	4...20 mA	4...20 mA	■ 1201-7132-1400-101 407,53 €	
AFTF-25-U	0...100% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	1201-7131-1000-101 360,08 €	
AFTF-25-U LCD	0...100% r. H.	(4x as above)	0-10 V	0-10 V	■ 1201-7131-1400-101 407,53 €	
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	40,31 €
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	204,90 €
WS-01	Sun and ball-impact protection hood, 184 x 180 x 80 mm, stainless steel V2A (1.4301)			7100-0040-2000-000	30,26 €
WS-03	Weather and sun protection hood, 200 x 180 x 150 mm, stainless steel V2A (1.4301)			7100-0040-6000-000	42,61 €

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 ($\pm 1.8\%$), *Premium*
(with M12 connector)

Type / WG02	Measuring Range / Readout Humidity	Readout Temperature	Output Humidity	Temperature	Display ● = Q	Item No.	Price
AFTF-20-Q							
AFTF-20-I Q	0...100% r. H.	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA	●	2003-6121-2100-001	292,15 €
AFTF-20-I Q LCD	0...100% r. H.	(4x as above)	4... 20 mA	4... 20 mA	● ■	2003-6122-2100-001	338,22 €
AFTF-20-U Q	0...100% r. H.	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V	●	2003-6121-1100-001	292,15 €
AFTF-20-U Q LCD	0...100% r. H.	(4x as above)	0-10V	0-10V	● ■	2003-6122-1100-001	338,22 €
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	40,31 €
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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% r. H.	–	4... 20 mA	–		1201-7112-0000-201	229,75 €
AFF-20-I LCD	0...100% r. H.	–	4... 20 mA	–	■	1201-7112-0400-201	278,25 €
AFF-20-U	0...100% r. H.	–	0-10 V	–		1201-7111-0000-201	229,75 €
AFF-20-U LCD	0...100% r. H.	–	0-10 V	–	■	1201-7111-0400-201	278,25 €
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% r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA		1201-7112-1000-201	252,22 €
AFTF-20-I LCD	0...100% r. H.	(4x as above)	4... 20 mA	4... 20 mA	■	1201-7112-1400-201	298,30 €
AFTF-20-U	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	252,22 €
AFTF-20-U LCD	0...100% r. H.	(4x as above)	0-10 V	0-10 V	■	1201-7111-1400-201	298,30 €
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	40,31 €
For further information see last chapter!								

**On-wall humidity sensors and temperature sensors (± 1.8 %),
calibratable, with multi-range switching
and active output**

Calibratable outdoor humidity and temperature sensor **HYGRASGARD® AFTF-20-VA** (± 1.8 %) with metal sinter filter, rugged housing, **stainless steel V4A**, optionally with /without display, with cable gland or M12 connector according to DIN EN 61076-2-101.

It measures the relative humidity and the temperature of the air and converts the measurand into a standard signal of 0 - 10 V or 4...20 mA. It has four switchable temperature ranges and is applied in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology. 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.

AFTF-20-VA
with cable gland



AFTF-20-VAQ
with M12 connector



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, see load resistance diagram
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

HUMIDITY

Measuring range, humidity:	0...100 % r. H.
Permitted humidity:	< 95 % r. H., non-precipitating air
Deviation in humidity:	typically ± 1.8 % (10...90 % r. H.) at +25 °C, otherwise ± 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 °C; -35...+75 °C; 0...+50 °C; 0...+80 °C
Ambient temperature:	storage -35...+85 °C; operation -30...+80 °C, non-precipitating
Deviation, temperature:	typically ± 0.2 K at +25 °C
Output, temperature:	0 - 10 V for U variant 4...20 mA for I variant
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm ² , via terminal screws
Cable connection:	cable gland, stainless steel V2A (1.4305) (M20 x 1.5; with strain relief, exchangeable, inner diameter 6 - 12 mm) or M12 connector (male, 5-pin, A-code) according to DIN EN 61076-2-101
Housing:	stainless steel V4A (1.4571), with non-distortion cover bolting, impact resistant, high EMI shielding, corrosion, temperature, weather- and UV-resistant
Housing dimensions:	143 x 97 x 61 mm (Tyr 2E)
Protective tube:	made from stainless steel V2A (1.4301), Ø 16 mm, NL = 137 mm
Sensor protection:	metal sinter filter , Ø 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)
Process connection:	by screws via the mounting fixture on the housing
Long-term stability:	± 1 % per year
Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713160960B (Skadi2)
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
Optional:	display with illumination , three-line, cutout approx. 70 x 40 mm (W x H), to display the ACTUAL temperature and ACTUAL humidity

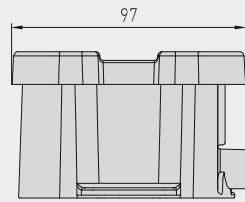
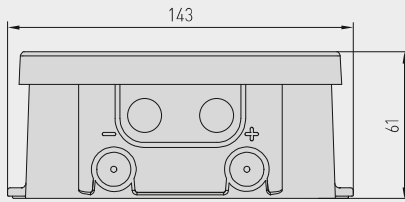
ACCESSORIES

(see table)



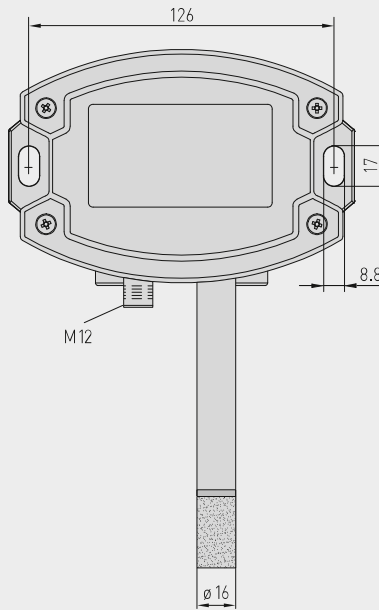
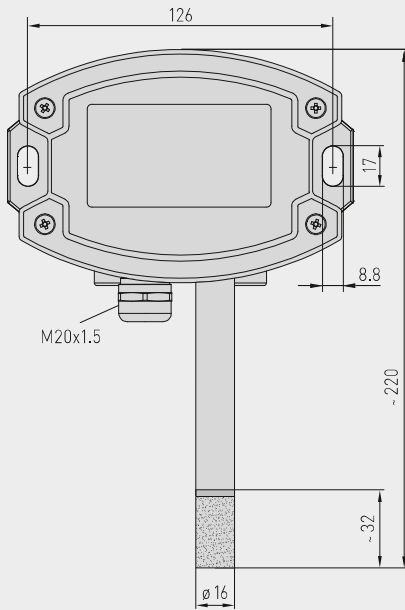
Dimensional drawing

AFTF-20-VA



Housing with
cable gland

Housing with
M12 connector



SF-M
Metal sinter filter
(standard)



M12 connector
(male)

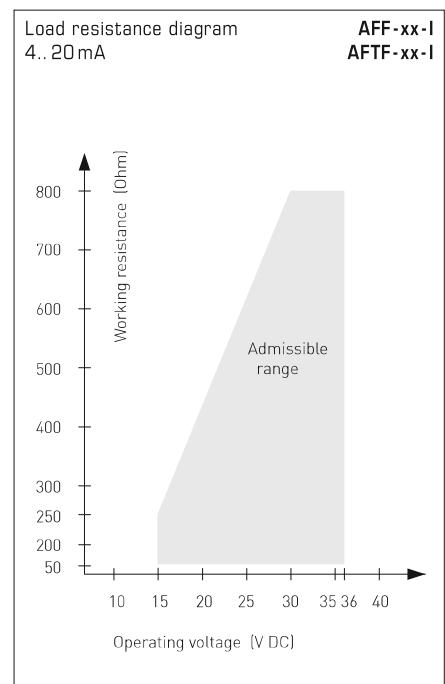
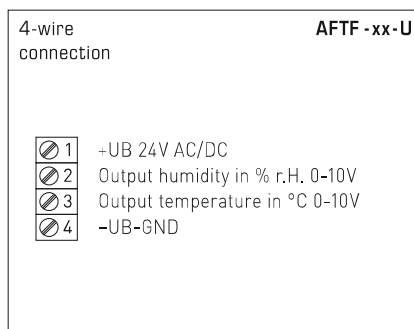
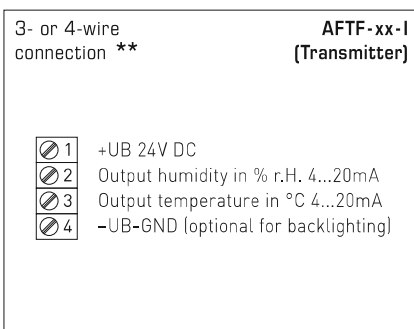
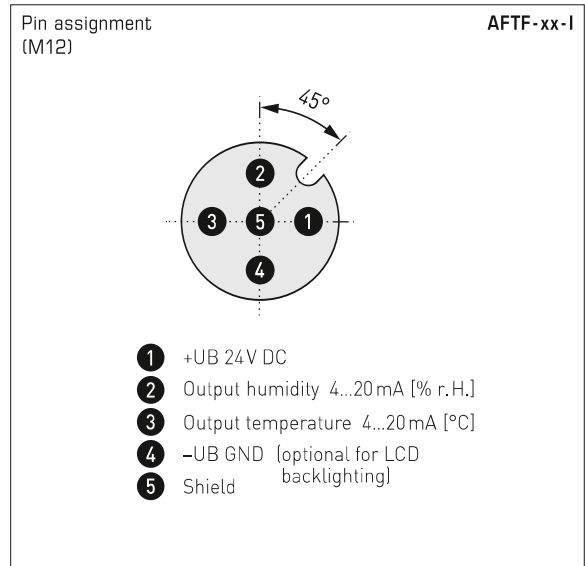
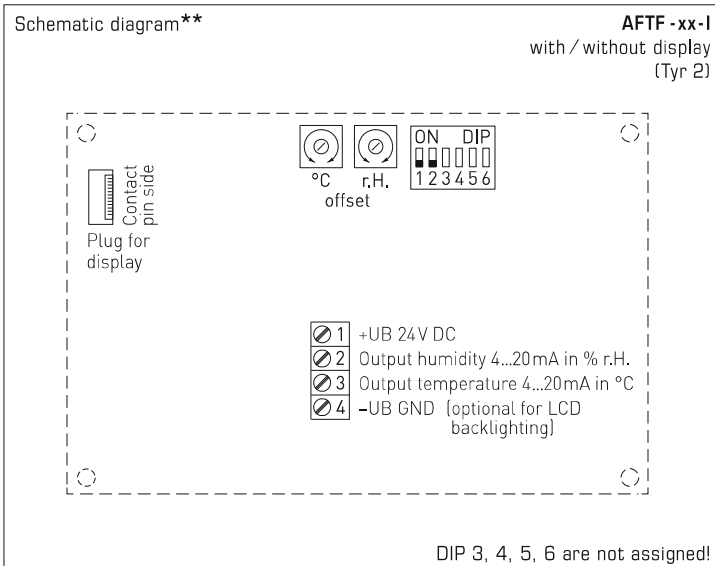
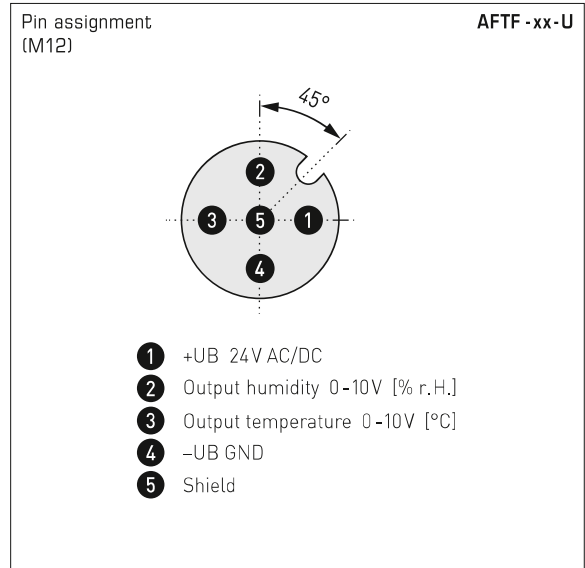
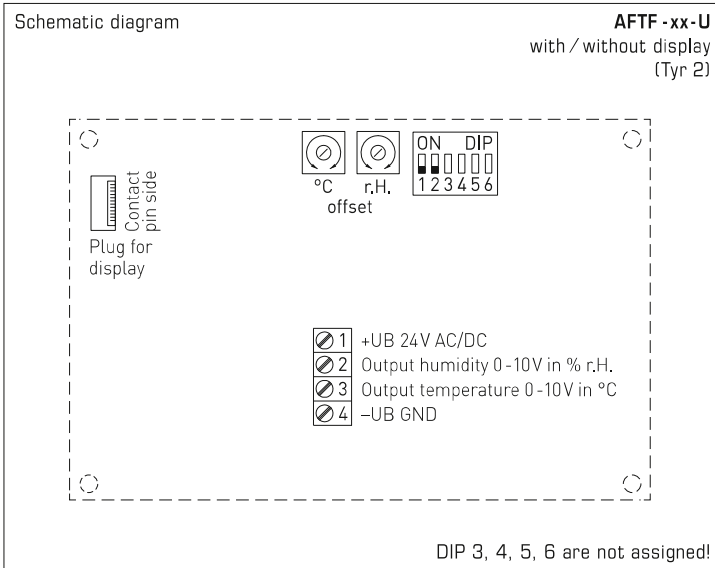
AFTF-20-VA
with cable gland
and display



AFTF-20-VAQ
with M12 connector
and display



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



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 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



AFTF-20-VAQ
with display,
hinged



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

AFTF-20-VAQ
with M12 connector



HYGRASGARD® AFTF-20-VAQ On-wall humidity sensors and temperature sensors ($\pm 1.8\%$), *ID*
(with M12 connector)

Type / WG02I	Measuring Range / Readout		Output		Display	Item No.	Price
	Humidity	Temperature	Humidity	Temperature	● = Q		
AFTF-20-VAQ						(active)	
AFTF-20-I VAQ	0...100% r. H.	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA	●	2003-6181-2100-001	630,82 €
AFTF-20-I VAQ LCD	0...100% r. H.	(4x as above)	4... 20 mA	4... 20 mA	● ■	2003-6182-2100-001	778,82 €
AFTF-20-U VAQ	0...100% r. H.	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V	●	2003-6181-1100-001	630,82 €
AFTF-20-U VAQ LCD	0...100% r. H.	(4x as above)	0-10V	0-10V	● ■	2003-6182-1100-001	778,82 €
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	40,31 €
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For further information see last chapter!



AFTF-20-VA
with cable gland



HYGRASGARD® AFTF-20-VA		On-wall humidity sensors and temperature sensors ($\pm 1.8\%$), <i>ID</i> (with cable gland)				
Type / WG02I	Measuring Range / Readout	Output	Display	Item No.	Price	
	Humidity	Humidity	Temperature			
AFTF-20-VA						
AFTF-20-I VA	0...100% r. H.	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA	2003-6181-2200-001 594,12 €	
AFTF-20-I VA LCD	0...100% r. H.	(4x as above)	4... 20 mA	4... 20 mA	■ 2003-6182-2200-001 742,12 €	
AFTF-20-U VA	0...100% r. H.	-35...+75 °C -35...+35 °C 0...+50 °C 0...+80 °C	0-10V	0-10V	2003-6181-1200-001 594,12 €	
AFTF-20-U VA LCD	0...100% r. H.	(4x as above)	0-10V	0-10V	■ 2003-6182-1200-001 742,12 €	
Housing variant:		Cable connection with cable gland				

ACCESSORIES						
SF-M	Metal sinter filter, \varnothing 16 mm, L = 32 mm, exchangeable stainless steel V4A (1.4404)				7000-0050-2200-100	40,31 €
For further information see last chapter!						



**HVAC & BYGNINGS-
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VORES PRODUKTSORTIMENT INKLUDERER:



TEMP. AKTIV - RUMFØLERE



CO2 & VOCFØLERE



POWER IO



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