

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

Calibratable display cases humidity and temperature sensor **HYGRASGARD® VFF / VFTF** (± 2.0 %) with active output, in an impact-resistant plastic housing with quick-locking screws, cable sensor with a flat stainless steel probe (pluggable), to exactly detect the relative humidity (0...100 %RH) and the temperature with 4 switchable measuring ranges (max. -35 °C/-31 °F to +80 °C/+176 °F), optionally with/without display. The standard display can be changed from SI [°C] to imperial [°F] units via DIP switch. The measuring transducer converts the measured variables into a standard signal of 0-10 V or 4...20 mA. The unit with **Automatic Output Switching** (AOS variant) detects the required output type and **automatically** switches to U or I output. Alternatively, a **type version** (I2W) with 2-wire connection and I output is available.

The display cases sensor is applied in a non-aggressive, dust-free environment and is specially suitable for installation in ceilings, walls, display cases or showcases. It is used in museums, galleries, cinemas, lecture halls or laboratories. A long-term stable, **digital humidity and temperature sensor** guarantees exact measurement results. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

TECHNICAL DATA**VFF/VFTF - I (I2W)**

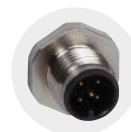
Power supply:	15...36 V DC, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	$R_a \text{ (Ohm)} = (U_b - 14 \text{ V}) / 0.02 \text{ A}$
Connection type:	2-wire connection
Output:	4...20 mA

VFF/VFTF - A (AOS)

Power supply:	24 V AC / DC (± 10 %)
Load resistance:	$R_L = 25...450 \text{ Ohm}$ with AOS I variant $R_L > 15 \text{ kOhm}$ with AOS U variant
Connection type:	3-wire connection
Output:	automatic 0-10 V / 4...20 mA (Automatic Output Switching – the unit detects the required output type and automatically switches to U or I output)

GENERAL

Power consumption:	< 1.0 W / 24 V DC; < 2.2 VA / 24 V AC
System of units:	SI (default) or Imperial (switchable via DIP switch)
Data points:	Humidity [%RH]; Temperature [°C] [°F]
Sensors:	digital humidity sensor with integrated temperature sensor , low hysteresis, high long-term stability
Measuring range, humidity:	0...100 % RH
Operating range, humidity:	0...95 % RH (without formation of dew)
Accuracy in humidity:	typically ± 2.0 % (20...80 % RH) at +25 °C, otherwise ± 3.0 %
Measuring range temp.:	multi-range switching with 4 measuring ranges (via DIP switch) 0...+50 °C / +32...+122 °F 0...+80 °C / +32...+176 °F -35...+75 °C / -31...+167 °F -35...+35 °C / -31...+95 °F
Operating range temp.:	-10...+60 °C / +14...+140 °F
Accuracy temperature:	typically ± 0.2 K / ± 0.5 °F at +25 °C / +77 °F
Ambient temperature:	storage -35...+85 °C; operation -30...+70 °C, non-precipitating
Long-term stability:	± 1 % per year
Sensor protection:	Probe made of stainless steel, V4A (1.4571), pluggable ; sensor head Ø = 17 mm, H = approx. 2.5 mm; protective sleeve Ø = 10 mm, NL = approx. 25 mm, M10 x 1.0; with plastic plug connector Ø = approx. 11 mm, NL = approx. 25 mm
Mounting (sensor):	cut-out Ø = 11 - 15 mm, inserted length (EL) = approx. 50 mm, lock nut for fixing is included in the scope of delivery.
Connecting cable:	PVC, LiYY, 4 x 0.14 mm², cable length (KL) = 2 m
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)
Electrical connection:	2-, 3- or 4-wire (see connecting diagram), 0.14 - 1.5 mm², via terminal screws
Cable connection:	Cable gland , plastic (M16 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)
Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according to EN 60 529) Housing IP 30 (according to EN 60 529) Sensor in the built-in state
Standards:	CE conformity according to EMC directive 2014 / 30 / EU
Optional:	two-line display with illumination , cutout approx. 36 x 15 mm (W x H), to display the ACTUAL temperature and / or ACTUAL humidity

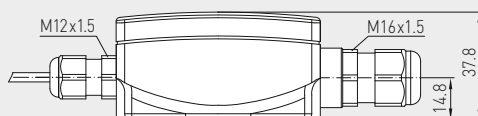
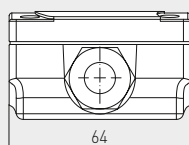
VFF
VFTF**M12 connector**
(optional on request)VFF
VFTFProbe made of stainless steel,
pluggable

**NEW**

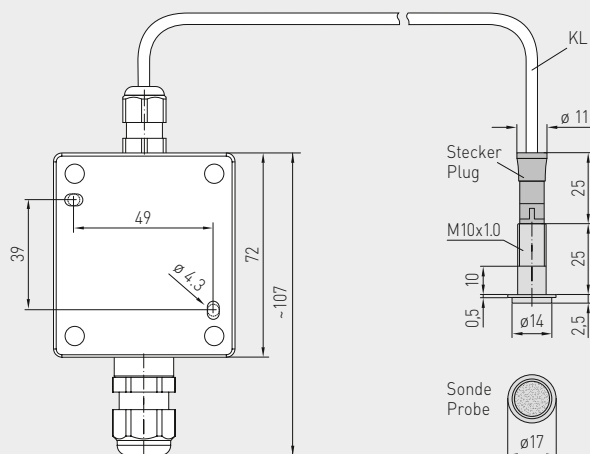
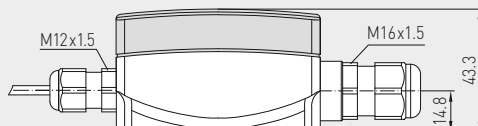
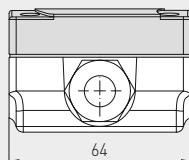
S+S REGELTECHNIK

HYGRASGARD® VFF
HYGRASGARD® VFTFShowcase humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching,
with active output (Automatic Output Switching)Dimensional drawing
[mm]**VFF**
VFTF

without display



with display

**VFF**
VFTF
with displayAutomatic detection and switching
to standard signal 0...10 V or 4...20 mA**AOS-PATENTED**
AUTOMATIC OUTPUT SWITCHING**Temperature**
MR: -35...+75 °C /
-31...+167 °F

°C	U _A [V]	I _A [mA]	°F
-35	0.0	4.0	-31
-30	0.5	4.7	-22
-25	0.9	5.5	-13
-20	1.4	6.2	-4
-15	1.8	6.9	+5
-10	2.3	7.6	+14
-5	2.7	8.4	+23
0	3.2	9.1	+32
+5	3.6	9.8	+41
+10	4.1	10.5	+50
+15	4.5	11.3	+59
+20	5.0	12.0	+68
+25	5.5	12.7	+77
+30	5.9	13.5	+86
+35	6.4	14.2	+95
+40	6.8	14.9	+104
+45	7.3	15.6	+113
+50	7.7	16.4	+122
+55	8.2	17.1	+131
+60	8.6	17.8	+140
+65	9.1	18.5	+149
+70	9.5	19.2	+158
+75	10.0	20.0	+167

Temperature
MR: -35...+35 °C /
-31...+95 °F

°C	U _A [V]	I _A [mA]	°F
-35	0.0	4.0	-31
-30	0.7	5.1	-22
-25	1.4	6.3	-13
-20	2.1	7.4	-4
-15	2.9	8.6	+5
-10	3.6	9.7	+14
-5	4.3	10.9	+23
0	5.0	12.0	+32
+5	5.7	13.1	+41
+10	6.4	14.3	+50
+15	7.1	15.4	+59
+20	7.9	16.6	+68
+25	8.6	17.7	+77
+30	9.3	18.9	+86
+35	10.0	20.0	+95

Temperature
MR: 0...+50 °C /
+32...+122 °F

°C	U _A [V]	I _A [mA]	°F
0	0.0	4.0	+32
+5	1.0	5.6	+41
+10	2.0	7.2	+50
+15	3.0	8.8	+59
+20	4.0	10.4	+68
+25	5.0	12.0	+77
+30	6.0	13.6	+86
+35	7.0	15.2	+95
+40	8.0	16.8	+104
+45	9.0	18.4	+113
+50	10.0	20.0	+122

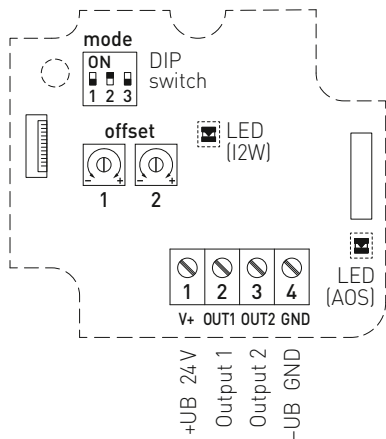
Temperature
MR: 0...+80 °C /
+32...+176 °F

°C	U _A [V]	I _A [mA]	°F
0	0.0	4.0	+32
+5	0.6	5.0	+41
+10	1.3	6.0	+50
+15	1.9	7.0	+59
+20	2.5	8.0	+68
+25	3.1	9.0	+77
+30	3.8	10.0	+86
+35	4.4	11.0	+95
+40	5.0	12.0	+104
+45	5.6	13.0	+113
+50	6.3	14.0	+122
+55	6.9	15.0	+131
+60	7.5	16.0	+140
+65	8.1	17.0	+149
+70	8.8	18.0	+158
+75	9.4	19.0	+167
+80	10.0	20.0	+176

Humidity
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

Schematic diagram
(AOS/I2W) VFF-SD
VFTF-SD



DIP switches		VFF-SD / VFTF-SD	
Measuring range temperature		DIP 1	DIP 2
-35...+35 °C / -31... +95 °F		OFF	OFF
0...+80 °C / +32...+176 °F		ON	OFF
0...+50 °C / +32...+122 °F (default)		OFF	ON
-35...+75 °C / -31...+167 °F		ON	ON
System of units		DIP 3	
Imperial: [°F]		ON	
SI: [°C] (default)		OFF	
Temperature Value indicated in display depends on system of units set (DIP 3).			

A circular blue button with a white border. Inside the circle, the letters 'SI' are in white and 'IMP' is in blue. A white curved arrow points from the 'IMP' side to the 'SI' side, indicating a toggle function.



Note:

The offset potentiometers are assigned to the corresponding output of the measurand

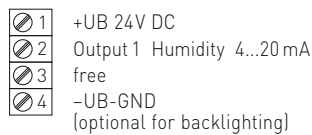
Output 1 → Offset 1 (Humidity)

Output 2 → Offset 2 (Temperature)

Connecting diagram (AOS) VFF-SD-A



Connecting diagram * VFF-SD-I (I2W)



For the I variant (I2W) the humidity path must be connected!

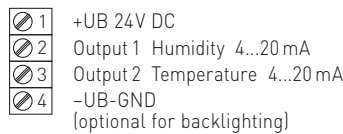
Connection*:

2-wire connection for devices with / without display (not illuminated)
3-wire connection for devices with illuminated display

Connecting diagram (AOS) VFTF-SD-A



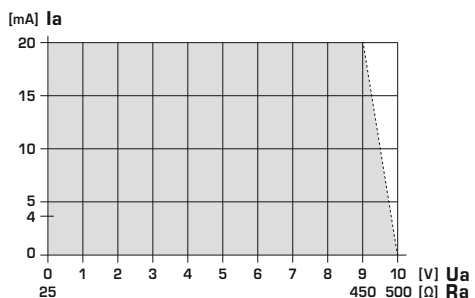
Connecting diagram ** VFTF-SD-I (I2W)



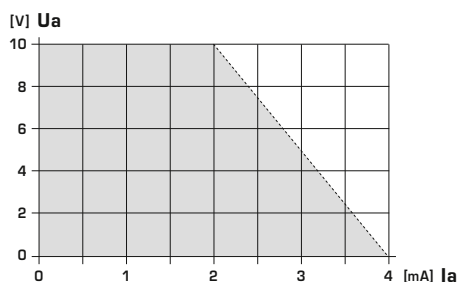
Connection:**

3-wire connection for devices with / without display (not illuminated)
4-wire connection for devices with illuminated display

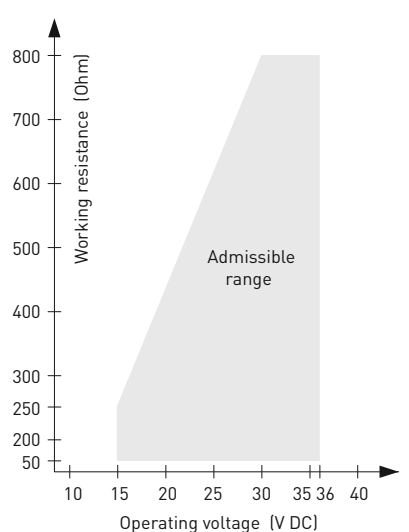
Dependence of output voltage on output current AOS-I 4...20mA



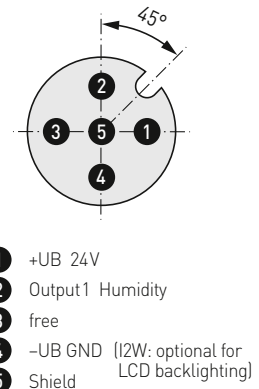
Dependence of output current on output voltage AOS-U 0-10 V



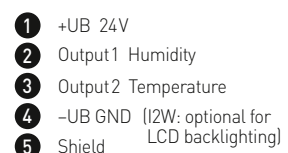
Load resistance diagram VFF-SD-I VFTF-SD-I



Pin assignment VFF-SD (M12)



Pin assignment VFTF-SD (M12)





NEW

S+S REGELTECHNIK

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HYGRASGARD® VFTF

Showcase humidity and temperature sensors ($\pm 2.0\%$),
calibratable, with multi-range switching,
with active output (Automatic Output Switching)



VFF
VFTF
Probe made of stainless steel,
pluggable



HYGRASGARD® VFF		Showcase humidity sensor ($\pm 2.0\%$), <i>Standard</i>		
HYGRASGARD® VFTF		Showcase humidity and temperature sensor ($\pm 2.0\%$), <i>Standard</i>		
Type / WG02	Measuring range / readout	Output	Display	Item No.
	Humidity	Temperature		
VFF-I			(fixed)	I2W
VFF-I	0...100% RH	–	4...20 mA	1201-6122-0000-100
VFF-I LCD	0...100% RH	–	4...20 mA	■ 1201-6122-0200-100
VFF-A			(automatically)	AOS
VFF-A	0...100% RH	–	0-10 V / 4...20 mA	1201-612E-0000-100
VFF-A LCD	0...100% RH	–	0-10 V / 4...20 mA	■ 1201-612E-0200-100
VFTF-I		(switchable)	(fixed)	I2W
VFTF-I	0...100% RH	–35...+75 °C / –31...+167 °F –35...+35 °C / –31... +95 °F 0...+50 °C / +32...+122 °F 0...+80 °C / +32...+176 °F	4...20 mA	1201-6122-1000-100
VFTF-I LCD	0...100% RH	(4x see above)	4...20 mA	■ 1201-6122-1200-100
VFTF-A		(switchable)	(automatically)	AOS
VFTF-A	0...100% RH	–35...+75 °C / –31...+167 °F –35...+35 °C / –31... +95 °F 0...+50 °C / +32...+122 °F 0...+80 °C / +32...+176 °F	0-10 V / 4...20 mA	1201-612E-1000-100
VFTF-A LCD	0...100% RH	(4x see above)	0-10 V / 4...20 mA	■ 1201-612E-1200-100
Outputs:	4...20 mA (fixed setting) for I variant (I2W) or 0-10 V / 4...20 mA (automatically via AOS) Number of active outputs depends on unit type: relative humidity (OUT1) and temperature (OUT2).			
System of units:	display can be changed from SI to imperial units.			
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101 on request			