

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

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

Calibratable display cases humidity and temperature sensor **HYGRASGARD® VFF / VFTF** ($\pm 2.0\%$) 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. $-35\text{ }^\circ\text{C}/-31\text{ }^\circ\text{F}$ to $+80\text{ }^\circ\text{C}/+176\text{ }^\circ\text{F}$), optionally with /without display. The standard display can be changed from SI [$^\circ\text{C}$] to imperial [$^\circ\text{F}$] units via DIP switch. The measuring transducer converts the measured variables into a standard signal of 0-10V or 4...20mA. 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...36V DC, depending on working resistance, residual ripple stabilised $\pm 0.3\text{V}$
Working resistance:	$R_a \text{ (Ohm)} = (U_b - 14\text{V}) / 0.02\text{A}$
Connection type:	2-wire connection
Output:	4...20mA
VFF/VFTF - A (AOS)	
Power supply:	24V AC / DC ($\pm 10\%$)
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 0-10V / 4...20mA (Automatic Output Switching – the unit detects the required output type and automatically switches to U or I output)
GENERAL	
Power consumption:	$< 1.0\text{W} / 24\text{V DC}$; $< 2.2\text{VA} / 24\text{V AC}$
System of units:	SI (default) or Imperial (switchable via DIP switch)
Data points:	Humidity [%RH]; Temperature [$^\circ\text{C}$] [$^\circ\text{F}$]
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 $\pm 2.0\%$ (20...80%RH) at $+25\text{ }^\circ\text{C}$, otherwise $\pm 3.0\%$
Measuring range temp.:	multi-range switching with 4 measuring ranges (via DIP switch) $0...+50\text{ }^\circ\text{C} / +32...+122\text{ }^\circ\text{F}$ $0...+80\text{ }^\circ\text{C} / +32...+176\text{ }^\circ\text{F}$ $-35...+75\text{ }^\circ\text{C} / -31...+167\text{ }^\circ\text{F}$ $-35...+35\text{ }^\circ\text{C} / -31...+95\text{ }^\circ\text{F}$
Operating range temp.:	$-10...+60\text{ }^\circ\text{C} / +14...+140\text{ }^\circ\text{F}$
Accuracy temperature:	typically $\pm 0.2\text{K} / \pm 0.5\text{ }^\circ\text{F}$ at $+25\text{ }^\circ\text{C} / +77\text{ }^\circ\text{F}$
Ambient temperature:	storage $-35...+85\text{ }^\circ\text{C}$; operation $-30...+70\text{ }^\circ\text{C}$, non-precipitating
Long-term stability:	$\pm 1\%$ per year
Sensor protection:	Probe made of stainless steel, V4A (1.4571), pluggable ; sensor head $\varnothing = 17\text{ mm}$, H = approx. 2.5 mm; protective sleeve $\varnothing = 10\text{ mm}$, NL = approx. 25 mm, M10 x 1.0; with plastic plug connector $\varnothing =$ approx. 11 mm, NL = approx. 25 mm
Mounting (sensor):	cut-out $\varnothing = 11 - 15\text{ mm}$, 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 mm ² , 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 mm ² , 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 60730)
Protection type:	IP 65 (according to EN 60529) Housing IP 30 (according to EN 60529) 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
VFTF

Probe made of stainless steel,
pluggable





NEW

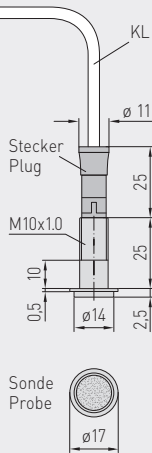
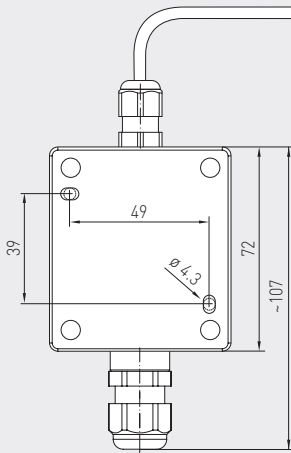
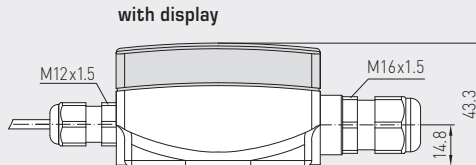
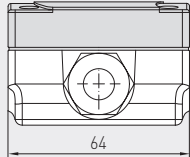
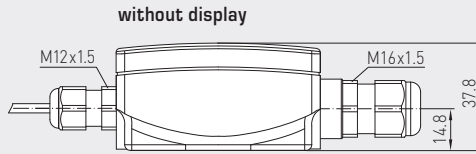
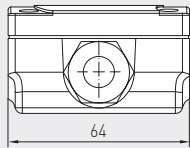
S+S REGELTECHNIK

HYGRASGARD® VFF
HYGRASGARD® VFTF

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

Dimensional drawing
[mm]

VFF
VFTF



VFF
VFTF
with display



Automatic detection and switching
to standard signal 0...10V or 4...20mA

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

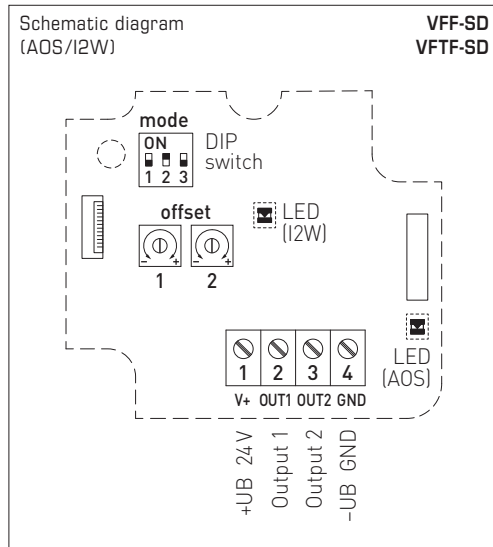
Temperature
MR: 0...+80 °C /
+32...+176 °F

°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

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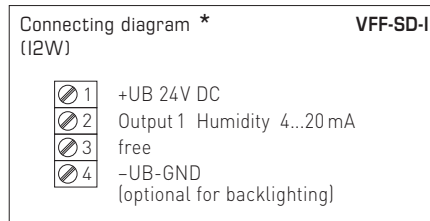
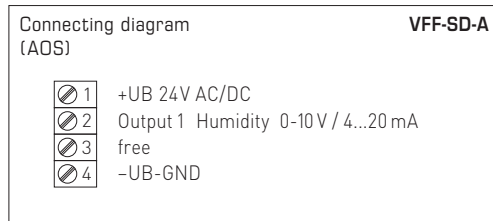
DIP switches	VFF-SD / VFTF-SD	
Measuring range temperature	DIP 1	DIP 2
-35...+35 °C / -31... +95 °F	OFF	OFF
0...+80 °C / +32...+176 °F	ON	OFF
0...+50 °C / +32...+122 °F (default)	OFF	ON
-35...+75 °C / -31...+167 °F	ON	ON
System of units	DIP 3	
Imperial: [°F]	ON	
SI: [°C] (default)	OFF	
Temperature		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

Note:

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

Output 1 → Offset 1 (Humidity)

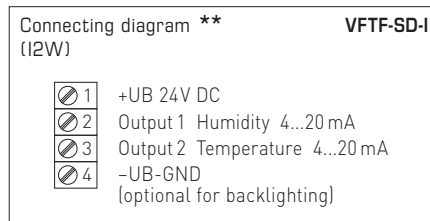
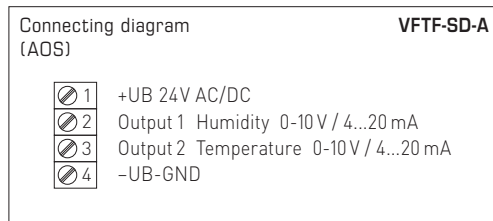
Output 2 → Offset 2 (Temperature)



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

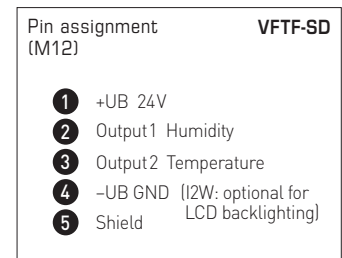
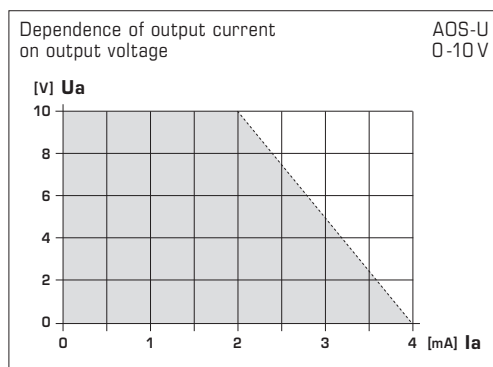
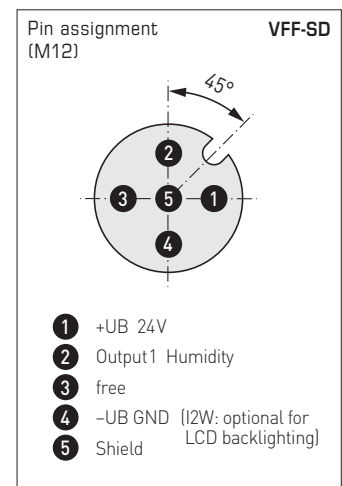
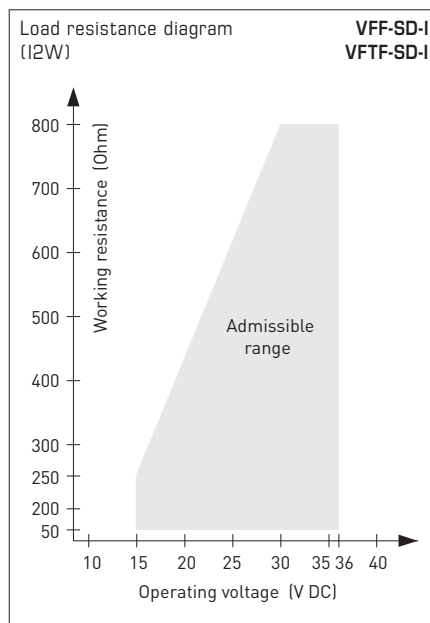
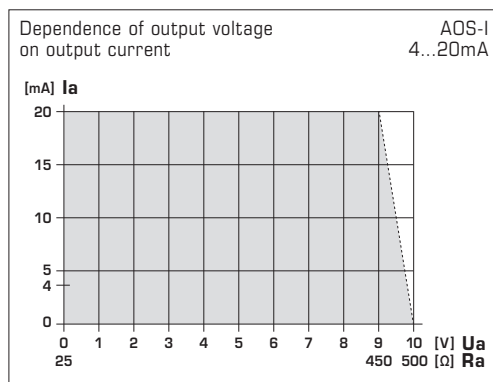
Connection*:

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



Connection**:

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





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VFF
VFTF
Probe made of stainless steel,
pluggable



Type / WG02	Measuring range / readout Humidity Temperature	Output	Display	Item No.	Price
VFF-I		(fixed)		I2W	
VFF-I	0...100% RH -	4...20 mA		1201-6122-0000-100	510,17 €
VFF-I LCD	0...100% RH -	4...20 mA	■	1201-6122-0200-100	566,43 €
VFF-A		(automatically)		AOS	
VFF-A	0...100% RH -	0-10 V / 4...20 mA		1201-612E-0000-100	510,17 €
VFF-A LCD	0...100% RH -	0-10 V / 4...20 mA	■	1201-612E-0200-100	566,43 €
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	514,75 €
VFTF-I LCD	0...100% RH (4x see above)	4...20 mA	■	1201-6122-1200-100	571,38 €
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	514,75 €
VFTF-A LCD	0...100% RH (4x see above)	0-10 V / 4...20 mA	■	1201-612E-1200-100	571,38 €
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				