SOC-H1
Outdoor humidity transmitter

Features

- Replaceable sensor element
- Outdoor humidity measurement
- Minimum and maximum value memory
- 0…10 V, 0…20 mA or 2…10 V, 4…20 mA measuring signals selectable with jumpers
- Optional alternative signal ranges programmable
- Selectable averaging signal
- Optional LCD display (OPC-S) or external display (OPA-S)
- Status LED

Applications

- Outdoor, indoor humidity measurement for heating, ventilation and air conditioning applications.
- Recording of minimum and maximum values for critical environments
- Supervision of critical humidity

Humidity transmitter

A unique capacitive sensor element is used for measuring relative humidity. The applied measuring technology guarantees excellent reliability and long term stability. The microprocessor samples the humidity once per second. It calculates an averaging signal over a preset number of seconds and generates the output signal.
Standard output signal range and types may be selected by jumpers. Standard signal ranges are: 0…10 VDC, 0…10 VDC, 4…20 mA and 0…20 mA. Other ranges can be defined by using a programming tool (OPA-S or OPC-S). A version with display is possible by ordering the integrated display accessory OPC-S.

Minimum and maximum values:
Using a display and programming accessory, the user has the option to read out and reset minimum and maximum values. The minimum and maximum values may as well be used as output signals. The minimum and maximum values are saved into the EEPROM and are available after a power interruption.

Ordering

Per default a sensor element with 3% RH accuracy and a PG9 cable gland for cables ∅ 4 – 8 mm (AWG 6 – 1) is included. Contact your local sales contact to order sensing elements with different accuracies or if you prefer a sensor with conduit connectors or a built in display module.

Transmitter

Item name	Item code	Description/option
SOC-H1-A3-1	40-30 0154	Signal converter for humidity sensor, incl. AES3-HT-A3 and AMC-1

Sensor element

Item name	Item code	Humidity accuracy [%rH]	Temperature accuracy [K] @25 °C (77 °F)	Description/option
AES3-HT-A2	40-50 0102	2%	± 0.5°	Humidity sensor element
AES3-HT-A3	40-50 0103	3%	± 0.4°	
AES3-HT-A5	40-50 0104	5%	± 0.3°	

Accessories

Item name	Item code	Description/option
OPC-S	40-50 0029	Built in display & programming module
OPA-S	40-50 0006	External display module
AMS-1	20-10 0116	Weather shield to protect the sensor element
AMC-2	40-50 0074	Conduit connector NPT 1/2

Technical specification

Warning! Safety advice! This device is intended to be used for comfort applications. Where a device failure endangers human life and/or property, it is the responsibility of the owner, designer and installer to add additional safety devices to prevent or detect a system failure caused by such a device failure. The manufacturer of this device cannot be held liable for any damage caused by such a failure. Failure to follow specifications and local regulations may endanger life, cause equipment damage and void warranty.

Power supply	Operating voltage Transformer		24 V AC 50/60 Hz ± 10%, 24 VDC ± 10% SELV to HD 384, Class II, 48 VA max.
	Power consumption		Max. 2 VA
	Terminal connectors		For wire 0.34…2.5 mm² (AWG 24…12)
Sensing probe	Humidity sensor: Range Measuring accuracy Hysteresis Repeatability Stability		Capacity sensor element 0…100 % R.H. See figure 1 ± 1% ± 0.1% < 0.5% / year
Signal outputs	Analog outputs Output signal Resolution Maximum load		 DC 0-10 V or 0…20 mA 10 Bit, 9.7 mV, 0.019.5 mA Voltage: ⩾1kΩ Current: ⩽250Ω
Environment	Operation Climatic conditions Temperature Humidity		To IEC 721-3-3 class 3 K5 -40…70 °C (-40…158 °F) <95% R.H. non-condensing
	Transport & storage Climatic conditions Temperature Humidity Mechanical conditions		To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3 -40…80 °C (-40…176 °F) <95% R.H. non-condensing class 2M2
Standards	CE conformity EMC directive Low voltage directive		 2014/30/EU 2014/35/EU
	Product standards automatic electrical controls for household and similar use		EN 60730–1
	Electromagnetic compatibility for domestic and industrial sector		Emissions: EN 60 730-1 Immunity: EN 60 730-1
	Degree of protection to EN 60529		IP63 if correctly mounted with AMS-1
	Safety class		III (IEC 60536)
General	Housing materials	Cover, back part Filter material	PC+ABS (UL94 class V-0) PTFE coated 1µm pores
	RoHS compliant according to		2011/65/EU
	Dimensions (H x W x D):		150 x 91 x 47 mm (5.9” x 3.7” x 1.9”)
	Weight (including package)		220 g (7.8 oz.)

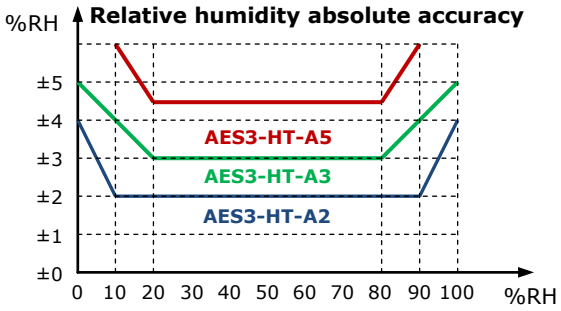
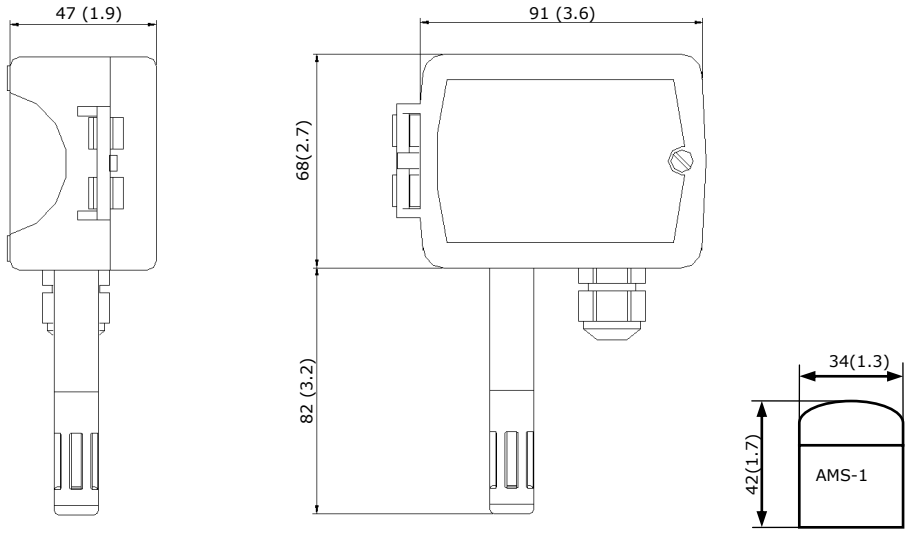


Figure 1: Max RH-tolerance at 25°C (77°F) per sensor type

Dimensions mm (inch)



Mechanical design and installation

The unit consists of two parts: (a) The back part with the probe and (b) the cover.

Warning about storage, packaging and usage environment

The sensing part is a polymer, which measures the humidity in the ambient air. For proper sensor operation some mandatory precautions need to be taken during storage, packaging and usage.
The transmitter and its sensing element should not be packaged, stored or used in out-gassing plastic materials, which could cause sensor contamination. In particular, it is recommended not to use any glue or adhesive tapes (Sellotape, Scotch-Tape, Tesa-Film, etc.)within the package or close proximity of the sensor.Foamed materials often cause contamination problems andshould not be used to package the transmitter. Best packaging material is a simple cardboard box or a deep-drawn plastic case in a cardboard box.

Mounting instruction / replacing the sensor element

See installation sheet no. 70-000530 (www.vectorcontrols.com)

Configuration

The transmitter can be adapted to fit perfectly into any application by adjusting the software parameters. The parameters are set with the operation terminals OPA-S or OPC-S. The OPA-S may also be used as remote indicator.

Input configuration

Parameter	Description	Range	Default
IP 00	H1: Show percent	ON, OFF	ON
IP 01	H1: Samples taken for averaging control signal	1…255	10
IP 02	H1: Calibration	-10…10%	0

Output configuration

Parameter	Description	Range	Default
OP 00	AO1: Humidity: Configuration of output signal: 0 = Feedback humidity input, 1 = Feedback humidity minimum value 2 = Feedback humidity maximum value	0 – 2	0
OP 01	AO1: Humidity: Minimum limitation of output signal	0 – Max %	0%
OP 02	AO1: Humidity: Maximum limitation of output signal	Min – 100%	100%

Output signal configuration

The analog output signal type may be configured with a jumper for 0-10 VDC or 0-20 mA control signals. The jumpers are located next to the terminal connector of each analog output. See table below for jumper placement. The factory setting is to 0-10 VDC.

Signal Type	JP1
0 – 10 V	(1-2)
0 – 20 mA	(2-3)

The signal range may be set with JP3 for both analog outputs. JP3 will only operate if the output range specified with OP01 and OP02 is left at the default position of 0…100%. With any other setting the position of JP3 has no influence and the range defined with the output parameters applies.

Signal Range	JP3
0 – 10 V, 0 – 20 mA	(1-2)
2 – 10 V, 4 – 20 mA	(2-3)

Jumper Settings