

SRC - H1T

Indoor Humidity Transmitter & Temperature Sensor

Features

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

Applications

- Indoor humidity & temperature measurement for heating, ventilation and air conditioning applications.
- Recording of minimum and maximum values for critical environments
- Supervision of critical humidity and temperatures



Humidity & Temperature 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. The output signal range and type may be customized by jumpers and if required by a programming tool. Standard signal ranges are 0-10VDC, 2-10VDC, 4-20mA and 0-20mA. These ranges can be set by jumpers. Other ranges can be set by using the external display and programming module. (OPA-S)

Minimum and Maximum Values:

Using the programming tool, 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.

Temperature Sensor

The sensor measures the temperature by use of a NTC, PT, or NI-sensing element. The sensing element is either a glass packed thermistor with a negative temperature coefficient, a platinum film or a nickel thin layer based probe. Its resistance changes according to the temperature. The change follows a specified curve. Contact our sales department for curves not yet listed below.

Accuracy Warning for the Passive Sensor Input:

The transmitter is an electronic device that generates heat during operation. The humidity output is compensated in software against this drift. The passive temperature probe is not. Large differences of up to +3°C (6°F) can occur. It is thus recommended to compensate the passive input after installation and operation for > 1 hour or use SRA-T or SRC-H1T1 instead to measure indoor temperature.

Ordering

In order to receive an operational unit, the signal converter and the sensor element need to be ordered.

Signal converter

Item Name	Item Code	Description/Option
SRC-H1T	40-30 0070	Signal converter for humidity sensor with temperature probe

Sensor element

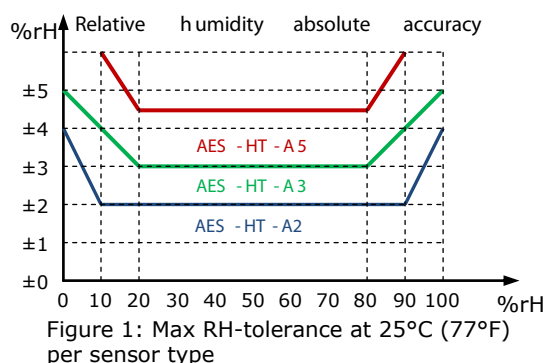
Item Name	Item Code			Description/Option
AES-HTn3	40-50 0032	NTC 3kΩ at 25°C (77°F)	B _{25/50} 3935	
AES-HTn10	40-50 0033	NTC 10kΩ at 25°C (77°F)	B _{25/50} 3935	
AES-HTn11	40-50 0034	NTC 10kΩ at 25°C (77°F)	B _{25/50} 3630	
AES-HTn12	40-50 0043	NTC 10kΩ at 25°C (77°F)	B _{25/50} 3380	
AES-HTn20	40-50 0035	NTC 20kΩ at 25°C (77°F)	B _{25/50} 4200	
AES-HTn100	40-50 0036	NTC 100kΩ at 25°C (77°F)	B _{25/50} 4200	
AES-HTp1	40-50 0037	PT100	EN60751	
AES-HTp2	40-50 0038	PT1000	EN60751	
AES-HTk5	40-50 0039	NI1000	5000 ppm/K	
AES-HTxx-A2	40-50 00xx-2	2%		Accuracy Option of Humidity - sensor element
AES-HTxx-A3	40-50 00xx-3	3%		
AES-HTxx-A5	40-50 00xx-5	4.5%		

Accessories

Item Name	Item Code	Description/Option
OPA-S	40-50 0006	External display module

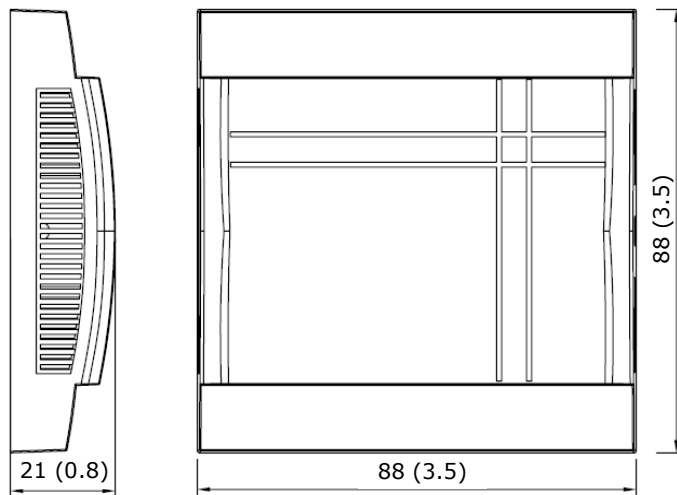
Technical Specification

Power Supply	Operating Voltage	24 V AC 50/60 Hz 10%, 24VDC 10%
	Transformer	SELV to HD 384, Class II, 48VA max
	Power Consumption	Max 2 VA
	Terminal Connectors	For wire 0.34...2.5 mm ² (AWG 24...12)
Sensing Probe	Humidity Sensor:	Capacity sensor element
	Range	0...100 % rH
	Measuring Accuracy	See Figure 1
	Hysteresis	1%
	Repeatability	0.1%
	Stability	< 0.5% / year
Passive Sensor	Accuracy Warning: The transmitter is an electronic device that generates heat during operation. The transmitter is compensated in software against this drift. The passive probe is not. Large differences of up to 3°C (6°F) can occur. It is thus recommended to compensate the passive input after installation or use SRA-T or SRC-H1T1 instead.	
	Thermistor:	NTC
	Accuracy:	0.2 K
	Platinum-Film:	PT according EN 60751
	Accuracy	EN 60751, Class B
	Nickel Thin Layer:	1000 Ω at 0°C, 5000 ppm/K
	Accuracy	DIN 43760
Signal Outputs	Analog Outputs	
	Output Signal	DC 0-10V or 0...20mA
	Resolution	10 Bit, 9.7 mV, 0.019.5 mA
	Maximum Load	Voltage: ≥1kΩ Current: ≤500Ω
Environment	Operation	To IEC 721-3-3
	Climatic Conditions	class 3 K5
	Temperature	0...60°C (32...140°F)
	Humidity	<95% R.H. non-condensing
	Transport & Storage	To IEC 721-3-2 and IEC 721-3-1
	Climatic Conditions	class 3 K3 and class 1 K3
	Temperature	-40...70°C (-40...158°F)
	Humidity	<95% R.H. non-condensing
	Mechanical Conditions	class 2M2
Standards	 conformity	
		EMC Directive
	Low Voltage Directive	2004/108/EC
		2006/95/EC
	Product standards Automatic electrical controls for household and similar use	
	Special requirement on temperature dependent controls	
	Electromagnetic compatibility for domestic and industrial sector	
	Emissions: EN 60 730-1	
	Immunity: EN 60 730-1	
	Degree of Protection	
General	IP30 to EN 60 529	
	Safety Class	
	III (IEC 60536)	
	Housing Materials Cover	Fire proof ABS plastic
	Mounting Plate	Galvanized Steel
	Dimensions (H x W x D)	21 x 88 x 88 mm (0.8 x 3.5 x 3.5 in)
	Weight (including package)	160 g (5.6 oz)



Note on accuracy: Allow 1 hour after power up for compensation swing in until described accuracy is reached.

Dimensions mm(inch)



Mechanical design and installation

The unit consists of two parts: (a) The mounting plate and (b) the cover with the transmitter.

Mounting location

Mount the transmitter on a flat interior wall of the room to be controlled. Do avoid obstructions such as shelves, curtains and recesses. Do not place near heat sources, draft channels. Do not expose to direct sunlight.

Warning about storage, packaging and usage environment

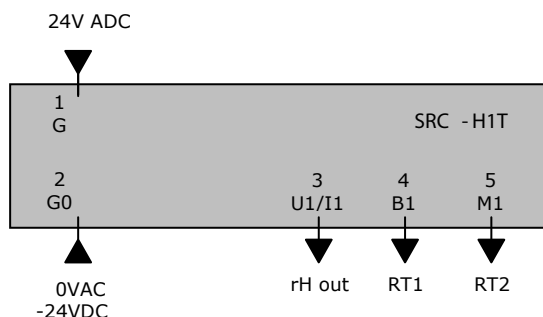
The sensing part is a polymer, which measures the humidity in the ambient air. For proper sensor operation some mandatory precautions need to be taken during storage, packaging and usage.

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 and should 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.

Installation

1. Open the single screw on the cover and remove cover from mounting plate.
2. Fix the mounting plate to the flush mounting box or the wall surface
3. Connect the conductors to the terminals of the back part according to wiring diagram
4. The end of the conduit at the sensor must be sealed to prevent false measurements due to draughts through the conduit.
5. Slide the two hooks on top of the cover into the two latches on top of the mounting plate.
6. Close the cover.
7. With a Philips-type screw driver of size #2, carefully tighten the front holding screw to secure the cover to the back part. There is no need to tighten the screw too much.

Connection terminals



- | | |
|-------|--|
| 1: G | Power supply 24VAC, +24VDC |
| 2: G0 | Power supply 0VAC, -24VDC |
| 3: U1 | JP1 = 1-2, voltage output of humidity transmitter 0...10V or 2...10V (JP3) |
| 3: I1 | JP1 = 2-3, current output of humidity transmitter 0...20mA or 4...20mA (JP3) |
| 4: B1 | Passive temperature sensor probe signal |
| 5: M1 | Passive temperature sensor probe signal |

Output signal configuration

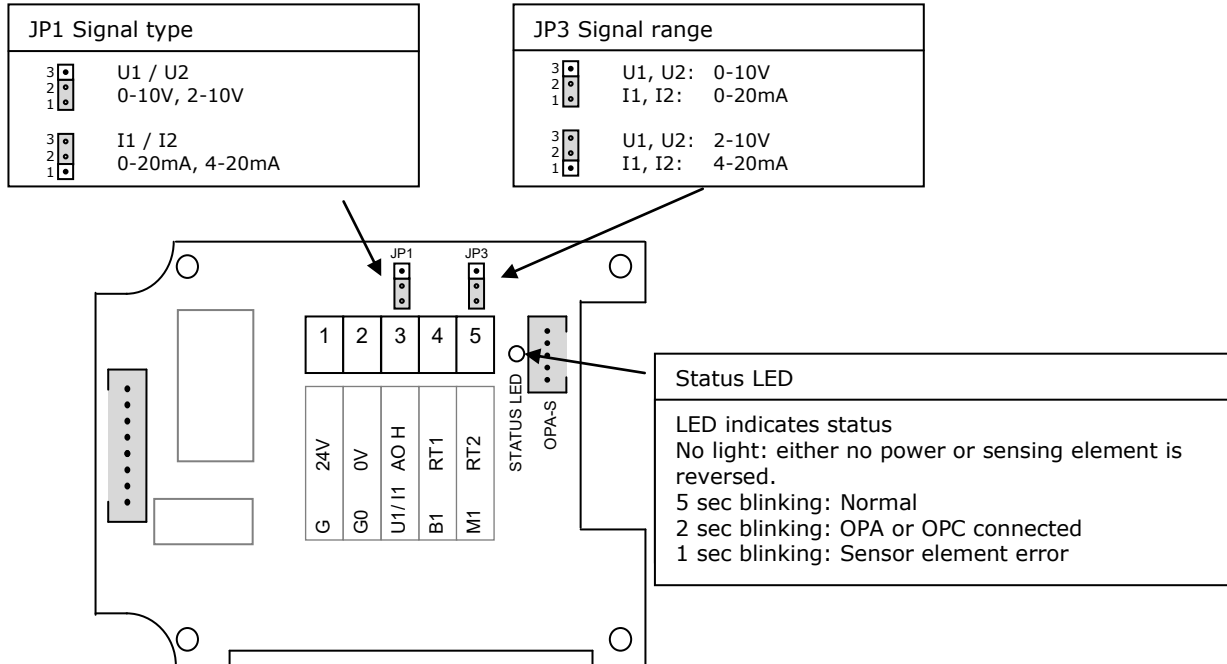
The analog output signal type may be configured with a jumper for 0-10 VDC or 0-20 mA control signals. The jumpers are located next to the terminal connector of each analog output. See table below for jumper placement. The factory setting is to 0-10 VDC.

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



Configuration parameters

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. 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%

Replacing the sensing element

