



Precision humidity and temperature transmitter with remote probe

From data centers and supply air ducts to industrial processes and aggressive chemical environments – the SCC-H1T1-R2 delivers precision humidity and temperature measurement where others give up.

A capacitive sensor element is used to measure relative humidity and temperature. The microprocessor samples the humidity and temperature once per second. It then calculates an averaged signal over a preset number of seconds and generates an output signal based on the lower and upper signal range values. The standard range is -40...60°C (-40...140°F) with an averaging time of three seconds. The output signal range and type can be customised using jumpers, or a programming tool if required. The standard signal ranges are 0–10 V DC, 2–10 V DC, 0–20 mA and 4–20 mA. Other ranges can be set using the optional built-in operation terminal 'OPC-S' or by connecting an external operation terminal 'OPA-S/OPU-S'.

Features

- Precision humidity and temperature measurement with remote probe
- Distance of probe to transmitter up to 20 m.
- Sensor reconditioning function against contamination
- Anti-Creep function for high humidity environments
- Minimum and maximum temperature memory
- 0...10V, 0...20mA or 2...10V, 4...20mA measuring signal output, selectable with jumpers
- DIP switch for temperature range pre-set
- Alternative temperature signal ranges programmable (operation terminal)
- Selectable averaging filter for the measurement signal
- Optional LCD display (OPC-S) or external display (OPA-S / OPU-S)
- Status LED
- Modbus RTU/ASCII RS485 for monitoring and configuration
- Copy of settings with accessory (AEC-PM2)
- Automatic device address increment when copying settings (AEC-PM2)

Applications

- Humidity and temperature measurement for supply and return air ducts.
- Data center environment monitoring
- Recording of minimum and maximum values for critical environments
- Supervision of critical humidity and temperatures
- Measurements in high humidity environments

Safety



DANGER! Safety advice

This device is for use as a temperature transmitter. It is not a safety device. Where a device failure could endanger human life and property, it is the responsibility of the client, installer and system designer to add additional safety devices to prevent such a device failure. Ignoring specifications and local regulations may cause equipment damage and endangers life and property. Tampering with the device and misapplication will void warranty.

Temperature range configuration

The measuring temperature range of the SCC-H1T1-R2 can be set with DIP switches or fine-tuned using configuration parameters.

▲ Temperature range configuration with DIP switch

The following preset temperature ranges can be selected with the DIP switches:

Number (DIP switch)	Temperature range [°C]	Temperature range [°F]
0 ¹⁾	-40...60 °C	-40...140 °F
1	0...50 °C	32...122 °F
2	-35...35°C	-31...95 °F

1) Standard position of DIP switch



For your convenience, use the DIP switches to select a pre-set temperature range. For details see section "Temperature " on page 6.

▲ Temperature range fine-tuning with configuration parameters

The temperature-signal can be fine-tuned to suit your system. Define your signal by setting a minimum and maximum temperature limit. The output will only react when the temperature is above the lower limit. The output signal will be spanned to the upper limit. This allows the full resolution of the output signal to be used even if only a fraction of the temperature sensors signal range is used. Note: This does not improve the sensing resolution, only the output signal resolution.



For details see section "Temperature " on page 6.

Minimum and maximum values

Using the optional built-in operation terminal "OPC-S" or the external operation unit "OPA-S / OPU-S", the user can read and reset the minimum and maximum values. The minimum and maximum values can be sent to the output using parameter OP 00. In this way the transmitter can be used to supervise the temperature in critical environments. The minimum and maximum values are stored in the EEPROM every minute. They are available even after a power failure.

Types and Ordering

Product Name	Product No.	Description / Function
SCC-H1T1-R2-A3-1	40-300339	Remote probe Humidity/Temperature transmitter ±3% rH accuracy, ±0.4°C temperature accuracy, remote probe, 2 analog outputs
SCC-HT-MOD-R2-A3-1	40-300340	Remote probe Humidity/ Temperature sensor ±3% rH accuracy, ±0.4°C temperature accuracy, remote probe, Modbus communication

Accessories

Product Name	Product No.	Description
<i>Built-in Operation Terminal</i>		
OPC-S	40-500029	Optional built-in operation terminal for SxC devices. Replaces housing cover
<i>External Operation Terminal</i>		
OPA-S	40-500006	External operation terminal
OPU-S	40-500030	External operation terminal (US version)
<i>Plug-In</i>		
AEC-PM2	40-500130	Plug-In memory module for saving and fast copying of parameter sets
<i>Cable & Connectors</i>		
AMC-1	20-100035	Cable gland PG9 for cables Ø 4 – 8 mm (AWG 6 – 1)
AMC-2	20-100067	Conduit connector NPT 1/2

Technical specifications

Power supply	Power requirements	24 VAC ±10% 50/60 Hz, 15...34 VDC
	Power consumption	Max. 2 VA
	Safety extra low voltage (SELV)	HD 384, Class II
	Electrical connection	Screw terminal for wire 0.32...2.0 mm ² (AWG 22...14)
Sensing probe	Humidity Sensor:	Capacity sensor element
	Range	0...100 % RH
	Measuring Accuracy	See Figure 1
	Hysteresis	± 0.1%
	Repeatability	± 0.1%
	Stability	< 0.5% / year
Temperature Sensor:	Measuring Accuracy	± 0.2°C
	Repeatability	± 0.1°C, ± 0.2°F
Signal outputs	Analog outputs	Analog output for sensor signals
	Output signal	0/2...10 VDC or 0/4...20 mA
	Resolution	2.44 mV or 0.0049 mA (12 bit)
	Maximum load	Voltage: ≥1kΩ Current: ≤500Ω
Environment	Operation	To IEC 721-3-3
	Climatic conditions	class 3K5
	Temperature	-25...70 °C (-13...158 °F)
	Temperature with built-in display	0...50 °C (32...122 °F)
	Humidity	<85 % RH non-condensing
	Transport & storage	To IEC 721-3-2 and IEC 721-3-1
	Climatic conditions	class 3K3 and class 1K3
	Temperature	-25...70 °C (-13...158 °F)
	Temperature with built-in display	0...50 °C (32...122 °F)
	Humidity	<95 % RH non-condensing
Standards	Mechanical conditions	class 2M2
	Degree of protection	IP60 to EN 60 529
	Pollution class	II (EN 60 730-1)
	Safety class:	III (IEC 60536)
General	Overvoltage category	II (EN 60 730-1)
	Material	Flame retardant PC+ABS plastic (UL94 class V-0)
	Dimensions (H x W x D)	47 x 98 x 68 mm (1.9 x 3.9 x 2.7 in)
	Transmitter case	
	Weight (including package)	317g

Technical specification communication for -MOD types

Network	Hardware interface	RS485 in accordance with EIA/TIA 485
	Max nodes per network	128
	Max nodes per segment	64 (Vector devices only)
	Conductors	Shielded Twisted Pair (STP) cable
	Impedance	100 - 130 ohm
	Nominal capacitance	100 pF/m 16 pF/ft. or lower
	Galvanic isolation	The communication circuitry is not isolated
	Line termination	Connect earth signal of the devices with one another A line termination resistance (120 ohm) shall be connected between the terminals (+) and (-) of the furthestmost node of the network
	Network topology	Daisy chain according EIA/TIA 485 specifications
	Recommended maximum length per chain	1200 m (4000 ft.)
Modbus (-MOD)	Communication standard	Modbus (www.modbus.org)
	Default setting	19200 baud rate, RTU 8 data bits, 1 even parity bit, 1 stop bit
	Communication speed	4800, 9600, 19200, 38400
	Protocol: Data bits	RTU - 8 data bits, ASCII - 7 data bits,
	Parity - stop bit	no parity - 2 stops, even or odd parity - 1 stop

Product Testing and Certification

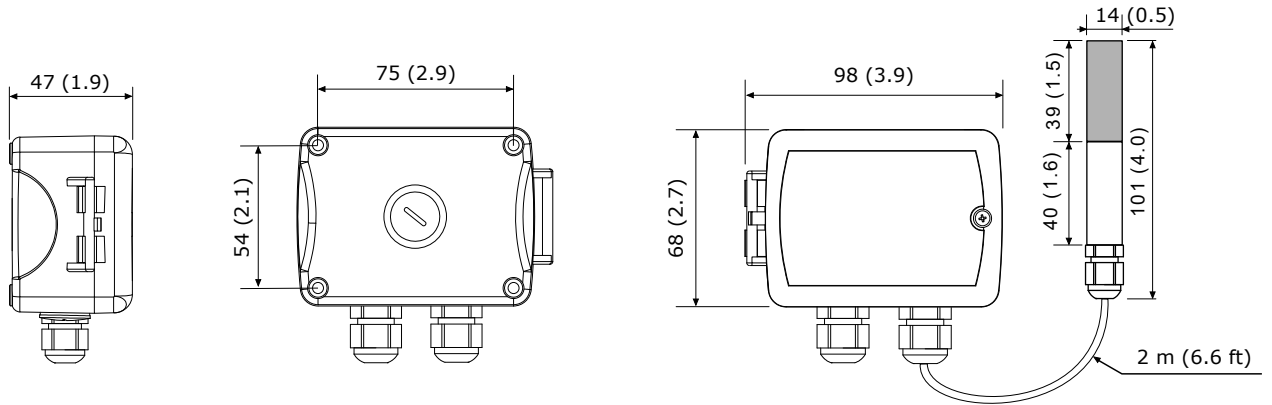


Declaration of
Conformity

Information on the conformity of our products can be found on our website
www.vectorcontrols.com on the corresponding product page under "Downloads".

Dimensions, mm (inch)

SCC-H1T1-R2



Documentation overview

Document Type	Document No.	Description
SCC-H1T1-R2 Data Sheet	70-00-1129	Product data sheet (this document)
SCC-H1T1-R2 Install Sheet	70-00-1117	Mounting and installation sheet
OPA-S Operation Manual	70-00-0171	Operations instructions for external operation terminal OPA-S
OPU-S Short Instruction	70-00-0303	Short instructions for external operation terminal OPU-S (US version)

Note: The above list is not complete. The documents on the website are relevant.

Mounting and Installation

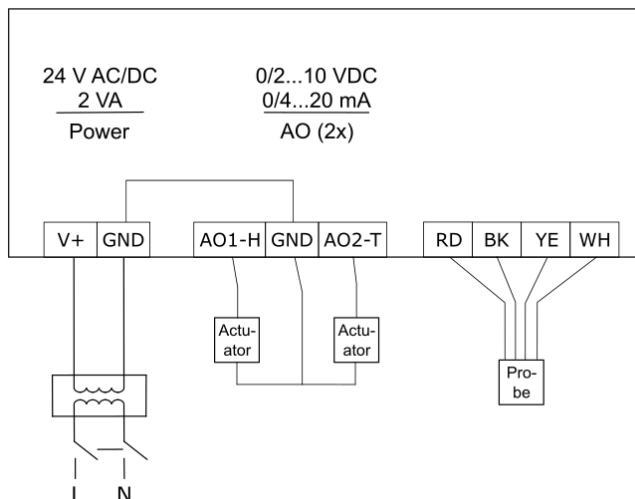
Mounting instructions



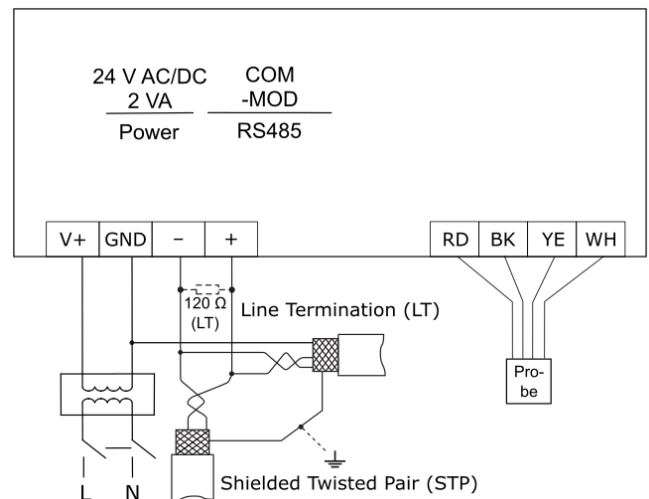
For details see "SCC-H1T1-R2" install sheet, document no. 70-00-1117 on our webpage www.vectorcontrols.com

Connection diagram

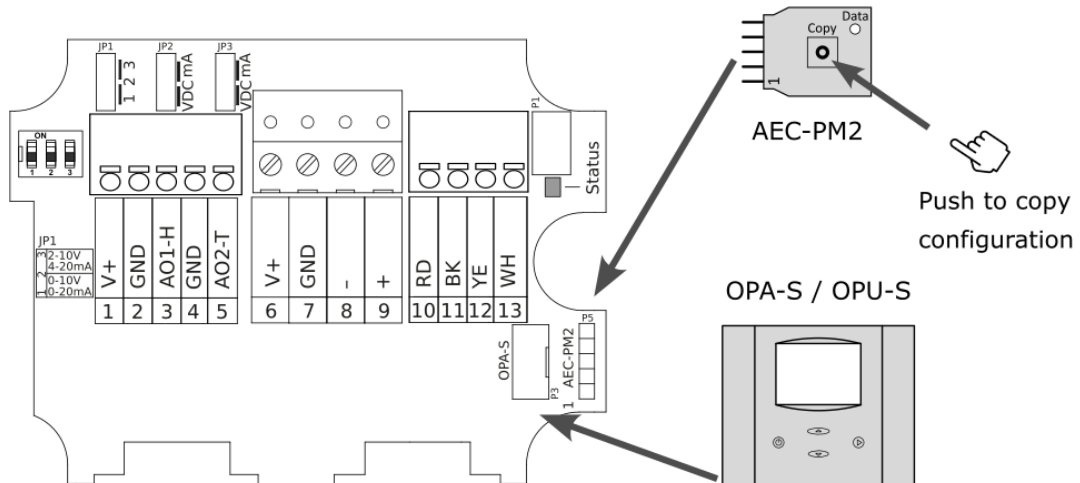
H1T1 type



HT-MOD type



Connection overview



H1T1 terminal (H1T1 only)

1	V+	Power supply:	24 VAC ±10% 50-60 Hz, 15-34 VDC
2	GND	Power supply:	0 VAC, 0 VDC – common ground
3	AO1-H	Analog output Humidity:	DC 0(2)...10 V, DC 0(4)...20 mA
4	GND	AO GND	0 VAC, 0 VDC – common ground
5	AO2-T	Analog output Temperature:	DC 0(2)...10 V, DC 0(4)...20 mA

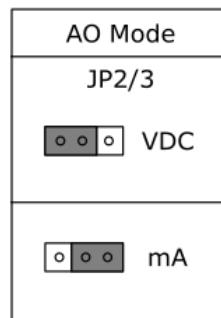
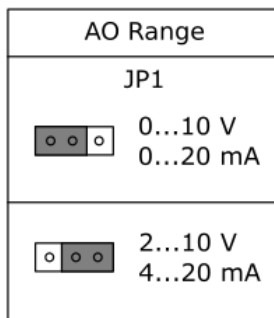
-MOD terminal (HT-MOD only)

6	V+	Power supply:	24 VAC ±10% 50-60 Hz, 15-34 VDC
7	GND	COM GND (-MOD)	Modbus Ground (RS485) – common ground
8	-	COM data (-MOD)	Modbus data signal (RS485)
9	+	COM data (-MOD)	Modbus data signal (RS485)

Remote probe terminal

10	RD	RP power	Probe power supply
11	BK	RP GND	Probe Ground – common ground
12	YE	RP data	Probe data signal
13	WH	RP data	Probe data signal

Jumper settings



Temperature output signal range selection

The temperature output signal range of the SCC-H1T1-R2 can be adjusted according to the following table and by setting the DIP switches accordingly.

Number (DIP switch)	Temperature output signal range [°C]	Temperature output signal range [°F]
0 ¹⁾	-40...60 °C	-40...140 °F
1	0...50 °C	32...122 °F
2	-35...35°C	-31...95 °F

1) Standard position of DIP switch

DIP switch positions

Number	Position DIP switch 1	Position DIP switch 2	Position DIP switch 3
0 ¹⁾ =	OFF	OFF	OFF
1 =	ON	OFF	OFF
2 =	OFF	ON	OFF
3 =	ON	ON	OFF
4 =	OFF	OFF	ON
5 =	ON	OFF	ON
6 =	OFF	ON	ON
7 =	ON	ON	ON

1) Standard position

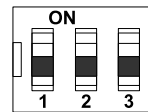


Figure 1: All DIP switches in position OFF

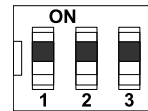


Figure 2: All DIP switches in position ON

LED-indicator

A status LED is located inside of the transmitter housing. During normal operation the LED will flash once every 5 seconds. If there is an alarm or fault condition, it will flash every second and if an operation terminal is connected an error message will be displayed.



For details see section "Error messages" on page 7.

Operation and Configuration

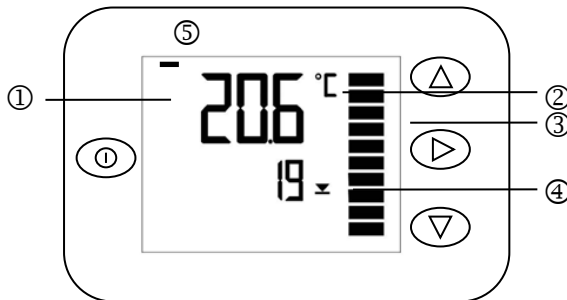
The SCC-H1T1-R2 is designed to work for most applications. However, it can be fine-tuned to fit the application perfectly. To configure the SxC transmitter or to access the minimum and maximum settings, either the optional built-in SxC operation terminal (OPC-S), a remote operation terminal (OPA-S or OPU-S) or Modbus communication (-MOD) must be used.

It is also possible to load settings to a memory plug-in accessory (AEC-PM2) and to copy them back to other SCC-H1T1-R2.



For details how to connect see " SCC-H1T1-R2 install sheet, document no. 70-00-1117 on our webpage www.vectorcontrols.com

Operation terminal



Button Symbol	Function	Description
①	LEFT key	Exit from parameter menu Long press: Turns SxC OFF Short press: Turns SxC ON if SxC is OFF
△	UP key	Display Maximum values, press for more than 3 seconds resets Maximum value
▽	DOWN key	Display Minimum values, press for more than 3 seconds resets Minimum value
▷	RIGHT key	Select transmitter, For transmitters with more than one input.

LCD Display

Position	Description
1	Big 4-digit display of current value, Minimum, Maximum or control parameter
2	Unit of displayed value, °C, °F, % or none
3	Graphical display of output or input signal with a resolution of 10%
4	Small 4-digit display of current value or control parameter
5	Left bar = display of minimum value Right bar = display of maximum value

Error messages

Following error condition may be displayed:

- Err1:** Communication time out between terminal unit and transmitter. Terminal unit will reset after 10 seconds.
- Err2:** Temperature sensor faulty. The connection to the temperature sensor may be interrupted or the temperature sensor is damaged
- Err3:** Humidity sensor faulty. The connection to the humidity sensor may be interrupted or the humidity sensor is damaged

Display and reset of minimum and maximum values

Press UP key to display maximum values, press DOWN key to display minimum values.

To reset the minimum or maximum values press either the UP or DOWN key for more than 3 seconds while the minimum or maximum value is displayed.

Setting the parameters

The parameters are password protected. The parameters can be modified as follows:

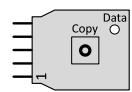
1. Press the UP and DOWN buttons simultaneously for 3 seconds. The display shows CODE.
2. Select a password with the UP or DOWN keys. Dial **09** in order to get access to the configuration parameters. After selecting the correct password, press the RIGHT button.
3. Once logged in, use the UP or DOWN keys to select IP for input configuration or OP for output configuration. Once selected, press the RIGHT key.
4. The parameters will now be displayed. The small digits indicate the parameter number and the large digits indicate the parameter value.
5. Select the parameters using the UP/DOWN keys. Modify a parameter by pressing the RIGHT button. The MIN and MAX symbols are displayed to indicate that the parameter can now be changed. Use the UP and DOWN keys to adjust the value.
6. When finished, press the RIGHT or LEFT key in order to return to the parameter selection level.
7. Press the LEFT key again to exit the menu. The unit will return to normal operation if no key is pressed for more than 5 minutes.

Copy parameters to other SCC-H1T1-R2 devices

Complete parameter sets can be copied to other SxC-H1T1-R2 devices using the AEC-PM2 plug-in memory accessory.

▲ Loading parameters from SCC-H1T1-R2 to AEC-PM2

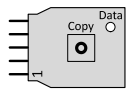
1. Connect the AEC-PM2 plug-in memory to the master SxC
2. Login to the SxC using the operation terminal or Modbus communication
3. Load the parameters to AEC-PM2:
 - a. Set parameter IP 11 to 1 to start copying parameters to AEC-PM2
 - b. Set parameter IP 11 to 2 to start copying parameters to AEC-PM2 with Modbus auto address increment
4. The "Data" LED of the AEC-PM2 will light up for 5 seconds if the parameter copy is successful and IP11 is set to 0. If the parameter copy fails, the LED will flash for 5 seconds and IP11 will be set to 7!



AEC-PM2

▲ Copying parameters from AEC-PM2 to SCC-H1T1-R2

1. Connect the AEC-PM2 plug-in memory to the other SxC
2. Press the "Copy" button on the AEC-PM2
3. The "Data" LED on the AEC-PM2 will light for 5 seconds if the parameters have been successfully copied.
If the parameter copy fails, the LED will flash for 5 seconds and IP11 will be set to 7!
4. If Modbus auto address increment is activated, SCC-H1T1-R2 will increment the Modbus device address and write the new address back to AEC-PM2. When the operation is finished, SCC-H1T1-R2 will perform a reboot to activate the changes.



Push to copy configuration

Sensor

Accuracy Humidity sensor

AES4-HT-A3 standard sensor

Relative humidity absolute accuracy

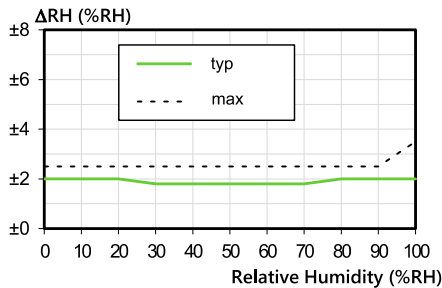


Figure 1: Typical and maximal RH accuracy at 25°C (77°F)

Anti-creep function for devices with AES-RP sensors

Ensuring high accuracy of humidity measurement

When the AES-RP sensor is exposed to very humid environments for extended periods of time, an anti-creep function is activated in the background to ensure that the sensing element remains accurate. While the anti-creep function is active, the RH value will appear to be frozen for short periods of time.

Sensor reconditioning function

Reconditioning the humidity sensing element eliminates chemical contamination and creep effects on the sensor and ensures that it operates at its specified accuracy.

Reconditioning can be configured to run once, periodically, or only at power-up.

Parameter **IP08** allows for sensor reconditioning of AES4 sensors.

Per default the value of this parameter is 0. If a number is entered the reconditioning procedure is started:

- The sensor is reconditioned for the number of minutes entered in **IP08**. During this time the status LED blinks in 1 second rhythm.
- If no interval is defined with **IP09**, the number in **IP08** is set to 0, once the recondition has started.
- If an interval is set with **IP09**, the value remains unchanged. When the internal counter reaches 0, reconditioning stops. The interval in hours defined in **IP09** determines the waiting time for the next reconditioning. The interval is stopped during a power failure and resumed when power is restored.

Parameter **IP10** allows reconditioning at each power-up. This reconditioning interval is independent of **IP08** or **IP09** settings. At each power up, the sensor will perform the reconditioning function according to the time in minutes defined with **IP10**.



Recommendation

We recommend to set the **IP08** value to **80** minutes recondition time if the sensor is out of its accuracy range.



Note

The display will freeze during reconditioning.



Important

Reconditioning will not continue if interrupted by a power cycle!

Configuration Parameters

The transmitter can be perfectly adapted to the application. Its parameters are set using the built-in operation terminal OPC-S or the external operation terminals OPA-S / OPU-S. In order to use all the functions described below and get a correct display, only OPA-S or OPU-S units with firmware version V1.5 or higher should be used.

Input configuration

Parameter	Description	Range	Standard
<i>Temperature parameter</i>			
IP 00	TI1: Celsius or Fahrenheit, C = OFF, F = ON	ON, OFF	OFF
IP 01	TI1: Samples taken for averaging control signal	1...255	3
IP 02	TI1: Calibration	-10...10	0.0
IP 03	TI1: Temperature of minimum output signal Note: Only has an impact in DIP switch position 0	-40...215°C (419°F)	-40 °C
IP 04	TI1: Temperature of maximum output signal Note: Only has an impact in DIP switch position 0	-40...215°C (419°F)	60°C
<i>Humidity parameter</i>			
IP 05	HI1: Show percent	ON, OFF	ON
IP 06	HI1: Samples taken for averaging control signal	1...255	3
IP 07	HI1: Calibration	-10...10	0.0
IP 08	Duration of the AES4-HT sensor reconditioning. This value will be cleared if periodic reconditioning is not active. It will remain if periodic reconditioning is enabled. 0: Not active	0-240 min	0 (not active)
IP 09	Interval period for AES4-HT sensor reconditioning 0: Periodic reconditioning disabled 1-240: Period reconditioning enabled (repeats every xxx hours)	0-240 hours	0 (not active)
IP 10	Power up reconditioning for AES4-HT sensor. The sensor is reconditioned each time it is power up. Periodic reconditioning settings have no effect. 0: Not active.	0-240 min	0 (not active)
IP 11	AEC-PM2 parameter copy 0: Parameter copy successful; No action 1: Start parameter copy to AEC-PM2 2: Start parameter copy to AEC-PM2 with auto address increment (valid for -MOD type only)* 7: Copy fail (no AEC-PM2 or communication error)	0...2 7 display only	0
<i>Modbus parameter (only visible with the type -MOD)</i>			
IP 12	Modbus communication address	1-247	1
IP 13	Modbus baud rate: 0 = 19200 1 = 4800 2 = 9600 3 = 19200 4 = 38400	0-4	3
IP 14	Modbus communication mode: 0 = Modbus RTU, No parity, 2 stop bits 1 = Modbus RTU, Even parity, 1 stop bit 2 = Modbus RTU, Odd parity, 1 stop bit 3 = Modbus RTU, No parity, 1 stop bit 4 = Modbus ASCII, No parity, 2 stop bits 5 = Modbus ASCII, Even parity, 1 stop bit 6 = Modbus ASCII, Odd parity, 1 stop bit	0-6	1
IP 15	Allow parameter change via Modbus 0 = No change allowed 1 = Change allowed	0-1	1

(*) With auto address increment, the Modbus slave ID is incremented when the parameters are copied from AEC-PM2 to SCC. This process is repeated for each device until the maximum slave ID (247) is reached.

Analog output configuration H1T1 only

Parameter	Description	Range	Standard
OP 00	AO1, humidity: Configuration output signal: 0 = Feedback temperature input 1 = Feedback temperature minimum value 2 = Feedback temperature 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%
OP 03	AO2, temperature: Configuration output signal: 0 = Feedback temperature input 1 = Feedback temperature minimum value 2 = Feedback temperature maximum value	0...2	0
OP 04	AO2, temperature: Minimum limitation of output signal	0...Max. %	0%
OP 05	AO2, temperature: 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, JP2
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



For jumper settings see chapter **“Jumper settings”** on page 5.

Modbus configuration

Communication specifications Modbus RTU/ASCII

- RS485 2-wire MODBUS standard in accordance with EIA/TIA 485
- Slave type of communication
- Supports up to 127 nodes on one network
- Selectable transmission types:
 - **RTU** with CRC16 checksum
 - ASCII with LRC checksum
- Baud rates: 4800, 9600, **19200**, 38400
- Parity: No parity, odd or **even parity**.

Default: RTU with 8 data bits, 1 even parity bit, 1 stop bit. Baud rate 19200.

Standards

Communication standard:	Modbus (www.modbus.org)
Default setting:	19200 Baud rate, RTU 8 data bits, 1 even parity bit, 1 stop bit
Communication speed:	4800, 9600, 19200, 38400
Protocol:	Modbus RTU with CRC16 checksum, Modbus ASCII with LRC checksum
Parity – stop bit:	no parity – 2 stop, even parity or odd parity – 1 stop, no parity – 1 stop (RTU mode only)

“No Parity” mode: In these cases, a 2nd stop bit is used to keep the byte length (11bit for RTU and 10 bit for ASCII, including the Start and Stop bits) unchanged in accordance with the Modbus specification. Other possible serial port modes like Odd Parity or baud rates other than listed ones are not supported.

Supported Modbus commands

- 03 (0x03): Read multiple registers
- 06 (0x06): Write single register
- 16 (0x10): Write multiple registers

In commands 03 and 16 the allowed number of registers ranges from 1 to 32. Although Modbus specification would allow more registers to be read and written, a maximum of 32 Modbus registers are supported in one packet. One Modbus register is 16 bits wide. The Modbus slave transmits the values as signed 16 bit integers.

In an event of an out-of-range command addressing or an unsupported command, the Modbus slave responds with an exception message according to the Modbus specification.

Configuration of SxC-MOD devices

Communication parameters can be set using the optional built-in operation terminal OPC-S, an external operation terminal OPA-S / OPU-S or via Modbus.

The OPA-S uses IP parameters to adjust communication settings.

Configuration with OPA-S

1. Press UP/DOWN buttons simultaneously for three seconds.
2. Select 009 using UP/DOWN buttons.
3. Press OPTION after selecting the correct code.
4. Once logged in with Code 009, IP and OP parameters are displayed. Select IP and press option to select.
5. Select the parameters with the UP/DOWN buttons. Change a parameter by pressing the OPTION button. Use UP/DOWN buttons to adjust the value.
6. After you are done, press OPTION to save the new value and return to the selection level. Pressing left hand POWER button without pressing OPTION will discard the value and return without saving.
7. Press the POWER to leave the menu. The unit will return to normal operation if no button is pressed for more than 5 minutes.

Input configuration

IP parameters for Modbus settings

Parameter	Description	Range	Standard
IP 00	Unit 0 = SI units 1 = Imperial units	0-1	0
IP 12	Communication address	1-247	1
IP 13	Baud rate: 0 = 19200 1 = 4800 2 = 9600 3 = 19200 4 = 38400	0-4	3
IP 14	Communication mode: 0 = Modbus RTU, No parity, 2 stop bits 1 = Modbus RTU, Even parity, 1 stop bit 2 = Modbus RTU, Odd parity, 1 stop bit 3 = Modbus RTU, No parity, 1 stop bit 4 = Modbus ASCII, No parity, 2 stop bits 5 = Modbus ASCII, Even parity, 1 stop bit 6 = Modbus ASCII, Odd parity, 1 stop bit	0-6	1
IP 15	Allow parameter change via Modbus 0 = No change allowed 1 = Change allowed 37 = Change allowed including OE parameters (expert only)	0-1 (37)	1



Changing address register through broadcast message

It is not possible to change network address register through broadcast message.

Modbus addresses

Table entry description

Address: Modbus address to access information

Access: Specifies how data can be accessed. R: Read only access, R/W: Read and write access

Description: Describes the type of the entry

Multiplier: Multiply the value displayed in Modbus with "Multiplier" to compute the real value

Unit: Unit of this parameter

Sensor value addresses

Address	Access	Description	Range	Multiplier	Unit
0	R	Temperature value	-400-1250	0.1	°C
			-400-2570	0.1	°F
1	R	Minimum temperature value	-400-1250	0.1	°C
			-400-2570	0.1	°F
2	R	Maximum temperature value	-400-1250	0.1	°C
			-400-2570	0.1	°F
3	R/W	Reset minimum and maximum temperature value Write "1" to this register to reset the values.	0-1	1	No unit
4	R	Humidity value	0-1000	0.1	%
5	R	Minimum humidity	0-1000	0.1	%
6	R	Maximum temperature	0-1000	0.1	%
7	R/W	Reset minimum and maximum humidity value Write "1" to this register to reset the values.	0-1	1	No unit

Input configuration parameters

Address	Access	Description	Range	Multiplier	Unit
200	R/W	Temperature unit	0-1	1	No unit
201	R/W	Samples taken for averaging temperature input signal	1-255	1	No unit
202	R/W	Temperature sensor calibration	-100-100	0.1	°C
			-180-180	0.1	°F
203	R/W	Minimum temperature	-40-215	1	°C
			-40-419	1	°F
204	R/W	Maximum temperature	-40-215	1	°C
			-40-419	1	°F
205	R/W	Show percentage on OPA-S for humidity	0-1	1	No unit
206	R/W	Samples taken for averaging humidity input signal	1-255	1	No unit
207	R/W	Humidity sensor calibration	-100-100	0.1	%
208	R/W	Duration of the AES4-HT sensor reconditioning. This value will be cleared if periodic reconditioning is not active. It will remain if periodic reconditioning is enabled. 0: Not active	0-240	1	Minutes
209	R/W	Interval period for AES4-HT sensor reconditioning 0: Periodic reconditioning disabled 1-240: Period reconditioning enabled (repeats every xxx hours)	0-240	1	Hours
210	R/W	Power up reconditioning for AES4-HT sensor. The sensor is reconditioned each time it is power up. Periodic reconditioning settings have no effect. 0: Not active.	0-240	1	Minutes

Device information parameters

Address	Access	Description	Range	Multiplier	Unit
400	R	Software version	-	1	No unit
401	R	Software revision	-	1	No unit
402	R	Device ID	-	1	No unit
403	R	Error	1-7	1	No unit
404	R	Alarm	1-7	1	No unit
405	R/W	AEC-PM2 copy (Range 0..1, 7 read only) 0: Parameter copy successful; No action 1: Start parameter copy to AEC-PM2 2: Start parameter copy to AEC-PM2 with auto-address increment 7: Copy fail (no AEC-PM2 or communication error)	0-2 7 Read only	1	No unit

Modbus configuration parameters

Address	Access	Description	Range	Multiplier	Unit
500	R/W	Modbus device address	1 -247	1	No unit
501	R/W	Baud rate Modbus RS485 0 = 19200 1 = 4800 2 = 9600 3 = 19200 4 = 38400	0-4	1	No unit
502	R/W	Communication mode 0 = Modbus RTU, No parity, 2 stop bits 1 = Modbus RTU, Even parity, 1 stop bit 2 = Modbus RTU, Odd parity, 1 stop bit 3 = Modbus RTU, No parity, 1 stop bit 4 = Modbus ASCII, No parity, 2 stop bits 5 = Modbus ASCII, Even parity, 1 stop bit 6 = Modbus ASCII, Odd parity, 1 stop bit	0-6	1	No unit
503	R/W	Allow parameter change through Modbus 0 = No change allowed 1 = Parameter change allowed 37 = Parameter change allowed including OE (expert only)	0-1 37 (expert only)	1	No unit

Note: Default value are bold

OE parameters (expert only)

Address	Access	Description	Range	Multiplier	Unit
1000	R/W	Not used	0-255	1	No unit
1001	R/W	Not used	0-255	1	No unit
1002	R	OPA-S software version	0-255	1	No unit
1003	R	SxC software version	0-255	1	No unit
1004	R/W	Not used	0-255	1	No unit
1005	R/W	Not used	0-255	1	No unit
1006	R	Not used	0-255	1	No unit
1007	R/W	Enable humidity sensor anti creep function 0 = OFF, 1 = ON	0-1	1	No unit

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Vector Controls GmbH
Switzerland

info@vectorcontrols.com
www.vectorcontrols.com

