SHR Series

Schneider Electric's SHR series of wall mounted humidity sensors measure the levels of relative humidity and temperature (if equipped) of the air inside a room. Temperature models feature a thermistor. The SHR humidity element is fully replaceable (HS2NX or HS2XX, available through Schneider Electric). To maintain accurate functionality, keep all vents free of dust, debris, etc.

SPECIFICATIONS

Input voltage . . . . Voltage mode: 15 to 36 VDC,
24±20% VAC Class 2
Current mode: 12 to 36 VDC[1] Class 2
(not polarity sensitive)
Frequency . . . . 50/60 Hz
Analogue output . . . . . 4-20 mA/0-5 VDC/0-10 VDC
(selectable)
Operating temperature range . . . . 0° to 50°C
(32° to 122°F)
Storage temperature range . . . . -40° to 80°C
(-40° to 176°F)
Operating humidity range 0-100%
(non-condensing)
Housing material . . . . High impact ABS plastic
Environmental rating IP20/NEMA 1

RH Transmitter

HS sensor . . . . . Digitally profiled thin-film capacitive
(32-bit mathematics); U.S. Patent 5,844,138
Accuracy[2] . . ±2% from 10 to 90% RH @ 25°C (78°F)
Hysteresis . . . . 1.5% typical
Linearity . . . . Included in Accuracy spec.
Stability . . . . ±1% @ 20°C (68°F) annually,
for two years
Output range . . . . 0 to 100% RH
Temperature coefficient . . . . ±0.1% RH/°C above or
below 25°C (typical)

Temperature

Sensor type . . . . . Thermistor[3] (see thermistor table
for temperature curves)
Accuracy[4] . . . . ±0.5°C (±1°F) typical

Compliance

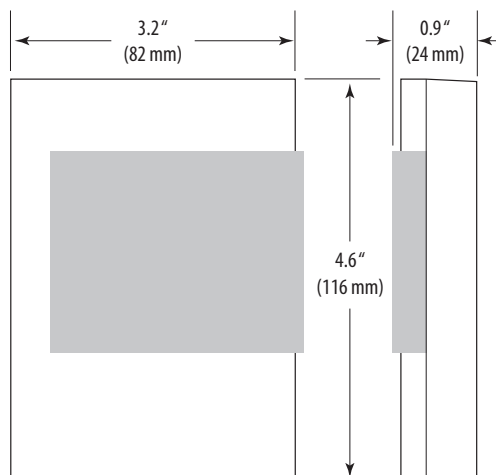Agency approvals . . . . UL 916, CE, RoHS

[1] Maximum 250 Ω load for loop voltages below 17 VDC; maximum 500 Ω load for 17 VDC or above.

[2] Specified accuracy with 24 VDC supplied power with rising humidity.

[3] Thermistors are not compensated for internal heating of product.

[4] Accuracy is specified at NTP (20°C at 101.3 kPa).

DIMENSIONS

3.2″ (82 mm)

0.9″ (24 mm)

4.6″ (116 mm)

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INSTALLATION

ATTENTION Observe precautions for handling static sensitive devices to avoid damage to the circuitry that is not covered under the factory warranty.
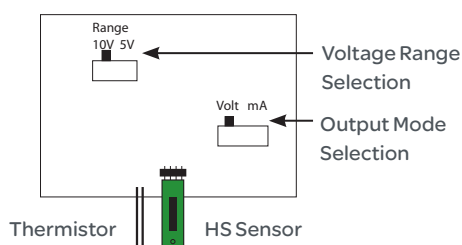
1. Remove the outer cover by using a screwdriver to depress the two tabs on the top of the device. This unclips the top half of the housing. Repeat with the tabs on the bottom of the device and remove the cover.
2. Separate the backplate by lifting up on the bottom of the board assembly and pivoting it upward. Remove the board assembly from the pivot pins and set aside.
3. Position the backplate vertically on the wall, 1.5 m (4.5 feet) above the floor. Locate away from windows, vents, and other sources of draft. If possible, do not mount on an external wall, as this might cause inaccurate temperature readings. Mount the backplate onto the wall using screws (not included).
4. On the board assembly, Use the output selection switch to select V or mA output. If V is selected, then use the range switch to choose 0-5 or 0-10 volt output.
5. Wire the terminal blocks located on the backplate. See the diagrams below.
6. Re-affix the board assembly onto the backplate. Snap the outer cover in place.

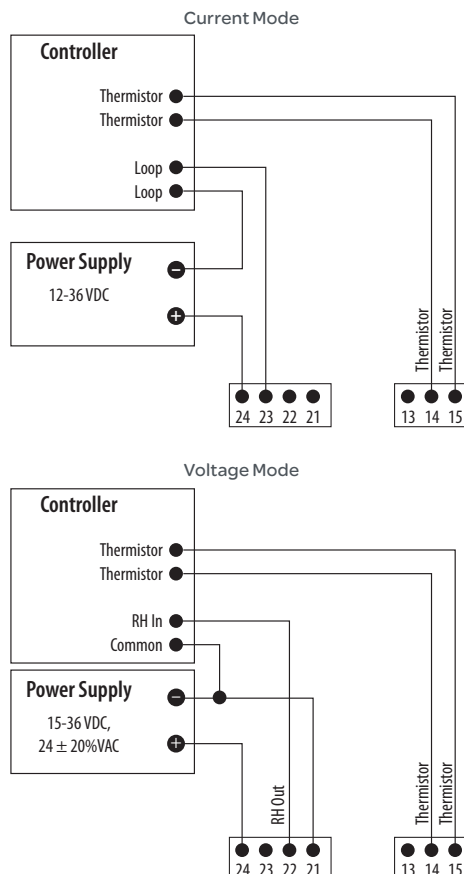Insert screwdriver into tabs to release cover.
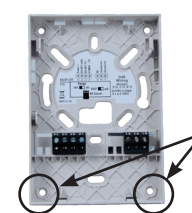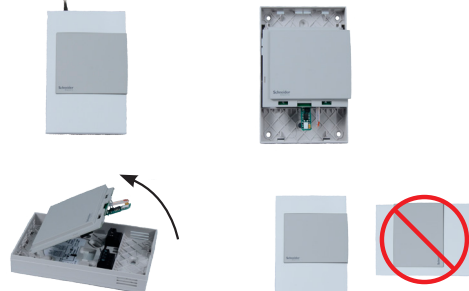
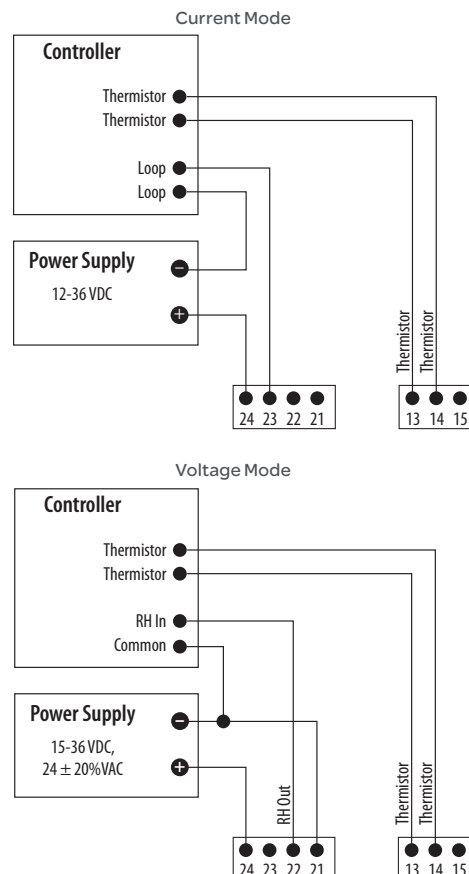13 screwholes available; use a minimum of two for secure mounting.

If these two holes are selected, tighten the screws so that the screw heads are fully recessed in the housing.

Range
10V 5V

Voltage Range Selection

Volt mA

Output Mode Selection

Thermistor   HS Sensor

Models 210, 510, and 610

Current Mode

Controller
Thermistor
Thermistor
Loop
Loop

Power Supply
12-36 VDC
−
+

Thermistor
Thermistor

24 23 22 21   13 14 15

Voltage Mode

Controller
Thermistor
Thermistor
RH In
Common

Power Supply
15-36 VDC,
24 ± 20%VAC
−
+

RH Out

Thermistor
Thermistor

24 23 22 21   13 14 15

Models 110 and 810

Current Mode

Controller
Thermistor
Thermistor
Loop
Loop

Power Supply
12-36 VDC
−
+

Thermistor
Thermistor

24 23 22 21   13 14 15

Voltage Mode

Controller
Thermistor
Thermistor
RH In
Common

Power Supply
15-36 VDC,
24 ± 20%VAC
−
+

RH Out

Thermistor
Thermistor

24 23 22 21   13 14 15

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HUMIDITY SENSOR REPLACEMENT

To Replace the Humidity Sensor:
1. Disconnect power to the unit.
2. Remove the cover and board assembly from the backplate.
3. Remove the HS element from the board by gently pulling from the pin connector.
4. Place a new HS element onto the pin connector. Orient as shown, or the unit will not function.
5. Replace the board assembly and cover on the backplate.

Top
Side

Bottom
Side
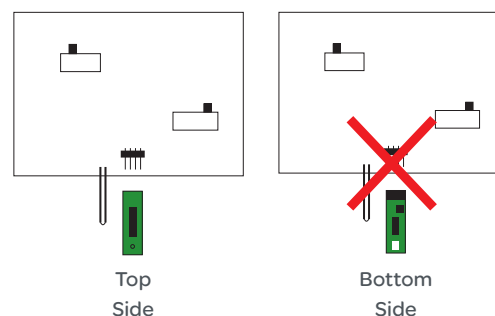
AVAILABLE PRODUCTS

Part Number	Model Number	Description
006903115	SHR110-T	RH,Wall,Temp,1800 Ohm
006903215	SHR210-T	RH,Wall,Temp,10K 2
006903515	SHR510-T	RH,Wall,Temp,10K 3
006903615	SHR610-T	RH,Wall,Temp,10K 3 Swll
006903815	SHR810-T	RH,Wall,Temp,10K w/11kS
5152339000	HS2XX	Replacement humidity sensor
5152339010	HS2NX	Replacement humidity sensor, NIST

THERMISTOR TABLE

°C	°F	TAC Vista 1.8K	TAC I/NET 10K T2	Continuum 10K T3	Satchwell 10K T3 w/Resistor & Shunt	TAC I/A Series 10K T3 w/Shunt
0	32	5,096	32,773	29,575	7,480	8,018
5	41	4,077	25,456	23,504	7,024	7,493
10	50	3,287	19,931	18,809	6,541	6,941
15	59	2,671	15,725	15,146	6,039	6,372
20	68	2,185	12,497	12,271	5,530	5,800
25	77	1,800	10,000	10,000	5,025	5,238
30	86	1,492	8,055	8,195	4,534	4,696
35	95	1,245	6,528	6,752	4,066	4,184
40	104	1,044	5,323	5,592	3,627	3,707
45	113	881	4,365	4,655	3,222	3,271
50	122	747	3,599	3,893	2,854	2,875

TROUBLESHOOTING

Problem	Solution
Inaccurate reading or no reading	• Check positions of the output selection switch and the voltage mode switch. • Verify correct wiring. See the Installation section of this guide for wiring diagrams. • Verify that the RH element is properly connected to the pins. See the RH replacement section of this guide for details regarding RH element installation.

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