

Introduction

The Network Thermostat NT-ROOM-S remote sensor is designed to sense air temperature and/or humidity at locations remote to the X7, X5, UP32 or US32 series thermostats. There are several individual temperature sensor types plus one humidity sensor with two options. One of each type of sensor can be used on the X7, X5, UP32 or US32 series thermostats, plus up to six (6) remote INDOOR sensors to provide automatic averaging for the space temperature. The sensors are supplied with an easy-to-install surface mount enclosure. Optional duct sensor, flush mount, and outdoor probes are available. easy-to-install surface mount enclosure. Optional duct sensor, flush mount, and outdoor probes are available.

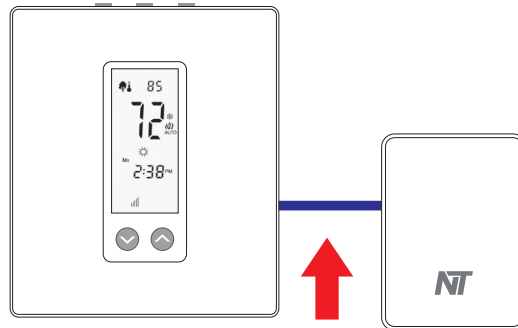


NT-ROOM-S Sensor Installation

1. Install the X7, X5, UP32 or US32 series thermostat according to the instruction manual supplied with it.

Install cable (Red Arrow) from the thermostat to the remote sensor location. Maximum distance is 300ft. (90m).

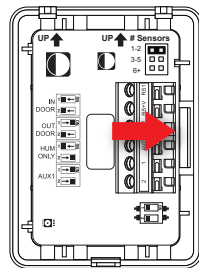
Use CAT5 or CAT5e unshielded, or 1-Pair Twisted Shielded Cable with Drain and nominal capacitance of 12 pF/ft or less. Use riser or plenum jacket as required by local code.



CAUTION: Disconnect power to the thermostat or remove thermostat faceplate before connecting either end of the cable.

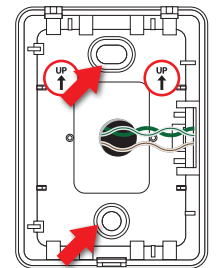
IMPORTANT: Do not mount sensor in direct sunlight, behind a door, or in a supply air path.

2. Push the thumb latch on the right-hand side of the circuit board and remove the circuit board from the plastic base.



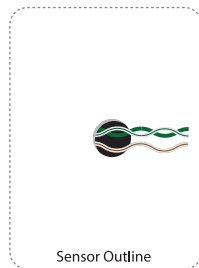
4. Using the plastic base as a template, pull the sensor cable through the rectangular opening of the plastic base.

Place the plastic base on the wall and mark the mounting hole positions on the wall using a pencil or small screwdriver tip.



3. Run the sensor cable from the thermostat to the sensor location.

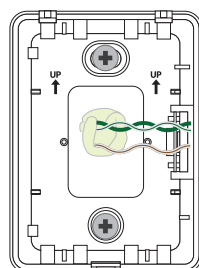
Keep the hole in the wall for the cable as small as possible.



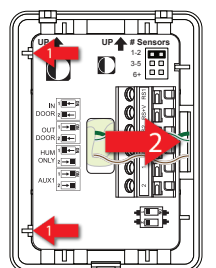
If mounting on sheetrock, use provided hollow wall mollies.

When attaching plastic base to the wall, make sure the arrows are facing up and the tab is on the right. This is required for proper airflow across the sensor.

5. After mounting the plastic base, make sure there is enough wire through the wall to finish the wire connections. Push any extra wire back into the wall cavity. Seal the hole in the wall and header plate around the cable to eliminate any draft that might affect the sensor.



6. Pull the sensor cable through the circuit board. Mount the circuit board into the plastic base by inserting the circuit board into the left-hand side. Snap the circuit board into the plastic base with the right-hand side thumb latch.



- Strip 1/4 inch of insulation from three wires at the remote sensor. Install the wires in the terminals using the table below.

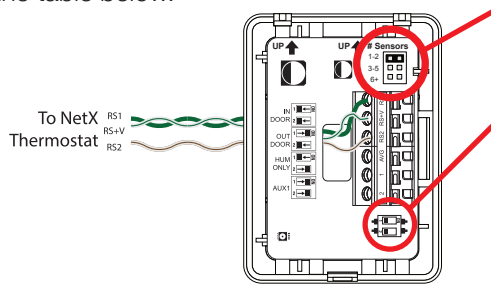
Cat5/Cat5e cable color code:

RS+V = Green with White Stripe
 RS2 = Brown with White Stripe
 RS1 = Green

Shielded cable color code:

RS+V = Color 1 in pair
 RS2 = Drain wire
 RS1 = Color 2 in pair

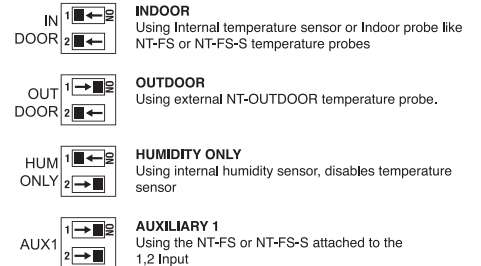
NOTE: the wire color going to each terminal. The order of the wires on the thermostat are not the same as the sensor.



NUMBER OF SENSOR CONFIGURATION



SENSOR TYPE CONFIGURATION



- Connect the wires on the thermostat backplate to the terminals labeled RS1, RS2 and RS+V. Make sure each terminal on the sensor is wired to the terminal with the same name on the thermostat.

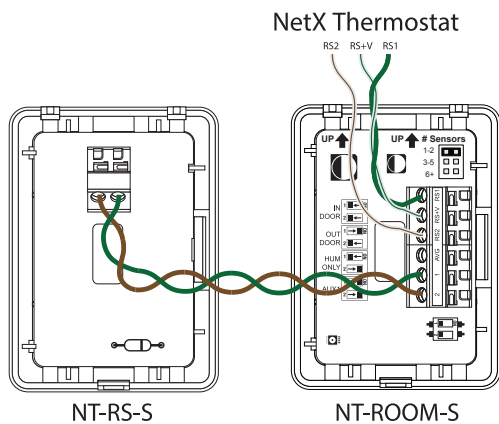
- Set the DIP switches on the bottom right of the sensor to the appropriate sensor type.

- Set the jumper to match the total number of sensors directly connected to the thermostat; 1-2, 3-5, or 6+ sensors.

DO NOT COUNT SENSORS USED FOR INDOOR AVERAGING.

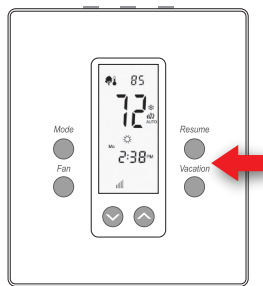
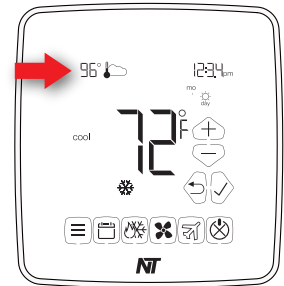
- Adding a NT-RS-S to the NT-ROOM-S (**Optional**)
 Connect the two wires from the NT-RS-S to terminals designated 1 and 2 on the NT-ROOM-S.

The wires can be connected with either polarity. Use 2-conductor cable (22AWG minimum) with a maximum length of 300 feet (or 90m).



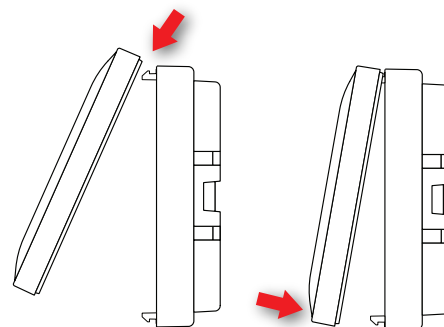
- Reattach the thermostat faceplate to the backplate. (See your thermostat installation manual for instructions.)

For X-Series thermostats, the remote sensor will display in the upper left of the display. Tap on the upper left of the display to cycle through the different connected sensors. The names of the sensors will display in the dot matrix area of the display.



For UP32 and US32 thermostats, press the two buttons on the right side of the thermostat to activate the secondary display for remote sensors. Press the Up or Down buttons to cycle through the sensor types. Rotate through indoor, outdoor, humidity, and AUX1 on the display. There will be a value next to the icon for the sensor type that has been selected.

- If there are no additional sensors to be added to the sensor network, close the sensor case by hooking in the top, then snapping it on the bottom.



After installing the first sensor as described above, additional sensors may be added to the sensor network. One sensor of each type may be added to the sensor bus by using the same cable type from sensor to sensor.

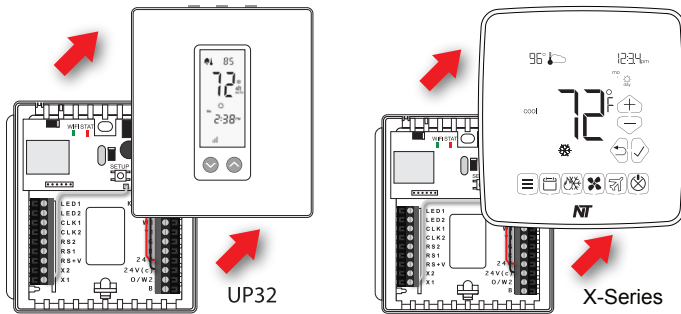
NOTE: Only ONE (1) NT-ROOM-S sensor configured as an INDOOR sensor can be added in this manner. Additional INDOOR sensors may be added by using the AVG terminal.

Using Multiple INDOOR Sensors for Temperature Averaging

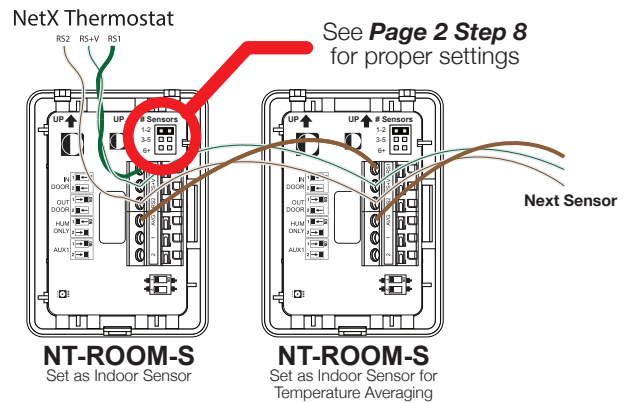
You can connect up to six NT-ROOM-S sensors to provide INDOOR temperature averaging in a large area or several zones being controlled by the same system. Maximum distance for all sensors is 300 ft. (90m). Follow the instructions below and the diagram on page 2 to connect the additional INDOOR sensors.

1. Wire the first sensor using the single sensor instructions.

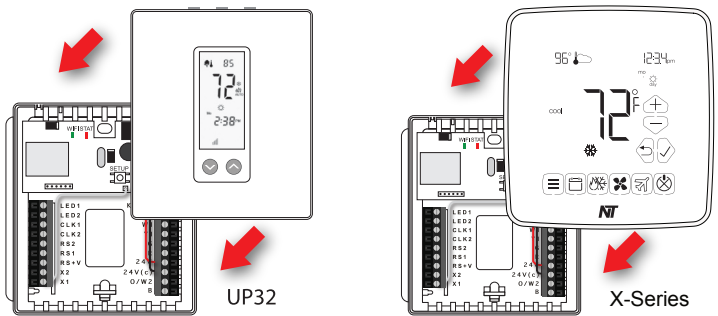
CAUTION: Make sure there is no power to the sensors by removing the thermostat from its backplate.



2. Connect wires to each additional sensor in the following manner.



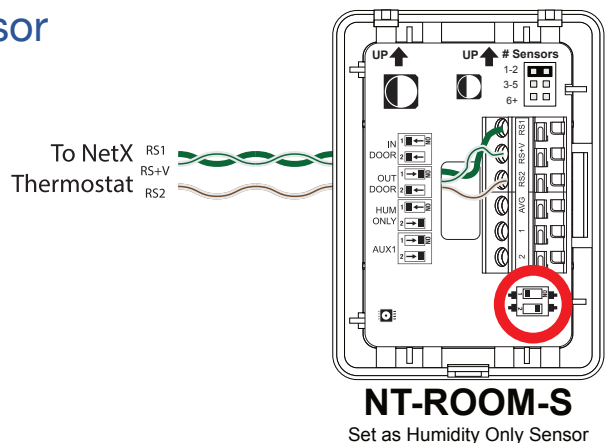
3. Set **#SENSORS** jumper to **1-2** for additional sensors used for averaging.
4. Reinstall the thermostat faceplate on to its backplate. Check for proper operation of each sensor by temporarily blowing warm breath on the sensor. The displayed temperature will go up several degrees if the sensor is properly installed. Repeat for each sensor. Each additional sensor will increase the value less since the sensor are averaging.



Using the NT-ROOM-S as a Humidity Sensor

Install the NT-ROOM-S sensor using the single sensor instructions. The NT- ROOM-S can be configured as a dedicated humidity only sensor. Reference the switch position in the diagram to the right. You can view the humidity value in the thermostat's web server and on the thermostat faceplate, as described in Step 12 on page 2.

NOTE: US32 Series Thermostats do not support humidity sensors.



Troubleshooting

Symptom	Solution
Thermostat has no display	Check wiring between thermostat and sensor. Incorrect wiring can damage the thermostat, transformer or blow a fuse. Check the 24VAC supply.
Thermostat reads 'AC'	24VAC power is disconnected or wired improperly.
Not sure if display is showing local or remote temperature	Breathe on the wall near the bottom left corner of the thermostat. The temperature will go up for a few seconds if sensing locally.
Thermostat displays very high temperature	Wires on the thermostat's sensor element are shorted together. Separate them.
Thermostat displays very low temperature	Check wiring of the INDOOR sensor probes, if used. The sensor probe is not connected to board or is broken.

Wiring Diagram

