



Installation Instructions NT-TEMP & NT-HUM

Net/X Remote Sensors for the UP32 Thermostat

Introduction

The NetworkThermostat NT-TEMP and NT-HUM remote sensors are designed to sense air temperature (NT-TEMP) and/or humidity (NT-HUM) at locations remote to the UP32 thermostat and send this information by digital communications to the UP32. There are five (5) individual sensor temperature sensor types plus one (1) humidity sensor with two options. One of each type of sensor can be used on the UP32, plus up to six (6) remote INDOOR sensors to provide automatic averaging for the space temperature. The sensors are supplied in single-gang mount cases, with optional duct sensor probe, flush mount probe and water probe.

Single Sensor Installation

1. Install the UP32 thermostat according to the instruction manual supplied with it. Check that the thermostat is operating. Display shows the correct temperature. **CAUTION: Remove the thermostat from the sub-base while wiring the sensor to avoid damage from live wires. This is important.**
2. Install Category 5 UTP cable from the UP32 thermostat to the remote sensor location. Maximum distance is 300ft. (90m)
3. If the NT-PROBE stainless steel probe is not being used, install a single-gang box (this can be as shallow as a 'pancake box') in the desired location. If the NT-Probe is being used, mount the steel box and use one of the knockouts for routing the CAT5 cable into the box.
4. Remove the sensor cover by pushing it up and then out at the top and set cover aside.
5. Strip 1/4 inch of insulation from three wires at the remote sensor. Install the wires in the terminals using the table below. 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. (Refer to Figure 1.)

RS+V = Green
RS2 = Green with White Stripe
RS1 = Brown with White Stripe
6. Note the wire color going to each terminal. The order of the wires on the thermostat is not the same as the sensor.
7. Connect the wires on the thermostat sub-base to the terminals labeled RS1, RS2 and RS+V. Make sure that each terminal on the sensor is wired to the terminal with the same name on the thermostat.
8. Set the DIP switches on the back on the sensor to the appropriate sensor type, as described on page 2.
9. Mount the thermostat on the sub-base and check to be sure that it is showing the temperature on the thermostat (for INDOOR or OUTDOOR sensors) or in the thermostat web server page.
10. If there are no additional sensors to be added to the sensor network, screw the remote sensor plastics onto the single-gang backplate and reinstall the cover on the remote sensor by hooking it on the top and snapping the bottom into place. Optionally, secure the sensor cover with the screw provided.

Multiple Sensor Installation

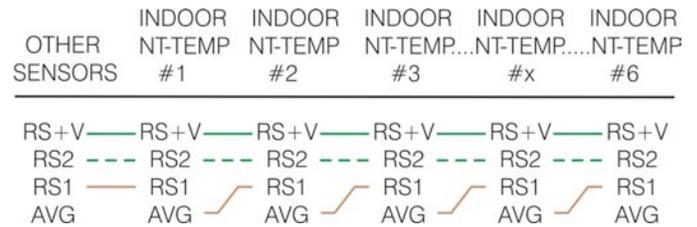
After installing the first sensor as described above, additional sensors may be added to the sensor network. One sensor of each type may be added to the sensor bus by using CAT5 cable from sensor to sensor.

NOTE: Only ONE (1) NT-TEMP 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

Any number from two to six additional NT-TEMP sensors may be connected together 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.
2. **CAUTION: Make sure there is no power to the sensors by removing the thermostat from the sub-base.**
3. Connect wires to each additional sensor in the following manner.



4. Replace the thermostat on the sub-base. 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. Once tested, repeat for each sensor.

Using the NT-HUM Sensor

The NT-HUM sensor can be used as a stand-alone humidity monitor or in conjunction with the integrated temperature sensor. See page 2 for the DIP switch settings for each. If used with the temperature sensor, the temperature sensor is recognized by the thermostat as an INDOOR sensor and uses one (1) of the six (6) INDOOR locations.

IMPORTANT: When the NT-HUM is used with the temperature, it **MUST** be used as the **FIRST** INDOOR sensor.

1. Install the NT-HUM sensor using the single sensor instructions.
2. View the humidity value in the thermostat's web server. The humidity value is NOT shown on the thermostat LCD display.

Troubleshooting

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.

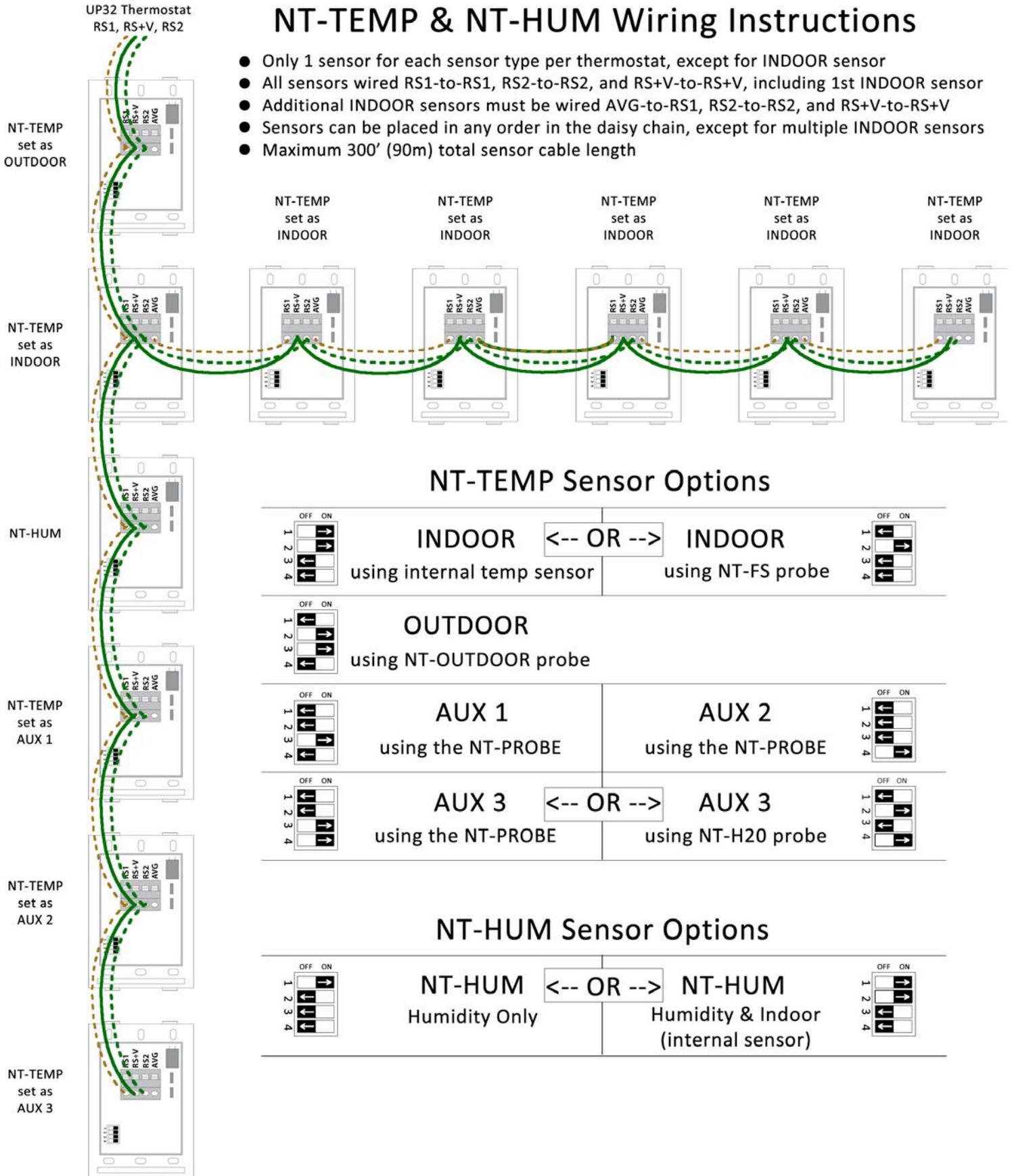
Not sure if display is showing local or remote temperature : Breathe on the wall near the bottom left corner of the thermostat. The temperature will go up for a few seconds if sensing locally.

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.

NT-TEMP & NT-HUM Wiring Instructions

- Only 1 sensor for each sensor type per thermostat, except for INDOOR sensor
- All sensors wired RS1-to-RS1, RS2-to-RS2, and RS+V-to-RS+V, including 1st INDOOR sensor
- Additional INDOOR sensors must be wired AVG-to-RS1, RS2-to-RS2, and RS+V-to-RS+V
- Sensors can be placed in any order in the daisy chain, except for multiple INDOOR sensors
- Maximum 300' (90m) total sensor cable length



NT-TEMP Sensor Options

	INDOOR <-- OR --> INDOOR using internal temp sensor	
	OUTDOOR using NT-OUTDOOR probe	
	AUX 1 using the NT-PROBE	
	AUX 3 <-- OR --> AUX 3 using the NT-PROBE	

NT-HUM Sensor Options

	NT-HUM <-- OR --> NT-HUM Humidity Only	
Humidity & Indoor (internal sensor)		