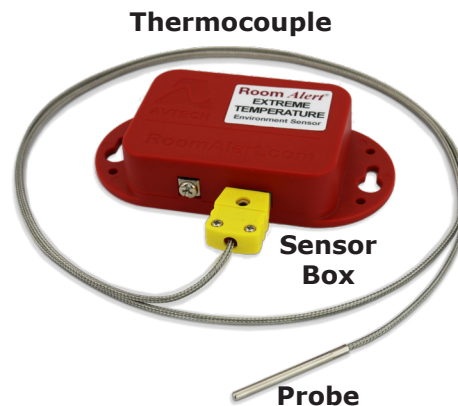**Installation Note**

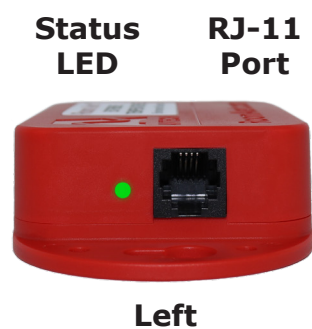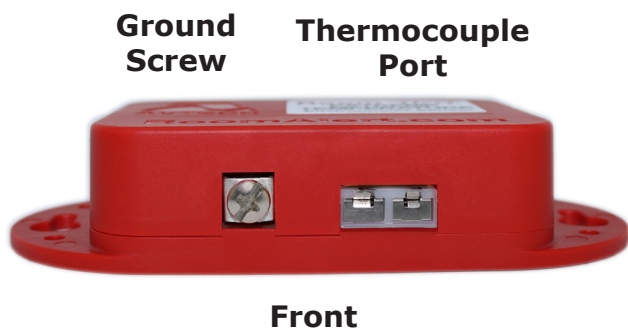## AVTECH's Digital Extreme Temperature Sensor

monitors a wide range of low and high temperatures with a thermocouple and sensor box that communicates readings to your Room Alert via a digital sensor port. This "Plug and Play" sensor provides reliable extreme low or high temperature values to your Room Alert.

Digital Extreme Temperature Sensor Package Contents

- One (1) sensor box
- One (1) 40" K-type grounded thermocouple w/ ⅛" stainless steel probe
- One (1) 25' RJ-11 cable

Thermocouple

Sensor Box

Probe

Digital Extreme Temperature Sensor

Ground Screw   **Thermocouple Port**

Status LED   **RJ-11 Port**

Front

Left

Digital Extreme Temperature Sensor Features

Sensor Box vs Thermocouple Probe Temperature

Your Digital Extreme Temperature Sensor detects 2 temperatures: that of the on-board sensor inside the sensor box (room temperature) and that of the thermocouple probe (extreme temperature). The table below shows the supported ranges:

Component	Temperature Range
Sensor Box Temperature	-40º F to 257º F (-40º C to 125º C)
Thermocouple Probe	-328º F to 932º F (-200º C to 500º C)

*The operating temperature for the thermocouple's **cable** is 32º F to 212º F (0º C to 100º C), which is a narrower range than that of the probe.*

Ext Sensor 1

External 1: Extreme Temperature

Sensor Box Temperature

71.00 °F   ▲ 71.20 °F   ▼ 70.80 °F

Thermocouple Temperature

276.10 °F   ▲ 276.60 °F   ▼ 273.90 °F

Status LED

The sensor box includes an LED that indicates the following:

This LED Color...		Means...
Solid green	🟢	The Digital Extreme Temperature Sensor box is powered on
Unlit	⚫	The Digital Extreme Temperature Sensor box is NOT powered on
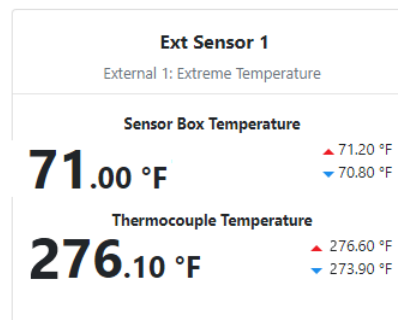
Install Your Digital Extreme Temperature Sensor

 Do not use this sensor in hazardous (classified) locations or life safety applications.
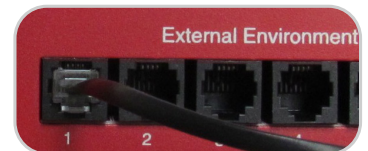
Step 1: Mount your Digital Extreme Temperature Sensor.

Your Digital Extreme Temperature Sensor comes with a 40" thermocouple cable connected to the port on the front of the sensor box. When you are considering the layout of your components, remember that the thermocouple cable and the sensor box are not designed to withstand the same temperatures as the thermocouple probe. (See page 4 for operating ranges.)

1. Locate the thermocouple probe where you wish to measure temperature. The location must be within the temperature range supported by probe.

2. Run the thermocouple cable in an area within the cable's operating temperature range. The cable cannot withstand the same extreme temperatures as the probe.

3. Place the sensor box in an area within the box's operating range. The box cannot withstand the same extreme temperatures as the probe. You may mount the sensor box on a wall or simply place it on a flat surface.

Step 2: Connect the sensor box to Room Alert.

1. Connect one end of the RJ-11 cable to the RJ-11 port on the sensor box.

2. Connect the other end of the RJ-11 cable to a digital port on your Room Alert. Try to avoid running the cable near large electromagnetic devices or fluorescent lights, which produce EMI that can interfere with the sensor's readings.

Supported Thermocouples

Your Digital Extreme Temperature sensor comes with a K-type stainless steel thermocouple that is grounded to avoid electrical faults.

If desired, you may instead use a third-party K-type thermocouple (grounded or ungrounded). Your thermocouple must fall within the thermocouple input range supported by the Digital Extreme Temperature Sensor, which is:

- -454º F to 2501º F (-270º C to 1372º C)

Simply connect your third-party thermocouple to the thermocouple port on the sensor box, as shown here.
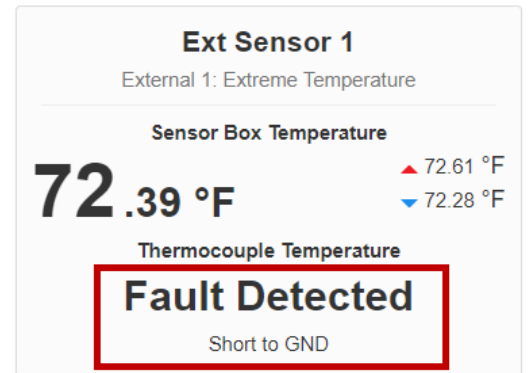
Fault Detected Messages

If your Digital Extreme Temperature Sensor detects a fault from the thermocouple, you'll see "Fault Detected" in place of the Thermocouple Temperaturereading on your Room Alert Status page.

Below the "Fault Detected" message, you'll see one of these three fault codes:

- Open Circuit
- Short to GND
- Short to VDD

Open Circuit

An "Open Circuit" fault typically means that your thermocouple is not properly connected to the Digital Extreme Temperature Sensor box. Check that the thermocouple is securely inserted into the port on your sensor box.

Short to GND / Short to VDD

Both "Short to GND" and "Short to VDD" faults typically occur if you're using a third-party ungrounded thermocouple that comes into contact with metal.

To avoid these sensor faults, you may ground an ungrounded third-party thermocouple by following these steps:

> If you're using a grounded thermocouple, like the one that comes standard with your Digital Extreme Temperature Sensor, you do not need to follow these steps.

1. Connect a ground wire to the ground screw on the front of the sensor box. Tighten the screw around the ground wire to secure it in place, as shown below.

2. Run the ground wire to the chassis of the equipment you're monitoring and secure it wherever available.

Sensor Features & Specifications

|	
Environment Condition Monitored	Indoor ambient temperature & extreme low or high ambient temperatures
Type Of Sensor	Digital
Power Supply	Powered by Room Alert
Sensor Box	
Operating Range	-4° F to 185° F (-20° C to 85° C)
Sensor Box Temperature Sensor	
Operating Range	-40º F to 257º F (-40º C to 125º C)
Resolution	0.06º C
Accuracy	+/- 2º C
Thermocouple	
Type	K-type, grounded
Included	Yes
Cable Length	40"
Cable Operating Range	32º F to 212º F (0º C to 100º C)
Probe Length	1.58"
Probe Diameter	0.12"
Probe Operating Range	-328º F to 932º F (-200º C to 500º C)
Accuracy	+/- 1.1° F or °C
Sensor Box Thermocouple Input	
Range	-454º F to 2501º F (-270º C to 1372º C)
Resolution	0.25º C
Accuracy	+/- 1° C from -100º C to 100º C +/- 2° C from -200º C to 700º C +/- 4° C from 700º C to 1372º C +/- 6° C from -270º C to 1372º C
Sensor Cable Type	
Digital Sensor Cable	RJ-11 (standard straight-through telephone cord)
Included	Yes
Length	25'
Maximum Extendible Length	100' total
Compatible Products	Room Alert 32S, 12S, 3S, 3E & 3W, *manufactured in 2021 or later*

AVT-211230-1.0.1

Configure Your Digital Extreme Temperature Sensor

Use Room Alert's Built-In Web Interface

Your Room Alert must be on at least the minimum firmware version below to be compatible with the Digital Extreme Temperature Sensor. You may download the latest firmware from your account at RoomAlert.com.

- Room Alert 32S v1.3.0 (with sensor controller minimum version v6)
- Room Alert 12S v1.3.0
- Room Alert 3S v1.5.3
- Room Alert 3E v2.3.0 (with sensor controller minimum version v3)
- Room Alert 3W v2.1.1 (with sensor controller minimum version v3)

Once your Room Alert is on at least the minimum firmware version, navigate to **Settings → Sensors** in the web interface of your Room Alert. The options you see below will vary depending on the model.
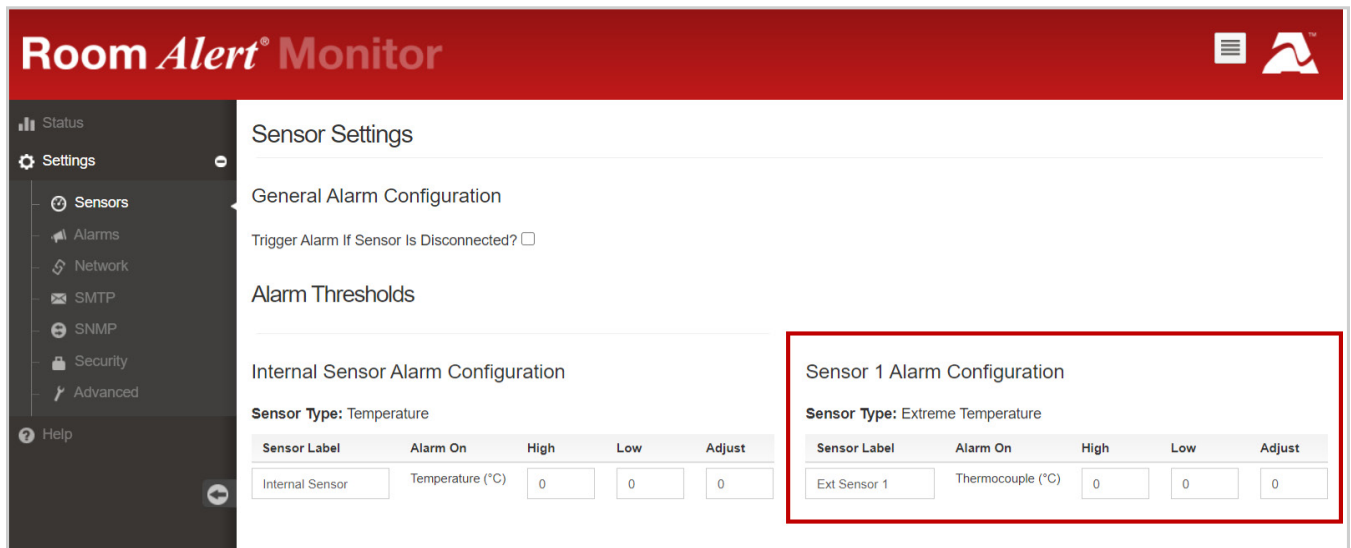
1. Scroll to your external digital sensor(s), the total number of which will vary depending on the Room Alert model.

2. Find the digital sensor interface that matches the port you connected your Digital Extreme Temperature Sensor to. For example, if you used the first digital port on your Room Alert, look for *Sensor 1 Alarm Configuration*; if you used the second, look for *Sensor 2 Alarm Configuration*, and so on. Notice that your Room Alert monitor automatically detects the type of digital sensor and displays it in *Sensor Type*.

3. In *Sensor X Label*, you may leave the default, "Ext Sensor X," or enter something more descriptive. Room Alert "E" models accept up to 15 characters, including only letters, numbers, spaces, hyphens (-), underscores (_) or periods (.). Room Alert "S" models accept up to 30 characters, including the above and special characters, like ampersand (&).

4. *Alarm On* automatically populates with the default temperature scale. Please refer to your Room Alert *User's Guide & Reference Manual* to change it.

5. In *High* and *Low*, you may enter values for high and low thresholds for the sensor's thermocouple reading. Your Room Alert generates alerts based on those thresholds.

   • Room Alert "E" models: the default High & Low is 0—which means no alarm is configured.

   • Room Alert "S" models: the High & Low fields are disabled by default. You may enable each field individually by selecting its check box.

6. In *Adjust*, you may leave the default, 0, or enter a value to adjust the temperature reading if it differs from a known value at that location. On Room Alert "S" models, you must enable the *Adjust* field by selecting its check box before entering a value.

7. In *Use Alarm Profile*, which controls light towers and relays on your Room Alert, you may leave the default, **Profile 1**, or choose another profile from the drop-down menu.

8. Select **Save Settings** at the top or bottom of the page. Your Room Alert will automatically reboot and commit your changes.