



# FAQ's

## Frequently Asked Questions



### Thermal Laser

#### What is the advantage of using the Thermal Laser?

It gives you the convenience of two tools in one. The Thermal Laser allows you to see thermal differences using the thermal imager mode, and take precise spot measurements using the laser spot temperature mode. Thermal imager mode allows you to see the radiated thermal energy, that you cannot see with the naked eye. This feature alone, makes it an invaluable tool for visually detecting thermal differences, such as an HVAC leak or blockage, an electrical component overheating due to high resistance, or a broken element in a heated seat.

#### What does the Thermal Laser actually measure?

Contrary to what you may think, the Thermal Laser does not measure temperature, it actually detects radiated thermal energy from an objects surface. This infrared radiation emitted from an object is converted by the Thermal Laser into a visual image of colored heat signatures (thermal imager mode only). The displayed temperature is derived from a complex calculation that takes into account many factors that influence the infrared radiation (e.g. emissivity, the temperature of the sensor, the air between the object and the unit, etc).

#### Why is there a difference in the temperature value displayed in thermal imager mode and laser spot temperature mode, when measuring the same object?

This difference is due to how they work, both measure radiated thermal energy, but laser spot mode only measures a single point, whereas thermal imager mode uses an average of multiple points. Since thermal imager mode measures multiple points over a larger area, it may display a different value.

#### I compared measurements of the same object with another Thermal Laser, and I get different results. Why is this?

As with any device of this type, accuracy is dependent upon many factors such as component operating tolerances and ambient conditions. Because of these and other factors, temperature readings between two units will vary.

#### What is the Cross-Hair in the center of the screen for?

When using thermal imager mode, the cross-hair is an aiming aid, and represents a small (spot) area (4 pixels) that is measured to calculate and display the temperature value in the upper left, known as the Center Region Temperature. It is the average of the 4 pixels.

When using laser spot mode the cross-hair represents a single pixel used for the calculation and display the temperature value at the bottom of the screen.

#### What is the Color Palette Range Indicator for?

Color Palette Range Indicator (thermal imager mode) is a dynamic colorized representation of the entire temperature range of the active scene.

The values displayed on the top and bottom of the color palette range indicator are the minimum and maximum temperature values of the active scene. **Note:** It is normal for these values to constantly change as the scene changes.

#### How far away from an object can the Thermal Laser be and still provide accurate readings?

The optimum distance in thermal mode is approximately 30 in. (76 cm).

The optimum distance in laser spot mode is approximately 12 in. (30.5 cm).

In general, the farther away from the object, the larger the object has to be in order to still measure the temperature accurately.

The Thermal Laser has a spot size ratio of 10:1. As example, this allows for an accurate measurement of a 1 in. (2.54 mm) diameter object at a distance of 10 in. (25.4 cm).

#### What is Emissivity? Why is it important? How can I adjust it?

Emissivity is the amount of radiation emitted from the surface an object, compared to that of a perfect "blackbody" (standard of radiation) of the same temperature. Emissivity is also referred to as the intensity of infrared radiation.

As different materials and surfaces have different emissive properties, to accurately calculate temperature (from infrared radiation), the emissivity value of the object being measured must be entered in the Thermal Laser settings. The emissivity value that is set, is used to calculate the displayed temperature value.

**Note:** The reflective properties of materials influence their emissivity. Materials that highly reflect infrared (e.g. polished aluminum) have a low emissivity (0.15), however the emissivity of common materials is about (0.95).

### **The temperature reading is: Stuck on Zero, Extremely Incorrect, or Fluctuating**

If this occurs, adjust the emissivity setting accordingly to the material being measured. If no change, reboot the unit. If the issue persists, contact customer service.

### **The temperature readings show a "<" or ">" with the number (Out of Range)?**

">" - Indicates the temperature being measured is above the operating range.

"<" - Indicates the temperature being measured is below the operating range.

### **The screen is froze (nothing works), what do I do?**

- Reboot the unit, hold the power-button for 5 seconds to power off the unit.
- If problem persists, call customer service.

### **Can the Thermal Laser show which electrical wires have electricity running through them?**

NO. Voltage or current can't be seen or measured with the unit. Heat generated due to electrical resistance MAY be possible to see, if the area of resistance is hotter than the surrounding surfaces.

### **Does the Imager need to be powered on or off to charge?**

It will charge in either state, On or Off.

To achieve the fastest charge:

1. Turn the unit off. (Unit must be off when charging.)
2. Connect the supplied USB power supply to the unit, then to a live AC power source.

**Note:** *If operating the unit while charging, thermal accuracy will vary.*

### **How long does it take to charge?**

With the unit off it will typically recharge to 80% in about 3 hours, and to 100% in less than 5 hours.

### **How do I get software updates?**

There are no current or future software updates available.

### **The Thermal Laser is not recognized by my Windows PC when I connect it using the USB cable?**

- Disconnect the USB cable from the PC, wait a few seconds and reconnect it.
- Try a different known good USB cable.
- Connect a different known good USB device to the same USB port and verify it works, and/or try a different USB port.
- Reboot the PC and/or try a different PC.
- Some PC's may not supply an adequate USB voltage supply to operate or charge the unit. This may result in a non-connection or disconnecting situation. The use of a powered USB hub is recommend with a minimum 500mA output.
- In the problem still persists, contact customer service.