

TLD100 Thermal Leak Detector Frequently-Asked Questions

Revised 9/18/09

1. Questions related to temperature range and accuracy

1.1. What is the temperature range?

The temperature range is -22°F to 302°F (-30°C to 150°C).

1.2. Can I use the Thermal Leak Detector if it's below freezing outside?

Yes – the Thermal Leak Detector is not sensitive to the ambient temperature.

1.3. Can I use the Thermal Leak Detector if it's really hot outside, or in a hot attic?

Yes – the Thermal Leak Detector is not sensitive to the ambient temperature.

1.4. What is the accuracy of the temperature measurement?

The Thermal Leak Detector is more accurate when the surface temperature is closer to room temperature and less accurate when the surface temperature is significantly higher or lower. As a reference,

- At freezing (32°F, 0°C), the accuracy is $\pm 5^\circ\text{F}$ ($\pm 2.8^\circ\text{C}$)
- At room temperature (73°F, 23°C), the accuracy is $\pm 2.5^\circ\text{F}$ ($\pm 1.3^\circ\text{C}$)
- At boiling (212°F, 100°C), the accuracy is $\pm 5^\circ\text{F}$ ($\pm 2.8^\circ\text{C}$)

2. Questions related to kinds of applications

2.1. Can I use the Thermal Leak Detector to measure the temperature of meat on my grill, or other foods?

We recommend that you do not use the Thermal Leak Detector for determining if food is properly cooked or “done.” It measures the surface temperature of an object, not the interior temperature.

2.2. Can I measure the temperature of a window? What about an object I see through a window?

When you point the Thermal Leak Detector at a window, it will measure a combination of the infrared light coming through the window and the infrared light coming from the surface of the window. To measure the temperature of a window or other reflective object, put a large piece of masking tape on the glass, and wait a few minutes for the tape temperature to match the glass temperature. Then point the Thermal Leak Detector at the tape.

Measurements of objects you see through the window will not be accurate, but you will probably be able to tell the difference between hot areas and cold areas.

3. Questions related to how the Thermal Leak Detector works and how to use it

3.1. How does the Thermal Leak Detector work?

All objects, even cold ones, give off infrared light. The Thermal Leak Detector measures the amount of infrared light coming off a surface, and calculates the temperature.

The colored spot indicates where the Thermal Leak Detector is pointing, but it does not help make the temperature measurement.

3.2. How far away from an object can I be and still get a good measurement?

How close to an object can I be and still get a good measurement?

How big is the spot that the Thermal Leak Detector measures?

The Thermal Leak Detector measures the average temperature over an area, and the area gets bigger as you get farther away from the surface. The area does not correspond exactly to the size of the colored spot.

The size of the area that's measured is $1/6$ the distance to the surface. For example, if the Thermal Leak Detector is 6 inches away from a surface, it is measuring the average temperature over a spot that is 1 inch in diameter. If the Thermal Leak Detector is 6 feet away, it is measuring the average temperature over a spot that is 1 foot in diameter.



The Thermal Leak Detector can still tell the difference between hot and cold areas if you are very far away, but the temperature measurement will be less accurate, and it will be harder for you to pinpoint the exact location of a hot or cold spot, because you are averaging over a larger area. The ideal distance is about 1 to 2 feet, because the colored spot size will correspond to the size of the area that the Thermal Leak Detector is measuring. If you are too far away to see the colored spot, you should move closer.

3.3. What value should I use for the threshold setting?

For most applications (looking for thermal leaks in your home), start with the slider set to 5°F (3°C). This means that the green spot of light will change to red or blue if the surface temperature changes by more than 5°.

If you don't see any color change as you scan the surface, try the 1°F (0.5°C) setting. This might be necessary if the outside temperature is not much different from the inside temperature of your home.

If the color changes immediately or too often as you scan the surface, try the 10°F (5.5°C) setting. This might be necessary if the outside temperature is much colder or hotter than the inside temperature of your home.



If you just want to measure the temperature of a surface and you don't need to find hotter or colder areas, slide the switch to the top position, indicated by the blue and red circles with Xs over them  . When the threshold switch is in this position, the colored spot will stay green, regardless of the temperature.

4. Questions related to troubleshooting

4.1. The spot color is changing all the time. What's wrong?

You may have the threshold switch set to a value that is too low. Slide the switch to the 5°F (3°C) or 10°F (5.5°C) setting. You may also need to turn the power button off, aim the Thermal Leak Detector at your reference point again, and turn the power back on. Be sure to hold the Thermal Leak Detector in place until the green light comes on and the screen shows a reference temperature (the number next to the word "REF").

4.2. The spot color never changes. What's wrong?

You may have the threshold switch set to a value that is too high, or set to the top position (blue and red circles with Xs  ). Slide the switch to the 1°F (0.5°C) or 5°F (3°C) setting. You may also need to turn the power button off, aim the Thermal Leak Detector at your reference point again, and turn the power back on. Be sure to hold the Thermal Leak Detector in place until the green light comes on and the screen shows a reference temperature (the number next to the word "REF").

4.3. The spot colors are wrong. What's wrong?

You may have moved the Thermal Leak Detector before it had a chance to measure a reference temperature. When you turn the Thermal Leak Detector on, it uses the first surface it's aimed as a reference. It needs

about 2 seconds to measure that temperature. When you first turn on the Thermal Leak Detector, be sure to hold it in place until the green light comes on and the screen shows a reference temperature (the number next to the word "REF").

4.4. How do I change from degrees C to degrees F (or F to C)?

Open the battery door. The switch is located above the battery. You can change the units while the Thermal Leak Detector is turned on.