

User Manual



IRTUV50

IR Thermometer with Built-in UV Refrigerant Leak
Detector and Flashlight



Introduction

Congratulations on your purchase of the Triplett IRTUV50 IR Thermometer with Built-in UV Refrigerant Leak Detector and Flashlight. This thermometer makes non-contact (infrared) temperature measurements at the touch of a button. The built-in coaxial laser pointer increases target accuracy while the backlit LCD and handy multi-switch combine for convenient, ergonomic operation. The UV light source is convenient for locating leaks such as refrigerants.

Features

- Measures non-contact surface temperature up to 932°F (500°C)
- 12:1 Distance to Spot Ratio (Field of View)
- Precise non-contact measurements
- Multipoint laser sighting
- White LED built-in illuminators
- Blue LED built-in illuminators for UV function
- Unique flat surface, modern housing design
- Automatic Data Hold
- "MAX/MIN/AVG/DIFF" function
- Emissivity Digitally adjustable from 0.10 to 1.0
- Adjustable High and Low Alarms

Safety

International Safety Symbols



This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.



Warnings

- Do not directly or indirectly point the laser at the eyes of a person or an animal

Inspect for damage or for any shortage of parts or accessories before use

- Replace the batteries immediately after the battery indicator flashes ○ Do not use the thermometer near explosive gases, steam, or dust
- Note that an object with high reflectivity will normally cause the measured temperature value to read much lower than the actual temperature
- Use the device only as described in this User Guide

Cautions

- To avoid thermometer damage, please avoid the following hazards:
EMF from welding equipment or electro-induction heaters ○ Static electricity
- Thermal shock caused by large or abrupt environmental temperature changes; wait 30 minutes to allow the thermometer to stabilize to new environmental conditions
- Do not use this device in excessively high temperature environments

Meter Description

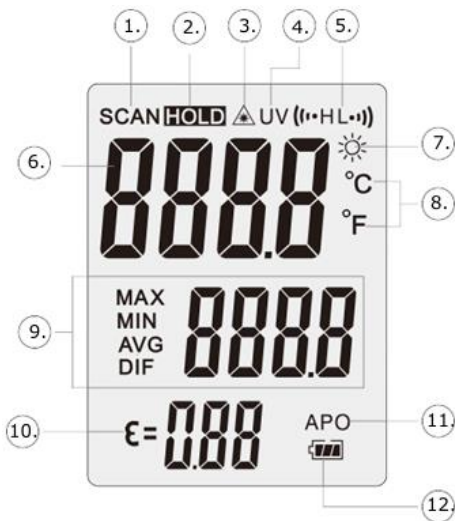
METER DESCRIPTION

1. LCD Display
2. MENU/MODE Button
3. Laser
4. UV LEDs
5. IR Sensor
6. Power On/Measure Trigger
7. Battery Compartment



DISPLAY LCD DESCRIPTION

1. Scan Icon
2. DATA HOLD
3. Laser ON Indicator
4. UV LED ON Indicator
5. HI and Low Alarm
6. Measurement Data
7. Work Light LED ON
8. °C/°F Icon
9. MAX/MIN/AVG/DIF Mode Indicator
10. Emissivity
11. APO (Auto Power OFF) ON
12. Battery Status



Operation

Meter Power

The meter is powered by two 1.5V AA batteries. With fresh batteries installed, the meter switches ON when the trigger is pulled. Refer to the Maintenance section for Battery Installation instructions. The battery icon provides battery status indication. Replace the batteries as soon as the battery status icon indicates a low battery.

Setting Mode

The various parameters of the meter are set using the five-way multi-switch located below the display. The available parameters are listed below:

Setting Mode Overview

The Settings switch has five positions to select a parameter, turn a parameter ON or OFF, and to adjust parameter values.

Press and release the Measurement Trigger.

Press the  button left to enter the Setting Mode. The parameter selected will appear in the display.

Press the  button right to advance to the next parameter.

Press the up  or down  buttons to change a parameter status or adjust a parameter value.

Press the  button to store parameter changes and advance to the next parameter.

Press the  button left to exit the Settings mode and return to Measurement mode.

Note: If no button is pressed within the APO time the meter will shut down. It may be helpful to extend the APO time when making adjustments in the Settings mode.

Setting Mode Detail

1. Flashlight Setting

Enter the Setting mode. The  Flashlight icon flashes. Press up  for ON or OFF. Press  to store the setting

2. UV light Setting

Enter the Setting mode. Advance until the **UV** icon flashes. Press up  for ON or OFF. Press  to store the setting

3. Temperature Units Setting

Enter the Setting mode. Advance until the **°F or °C** icon flashes. Press up  to change the units. Press  to store the setting

4. Emissivity Setting

Enter the Setting mode. Advance until the **EMS** icon flashes. Press up  or down  to adjust the setting. Press  to store the setting

5. Laser Pointer Setting

Enter the Setting mode. Advance until the  icon flashes. Press up  for ON or OFF. Press  to store the setting

6. **Max Min Avg Max-Min Setting**

Enter the Setting mode. Advance until the **MAX – MIN AVG** icon flashes. Press up  for ON or OFF. Press  to store the setting

7. **Alarm HI Setting**

Enter the Setting mode. Advance until the **Alarm HI** icon flashes. Press up  or down  for ON or OFF. Press  to store the setting If ON was selected, press up  or down  to adjust the limit. Press  to store the setting

8. **Alarm LO Setting**

Enter the Setting mode. Advance until the **Alarm LO** icon flashes. Press up  or down  for ON or OFF. Press  to store the setting If ON was selected, Press up  or down  to adjust the limit. Press  to store the setting

9. **Backlight Setting**

Enter the Setting mode. Advance until the **Lite** icon flashes. Press up  or down  for ON or OFF. Press  to store the setting

10. **Auto Power OFF Setting**

Enter the Setting mode. Advance until the **APO** icon flashes. Press up  or down  to adjust the setting. Press  to store the setting

Surface Temperature Measurements

1. Typical setting should be: Laser pointer ON, Backlight ON, Temperature units set as needed, Emissivity set to 0.95, APO (auto

power OFF) set to 10 seconds and Flashlight ON if measuring in a dimly lit area.

2. Open the lens protective lens cover by rotating the cover wheel clockwise (facing the lens) until the dot is visible on the wheel.
3. Hold the meter by its Handle Grip and point it toward the surface to be measured.
4. Pull and hold the Trigger to turn the meter on and begin testing in Scan mode. The display will light if the batteries are good. Replace the batteries if the display does not light.
5. Release the Trigger; the reading will HOLD for the time set in the APO setting. The backlight will turn off after approximately 4 seconds.
6. The meter defaults to the programmed conditions in use when the meter was last switched OFF.

Laser Pointer

The laser pointer circle identifies the area being measured. The size of the area is determined by the distance to spot ratio. Objects outside the circle are not measured. The spot measured should always be larger than the circle for accurate measurements.

MAX, MIN, AVERAGE and MAX-MIN

In the MAX MIN AVG mode the meter will record the Maximum value scanned, Minimum value scanned, the Average of the scanned values and the Difference between the Max and Min value.

1. Turn Max Min ON in the settings mode
2. Press and hold the trigger to scan an area. Max, Min, Avg or Max-Min will be displayed in the lower right display. Press the up  button to select the parameter to be displayed. The values will be continuously updated for the length of the scan.

UV Leak Detector

Inject a small amount of florescent dye into the system under test. The dye/system mixture (refrigerant, for example) will escape and accumulate at all leak sites. Turn the blue UV LEDs on in the Setting mode and scan the system. The residue of the dye at the leak can be easily observed under the UV light. Dyes are available at most HVAC supply outlets.

Locating Hot or Cold Spots

To detect a hot or cold spot, aim the thermometer at a region beyond the target and then scan the entire region in a slow, up/down motion.

Distance to Spot Ratio (Field of View)

The meter's field of view is 12:1 (distance to spot ratio). For example, if the meter is 60cm (24 inches) from the target (spot), the diameter of the target must be at least 5cm (2 inches).

Note that measurements should normally be made further than 60cm (24 inches) from the target. The meter can measure from further distances but the measurement may be affected by external sources of light. In addition, the spot size may be so large that it encompasses surface areas not intended to be measured

Emissivity

Emissivity represents the energy reflectivity of a material. Most organic materials and painted or oxidized surfaces have an emissivity of approximately 0.95. If possible, masking tape or flat black paint should be applied to cover the measured surface.

Wait a period of time to allow the tape or paint to reach thermal equilibrium with the surface of the covered object. Measure the temperature of the surface covered with tape or paint only after equilibrium has been achieved.

High Low Limits

The HI / LO limits provide an alarm when a preset temperature is exceeded.

Specifications

Infrared Thermometer Specifications

Range / Resolution	-30~500 ⁰ C (-22~932 ⁰ F)
Accuracy	Accuracy : $\pm 3^{\circ}\text{C}$ (5.4 [°] F) at -50 to 20 [°] C (-58 to 68 [°] F) $\pm 2.0\%$ or $\pm 2^{\circ}\text{C}$ (3.6 [°] F) at 20 to 500 [°] C (68 to 932 [°] F)
Response Time	500ms (95% of reading)
Repeatability (% of reading)	$\pm 8\%$ of reading or $\pm 1.0^{\circ}\text{C}$ (1.8 [°] F) whichever is greater
Emissivity	Adjustable from 0.10 to 1.00
Temp. Coefficient	0.1 [°] C/ [°] C or $\pm 0.1\%$ / [°] C of reading (whichever is greater)
Field of View	D/S = Approx. 12:1 ratio (D = distance, S = spot)
Laser power	Less than 1mW
Spectral response	8 to 14 microns

General Specifications

Display	Backlit LCD display with function indicators
Display resolution	0.1 [°] C (0.1 [°] F)

Flashlight	5 white LEDs
UV light	5 blue LEDs
Operating Temperature	0°C to 50°C (32°F to 122°F)
Operating Humidity	10 to 90% RH non condensing @ 30°C (86°F)
Storage Temperature	-10 to 60°C (14 to 140°F)
Operating Altitude	2000m (7000 ft.) above sea level
Storage Altitude	12,000m (40,000 ft.) above sea level
Drop Proof	1.2m (4 ft.)
Power Supply	2 x1.5V AA IEC LR06 batteries
Automatic Power Off	Adjustable 1 to 60 seconds
Weight	318g (11.2 oz.)
Dimensions	7.3 x 4.3 x 2.2" (186 x 110 x 57mm)
Vibration and Shock	IEC 60068-2-6 2,5g, 10Hz to 200Hz IEC 60068-2-27 50g, 11ms
EMC	EN61326-1:2006 EN61326-2:2006
Compliance	EN/IEC 61010-1

Warranty

Triplett / Jewell Instruments extends the following warranty to the original purchaser of these goods for use. Triplett warrants to the original purchaser for use that the products sold by it will be free from defects in workmanship and material for a period of (1) one year from the date of purchase. This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way or purchased from unauthorized distributors so as, in our sole judgment, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence, accident or which have had the serial numbers altered, defaced, or removed. Accessories, including batteries are not covered by this warranty

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