



ThermaCheck™ LT

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1. What's in the Box



2. Product Description

ThermaCheck LT (TC160-LT) is a portable battery powered infrared camera designed for screening individuals for elevated body temperature (EBT). It may be used as a handheld device or mounted on a tripod for hands free operation. TC160-LT has a self-contained LCD monitor to display real-time thermal images while temperature measurements are automatically taken from an individual in the scene. An alert sounds if the temperature of the individual is above a user defined threshold. The remote temperature sensing operation provided by TC160-LT allows social distancing to be maintained while responsible public EBT screening is conducted.



WARNING: TC160-LT may be damaged if improperly used. Please read the Operational Care section of this manual to insure a long life for this precision instrument.

3. Camera Interface

Figure 1 labels key parts of the TC160-LT user interface.

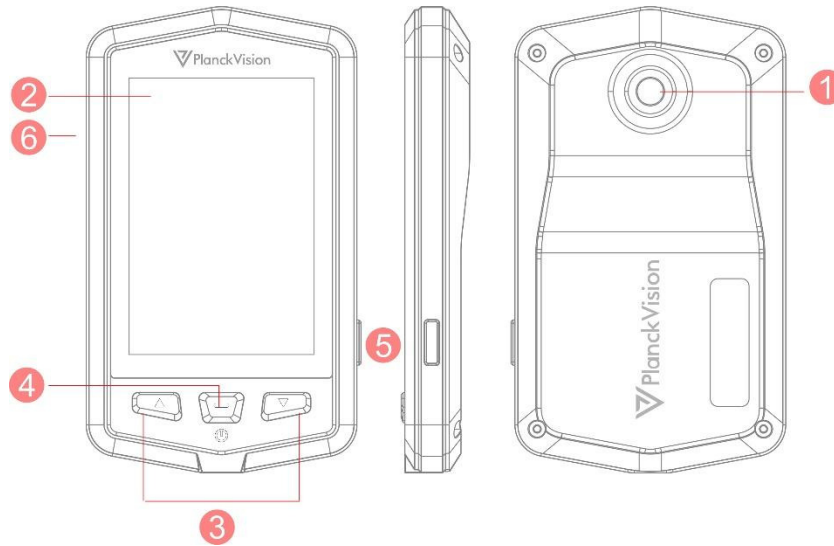


Figure 1 : Key parts of the TC160-LT user interface

- 1) Thermal camera
- 2) LCD display
- 3) Up/Down buttons for menu navigation
- 4) Power/Select button for Power (when held) and menu selection
- 5) Snapshot button for camera
- 6) USB Type-C power input

4. Quick Start

1. Power On/Off

Press and hold Power/Select button Figure 1-(4) to turn on/off the camera.

Notes:

1. It is recommended to wait 1 minute after turning on the camera before screening starts to obtain the most accurate measurements.
2. Camera may be hard reset by simultaneously holding down the Power/Select button Figure 1-(4) and Snapshot button Figure 1-(5) for 20 sec.

2. Elevated Body Temperature screening

Direct camera's field of view toward screening subject, aligning the on-screen box with the subject's face as shown in Figure 2.

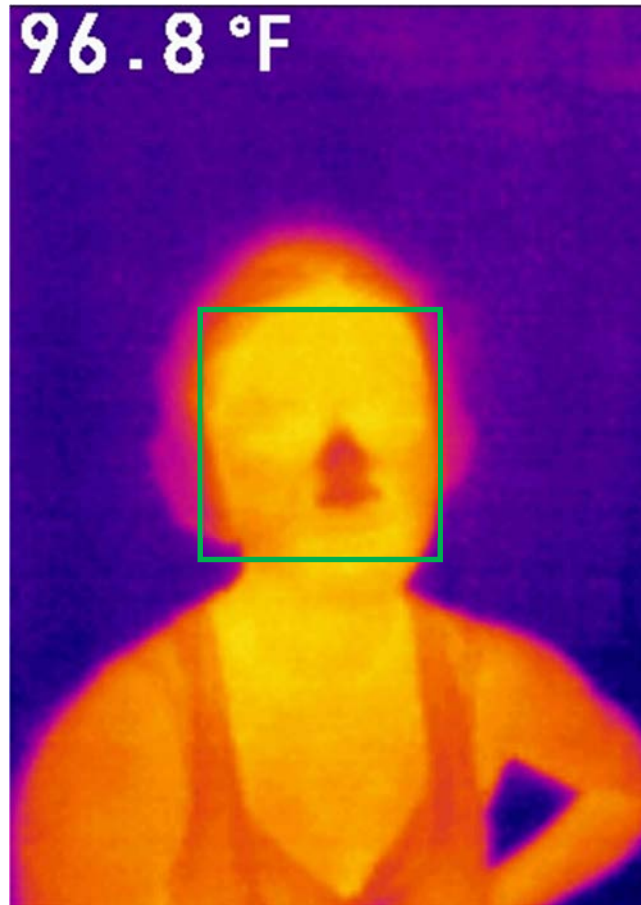


Figure 2 : TC160-LT temperature display

Notes:

1. Subject's temperature will automatically appear in top left corner of the display. If the subject's temperature is above the user defined threshold, an audible alarm will sound and the temperature display will turn red.
2. An incorrect head box scaling will reduce the accuracy of the temperature reading. See Section 5 to adjust head box size.
3. The threshold temperature to trigger an alarm is defined by user in settings, see **Setting menu** Section 8, item (5)
4. The preferred environmental temperature should fall in the range of: 64 - 79°F (18 - 26°C)
5. If the background has a strong heat signature source, consider facing the camera in another direction during screening
6. Temperature measurements of subjects entering the screening area from the outside could be affected if there is a significant temperature difference between these two environments.

5. Head Box Size

Use the front panel Up/Down arrow buttons Figure 1-(3) to scale the head box to the subject's face size.

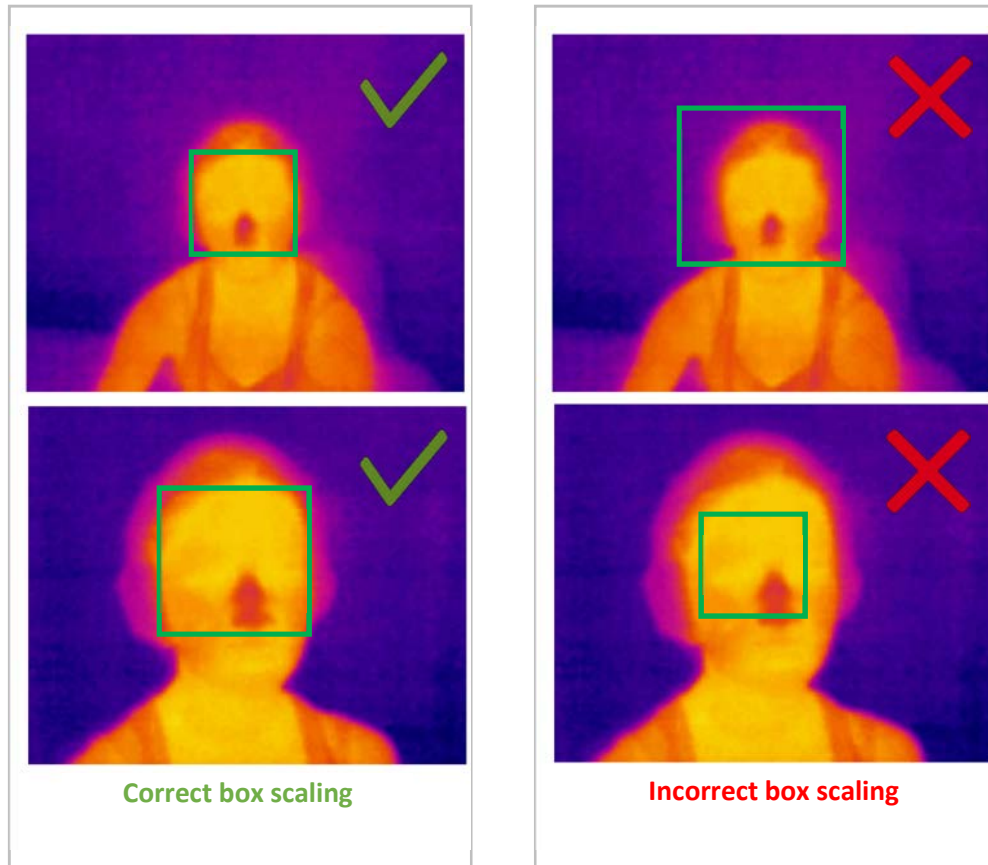


Figure 3 : Illustration of head box scaling, correct (left column) and incorrect (right column)




6. Snapshot

To take a picture, press the Snapshot button Figure 1-(5)

Notes:








1. TC160-LT can store up to 800 images.
2. To delete pictures individually, see **Setting menu** Section 8, item (1).
3. Images may be exported to a computer via the Type-C USB connector on the camera. The camera must be turned off for image transfer.

7. Display Icons

1.  **Battery** – Shows the state of charge while the camera is running on battery power.  is displayed while connected to an external power source.
2.  **Distance** – Shows distance setting between camera and subject (Adjust by the head box setting discussed in Section 5).


8. Settings Menu

The Settings Menu is opened by pressing the Power/Select button, and may be navigated using the Up/Down arrow buttons and using the Power/Select button to select a menu item. The Settings Menu will close after 3 sec if no selection is made. The Settings Menu items are described as follows:

1.  **Picture cache** – Use the Up/Down arrow buttons to navigate through the stored pictures. Use the Snapshot button to select a single picture to delete; To select all pictures for deletion, press and hold the Snapshot button. Press Up arrow button to confirm deletion or Down arrow button to cancel. Press Power/Select button to exit picture cache.
2.  **Palette settings** –Power/Select button toggles through four palette choices: iron red, gray, rainbow, and flame (red on gray).
3.  **Layout display** –Power/Select button toggles through two layout choices: portrait and landscape.
4.  **Units selection** - Change the temperature units (along with distance units) between either F/ft or C/cm.
5.  **Alarm threshold** – Use Up/Down arrow buttons to change the threshold temperature. Use Power/Select button to assign the desired alarm threshold.
6.  **Temperature compensation** – Used to calibrate the camera (see Section 9, Camera Calibration)
7.  **Device Information** – Firmware and manufacturing information

9. Camera Calibration

The camera temperature reading can be calibrated against a human subject using the following steps.

1. Have the subject stand at desired distance from the camera for your screening conditions.
2. Using the front panel Up/Down arrows to scale the display box to the same width as the subject's head (See Section 5).
3. Determine the subject's body temperature using a standard forehead or ear thermometer.
4. Enter the Settings Menu by pressing the Power/Select button and navigate to and selecting the  **Temperature compensation** menu item.
5. Use the front panel Up/Down arrows to adjust the camera's temperature reading to match the calibration subject's temperature.

10. Operational Care

TC160-LT is a precision instrument that may be damaged if used improperly. Please make sure that all use of the camera strictly adheres to the following guidelines.

1. Do not point the camera toward strong sources of radiation, such as the sun or laser light. Viewing strong sources of radiation with the TC160-LT will damage the sensor and degrade the camera's performance.
2. Avoid prolonged viewing of high temperature objects that exceed TC160-LT's recommended temperature range.
3. Do not use the camera in an environment where the temperature exceeds 45 °C.
4. Do not touch the lens. Damaging the lens will affect the camera's performance.
5. Please do not try to disassemble the camera. If your camera needs service, please contact

11. Data Sheet

Temperature Measurement & Alarm	Measurement Range	93-108°F (34-42°C)
	Measurement Accuracy	≤±0.9°F (≤±0.5°C)
	Measurement Distance	2–6 ft (0.6-1.8 m)
	Target Mode	Single Person
	Temperature Alert	User defined alarm threshold value
Thermal Camera	Sensor Technology	Uncooled Microbolometer
	Resolution	160 x 120
	NETD	<50 mK (0.050 °C)
	FOV	57°x 44°
	Color Palettes	Iron red, Gray, Rainbow, and Flame (red on gray)
General	Display	3.5" TFT Display (480 x 320)
	Battery	1500 mAH Lithium polymer battery
	Ambient Temperature	64 – 79 °F (18 - 26 °C)
	Operating Humidity	EC 60068-2-30/24h 85% RH
	IP Rating	IP54
	Dimension	4.9 x 2.8 x 0.63in (125 x 72 x 16mm)
	Weight	6.5 oz (180 g)

12. Can ThermaCheck LT be used to diagnose illness?

No. The TC160-LT camera is designed for preliminary temperature screening only. Although the available scientific literature supports the use of infrared cameras for this purpose [1], they cannot be used for medical diagnostics since the skin temperature is influenced by environmental conditions. Individuals with abnormal skin temperature readings should be further evaluated with a medical grade thermometer.

Planck Vision Systems is not advertising our cameras as medical equipment. Our products can only identify individuals with elevated skin temperature. There is no way to thermally detect an infected individual who does not have an elevated body or skin temperature and only a licensed medical professional can determine if such an individual is experiencing an abnormal medical condition.

[1] Ring, Francis J., and E. Y. K. Ng. "Infrared thermal imaging standards for human fever detection." *Medical Infrared Imaging: Principles and Practices*. CRC press, 2007.