



ThermaCheck™

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1. What's in the Box

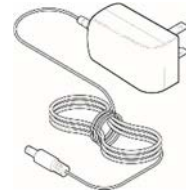
TC160 Models



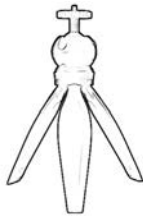
ThermaCheck Camera



Thread Mount
Extension



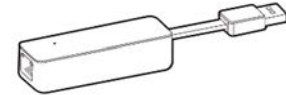
Power Adapter



Desktop Tripod



Ethernet Cable



USB-to-Ethernet Adapter

TC320 Models



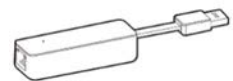
ThermaCheck Pro Camera



Power Adapter



Ethernet Cable



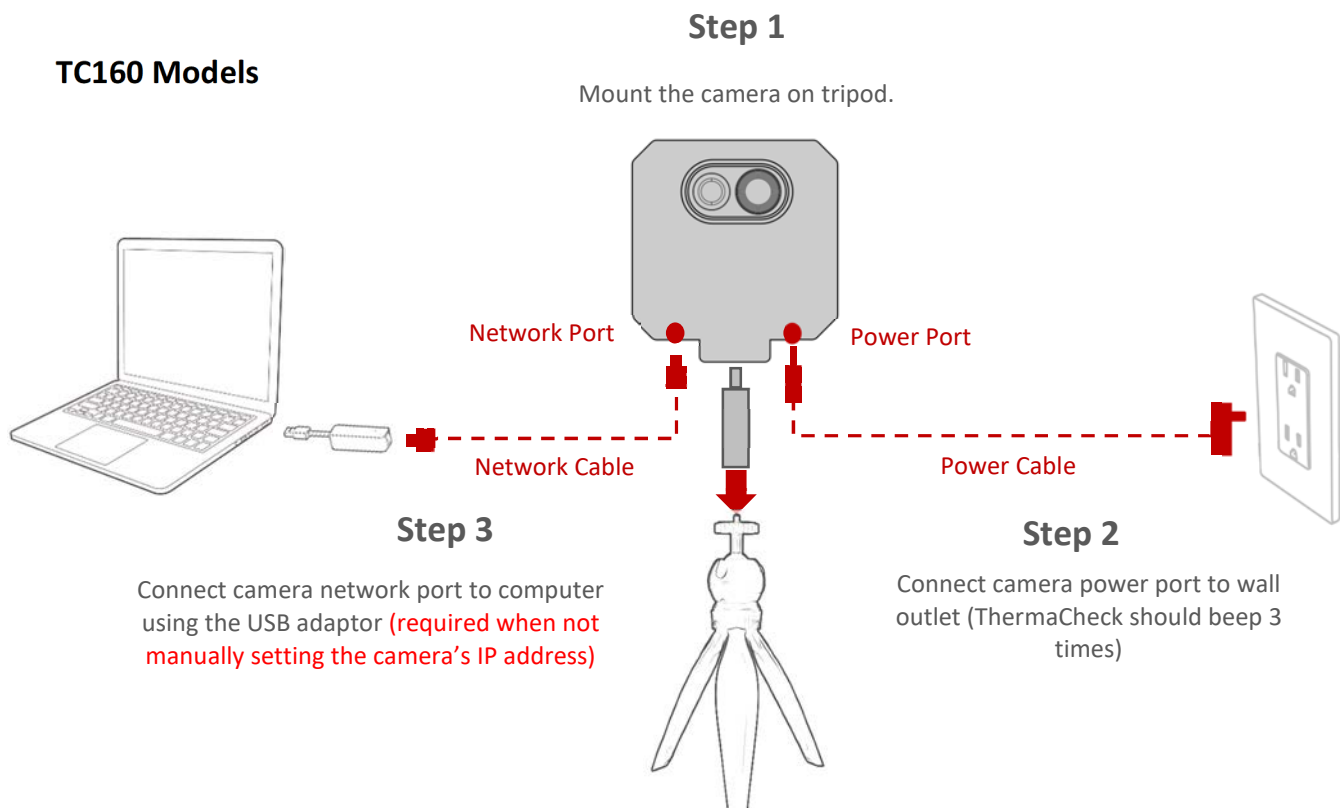
USB-to-Ethernet
Adapter

Note:

- Please find our Welcome Card that provides a Quick Response code (QR) directing you to the Quick Start Guide. You may also follow this User Guide's setup procedure.

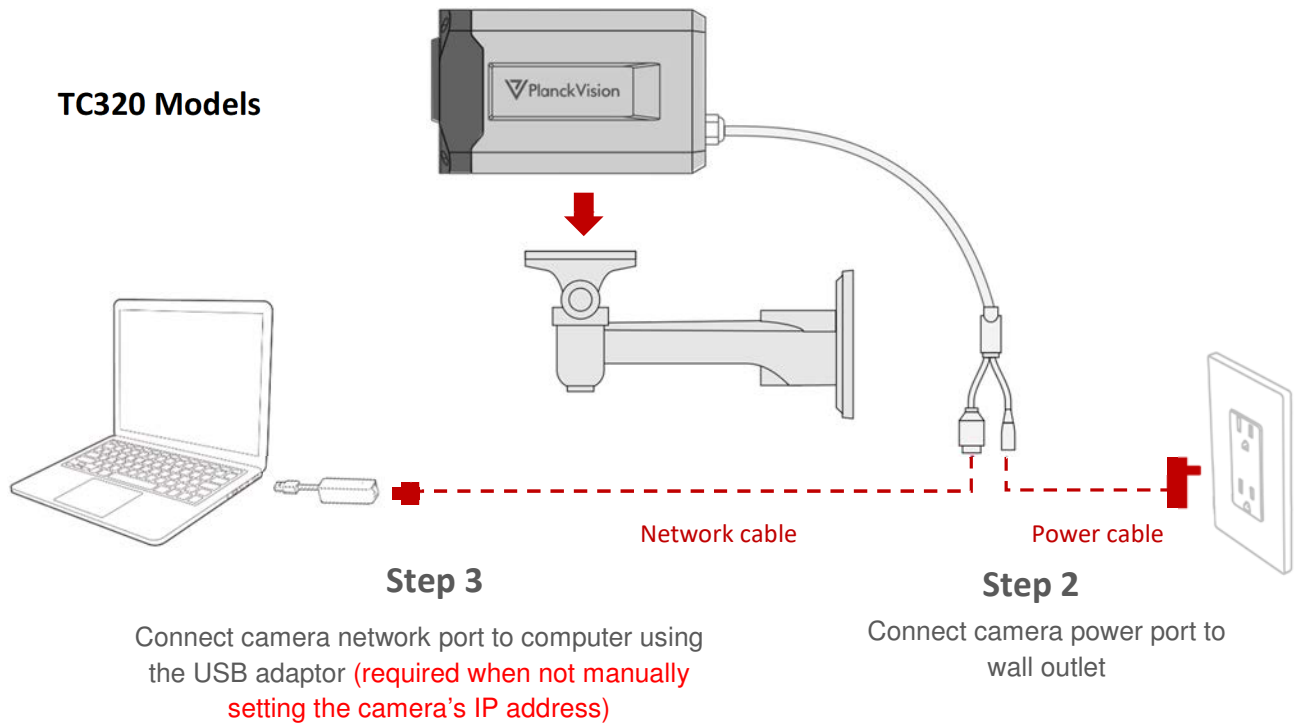


2. Initial Setup Guide (Single Camera)



Step 1

Connect camera to user supplied fixture



Notes:

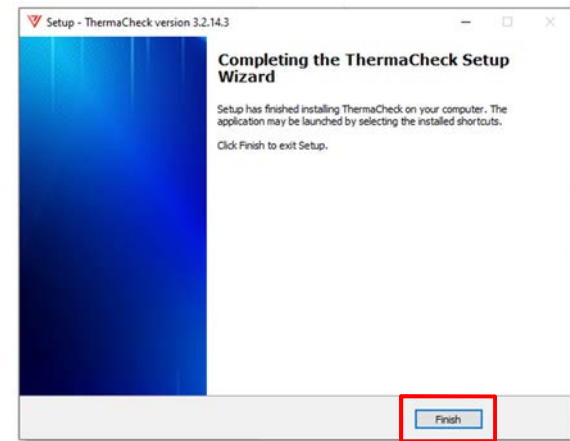
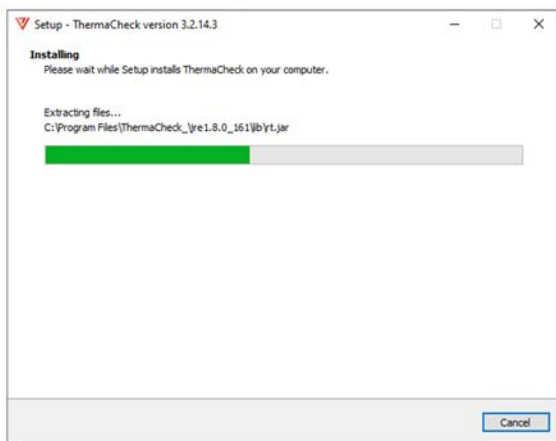
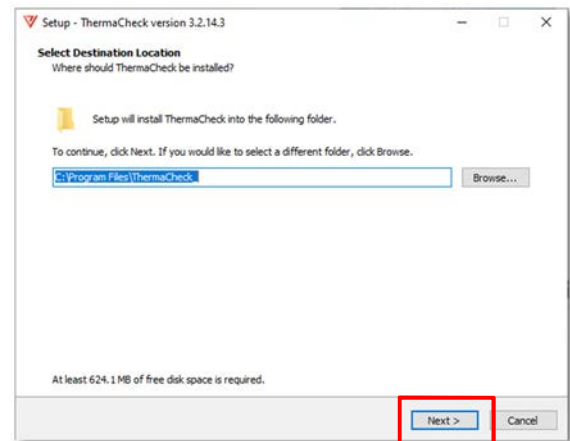
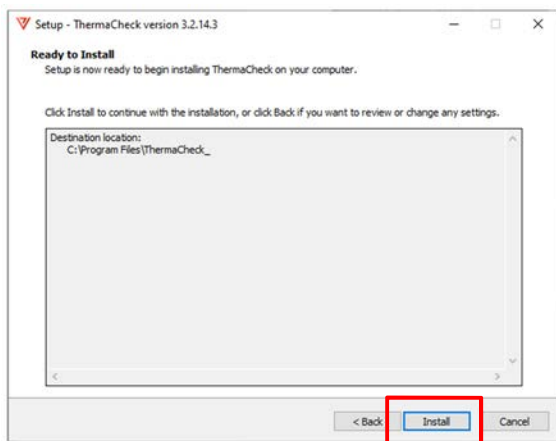
- Follow the three steps indicated for the initial setup of the ThermaCheck camera.
- The USB-to-ethernet adapter is required for simple single camera installations.
- Further considerations for the final installation are discussed in Sections 6 through 8 of this User Guide.
- **TC160 models:** Be sure to use the adapter between the camera and tripod mount to ensure cable clearance.
- Computer should have RAM: 4G or above; CPU: i5 and higher; OS Version: win7 and higher
- See the **TC160/320 Networking Guide** if more than one camera is to be connected to a single computer.

3. Software Installation Steps



1. In your browser go to: <http://www.calcert.com>
2. Download the latest build of the Windows 10 ThermaCheck software.
For older computers the Windows 7 program is recommended.
**Note: Upon download choose "Open with Windows Explorer".*
3. Unzip and run the ThermaCheck Installer program.

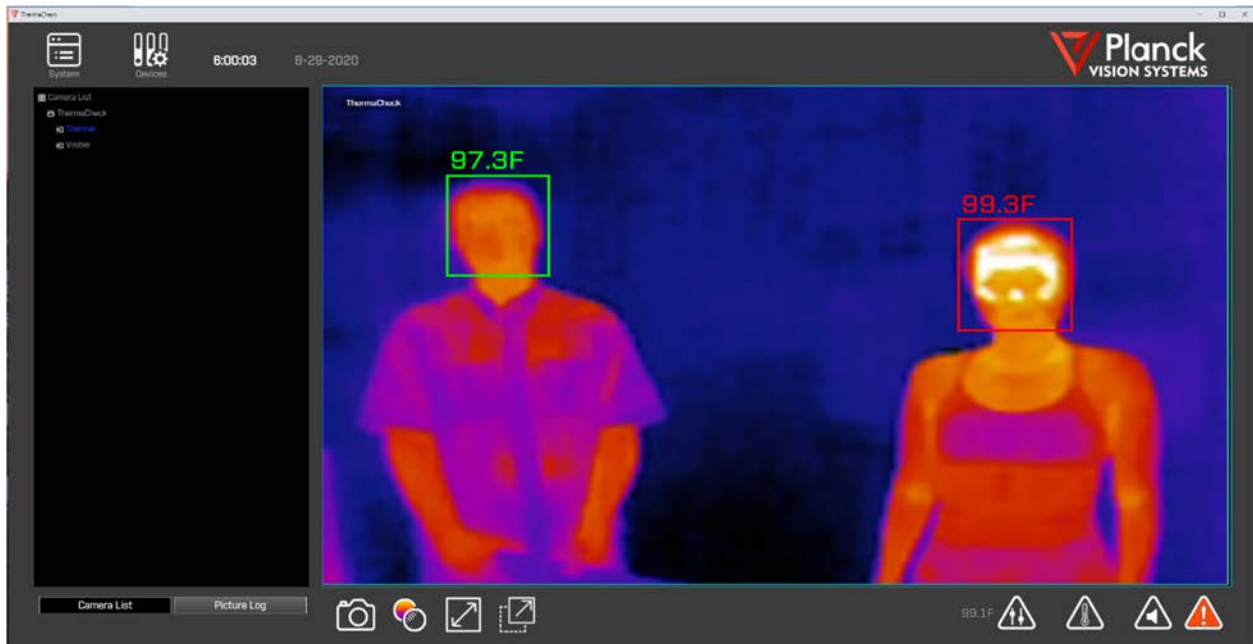
Please give Windows permission to run the ThermaCheck installation program when asked.



4. Start ThermaCheck software from the desktop icon or start menu.
5. On first run, there may be a delay in acquiring the video streams from the camera. If a video stream fails to appear please consult the Trouble Shooting section of this manual.

4. Basic Operation and User Interface

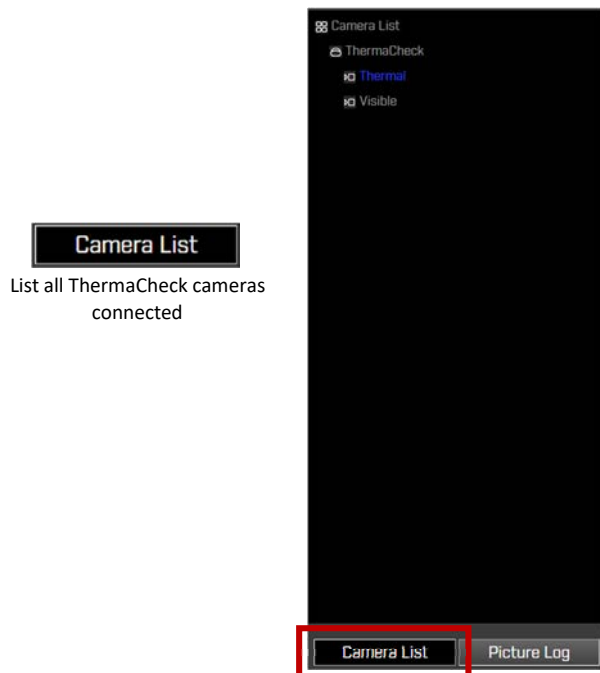
Main Display



Notes:

- Screening subjects should be 3.5-6.5ft (1-2m) from the camera for TC160 or 6.5-20ft (2-6m) from the camera for TC320.
- Faces recognized by AI software are identified with a bounding box.
- Subject's temperature is displayed above the bounding box.
- Bounding box and temperature are green if temperature is below defined threshold value.
- Bounding box and temperature are red if temperature is above defined threshold value.

Side-Bar Display



Notes:

- Picture Log view for the left side-bar is selected with the button below the display.
- All pictures captured in the current day are displayed in this window.
- Pictures are captured by either the high temperature alarm or by a user requested snapshot.
- Pictures in this window can be opened by double clicking the left mouse button over the image.
- The Picture Gallery folder can be opened by double clicking the left mouse button over the Picture Gallery banner.

Notes:

- The left side-bar Camera List view is selected with the button below the display.
- By default, a single ThermaCheck device is shown with associated thermal and visible cameras.
- If more than one ThermaCheck device is connected, all cameras will be shown in the left side-bar Camera List display.
- Left-clicking the "Visible" or "Thermal" identifier in the Camera list selects the corresponding video stream for display.



Picture Log

Shows all pictures taken in the current day

5. User Interface Basic Functions



Camera

Captures picture from current video stream; Viewable inside display Picture Log Window.



Toggle

Alternates video stream between thermal and visible in main display.



Expanded Video

Enters display into full screen mode; Exit full screen mode by either using the mouse to double left-click on the display or by pressing <Esc> on keyboard.



Child Window

Spawns a scalable video stream window that can be dragged into an extended public display or discreetly put in the current display while minimizing the main user interface.



Alarm Indicator

Turns red when a temperature reading occurs above the threshold setpoint value.



Mute Alarm

Toggles alarm between mute and audible. This does not disable the alarm. However, if alarm is muted, care must be taken to visually monitor temperature screening.



Set Threshold

Opens dialog box for user defined threshold temperature and temperature units. The threshold setpoint defines temperatures above which the alarm will activate. The current threshold temperature setting is displayed next to the Set Threshold icon.



Calibration

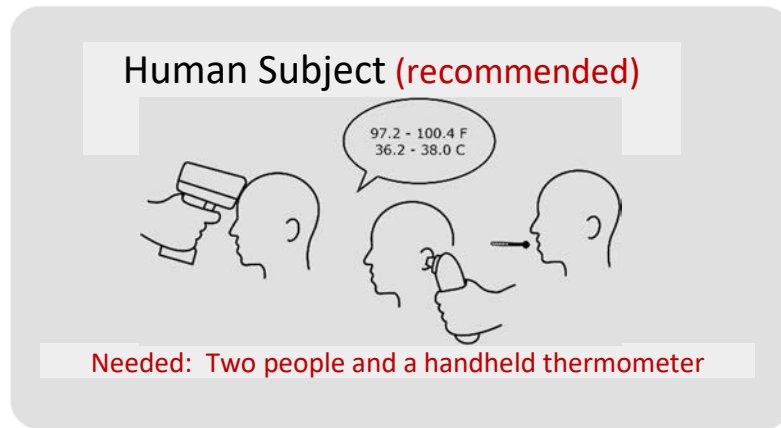
Starts an interactive calibration procedure; Procedure supports calibration on human subjects and the use of a blackbody.

Notes:

- Basic functions are initiated with a left button mouse click on the associated icon shown above.

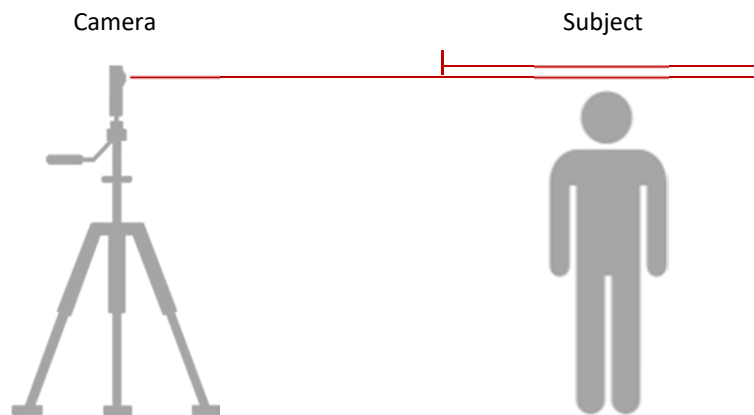
6. ThermaCheck Calibration

With Human Subject



- 1) **ThermaCheck should be on for at least 50 minutes before calibration is performed.**
- 2) **Calibration subject should stand at the same distance from the camera as the screening subjects.**

TC160	3.5ft (1m)	to	6.5ft (2m)
TC320	6.5ft (2m)	to	20ft (6m)



- 3) **Start interactive calibration procedure with icon function found below main display:**

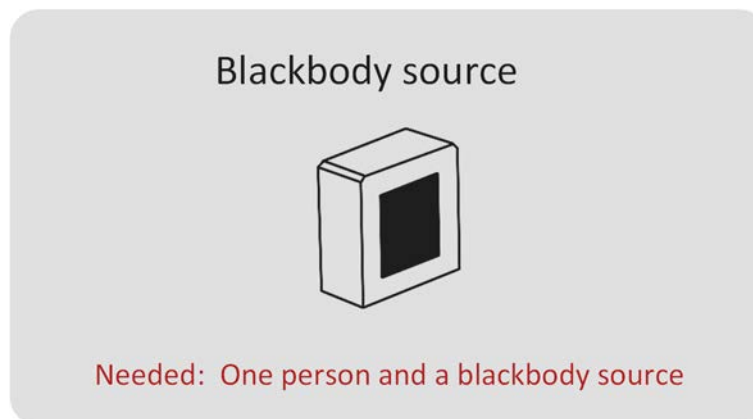


Notes:

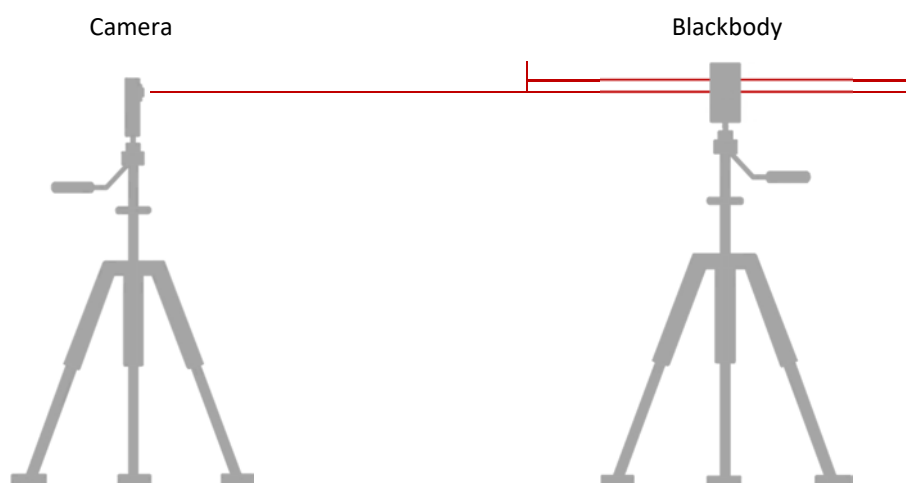
- Temperature units of °F or °C may be changed during calibration or in the alarm threshold setting.
- Calibration subject will be asked to measure his/her own temperature using a handheld thermometer (FDA approved device is preferred); the software operator will enter this value when prompted.
- Calibration subject must hold still for approximately one minute while calibration is performed; user is notified when calibration is complete

- The calibration procedure may terminate unsuccessfully if the camera has not been turned on for a sufficient length of time (>50 min), or if there is a strong extraneous heat signature in the background.

With Blackbody



TC160	3.5ft (1m)	to	6.5ft (2m)
TC320	6.5ft (2m)	to	20ft (6m)



- 1) The blackbody should be placed at the same distance from the camera as the screening subjects.
- 2) Set blackbody temperature to 95–97 °F (35–36 °C) and allow the setpoint temperature to be reached.
- 3) Start interactive calibration procedure with icon function found below main display:

Notes:



- Temperature units of °F or °C may be changed during calibration or in the alarm threshold setting.
- Calibration requires the user to locate the blackbody in the field of view of the ThermoCheck camera when prompted.
- The user must enter the blackbody setpoint temperature when prompted.

- If the position of the ThermaCheck camera or blackbody is disturbed, the calibration procedure must be repeated.

7. Temperature Screening Location

For the best environmental stability
pick a climate-controlled space

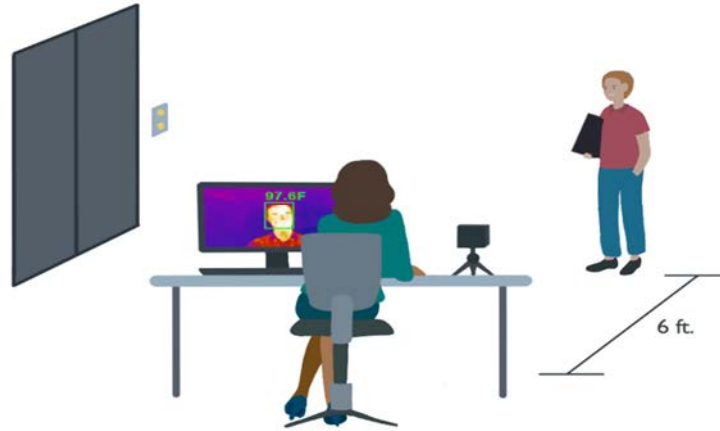


Avoid locations near vents, exterior doors, and
strong backlighting

Notes:

- Preferred environmental temperature: 60 - 90°F (16 - 32°C), and less than 85% relative humidity.
- 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.
- The best screening location will have a mostly dark indigo color in the background of the thermal image. If the background has a strong heat signature source, consider facing the ThermaCheck camera in another direction.
- When the environmental temperature in which the ThermaCheck camera is operating changes by more than $\pm 10^\circ\text{F}$ ($\pm 6^\circ\text{C}$), the camera should be recalibrated for the new conditions. If the user needs to operate the ThermaCheck camera without a stable environmental temperature, it is recommended to use a blackbody in the scene of the camera to provide dynamic calibration.

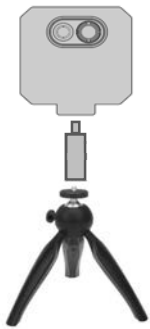
8. Typical Setup



Notes:

- The ThermoCheck camera has great flexibility of installation options.

9. Mounting Options



Desktop Tripod
(included)



Standard Floor Tripod



Wall Mount Bracket



Countertop Bracket



Standard Floor Tripod



Wall Mount Bracket

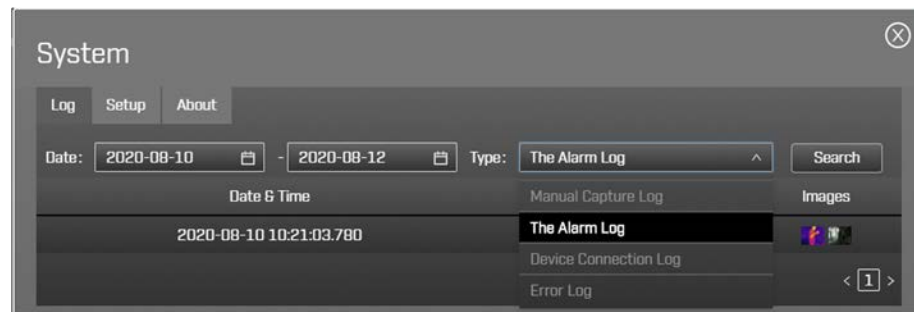
10. User Interface Advance Menus



System

Open windows used to view all activity logs, system setup parameters, and software version number.

System Log keeps a record of camera events: 1) Manual Capture (user created pictures), 2) Alarm events (automatic pictures taken when the system detects body temperatures above the user defined threshold), 3) Device (camera) connections, and 4) Errors. The latter two log types are used to monitor the state of the screening system.



Notes:

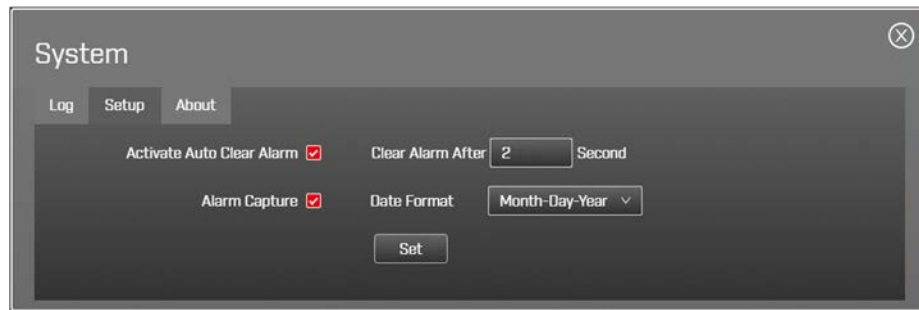
- Picture log records are sorted by date and time stamp, for example the date and time stamp 2020-08-16 14:38:29.182 corresponds to:
year 2020 – month 08 – day 16 hour 14 : min 38 : sec 29 . XXX
- Pictures may be viewed by left-clicking on the thumbnail
- Log records are filtered by date by selecting the start and end dates of the search, the log type, and then pressing the search button.

System Setup settings:

Active Auto Clear Alarm: Automatically clears the alarm after a specified length of time. Note: Alarm will restart when body temperatures in the field of view of the camera remain above the threshold value.

Alarm Capture: Enables/disables picture capture during alarm events.

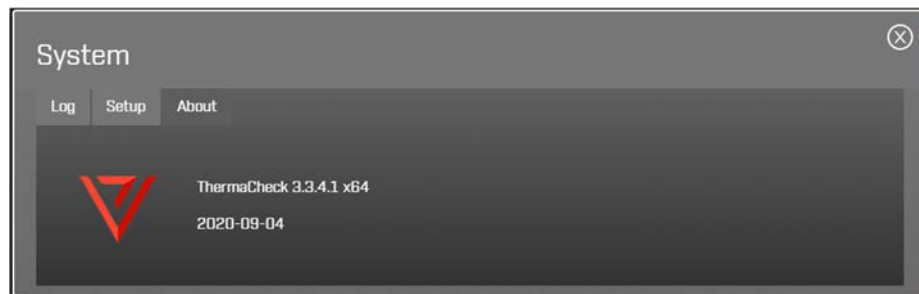
Date Format: Specifies the format of the month, date and year in the user interface window.



Note: To save changes, press the set button before closing the window.

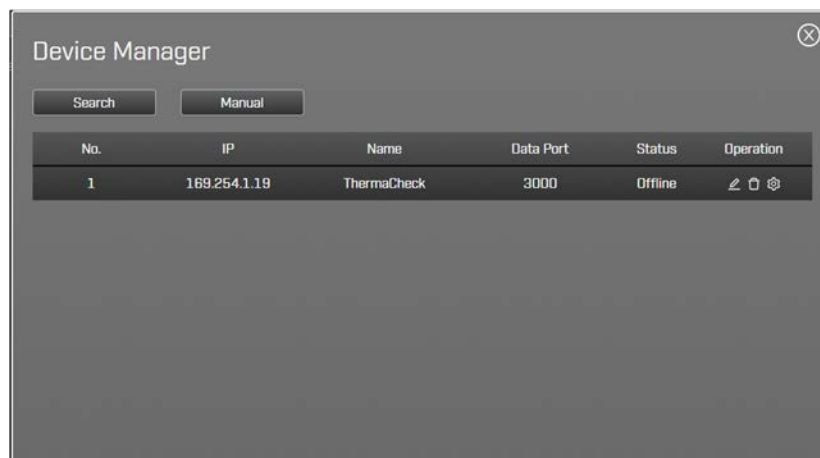
About:

Software version number.



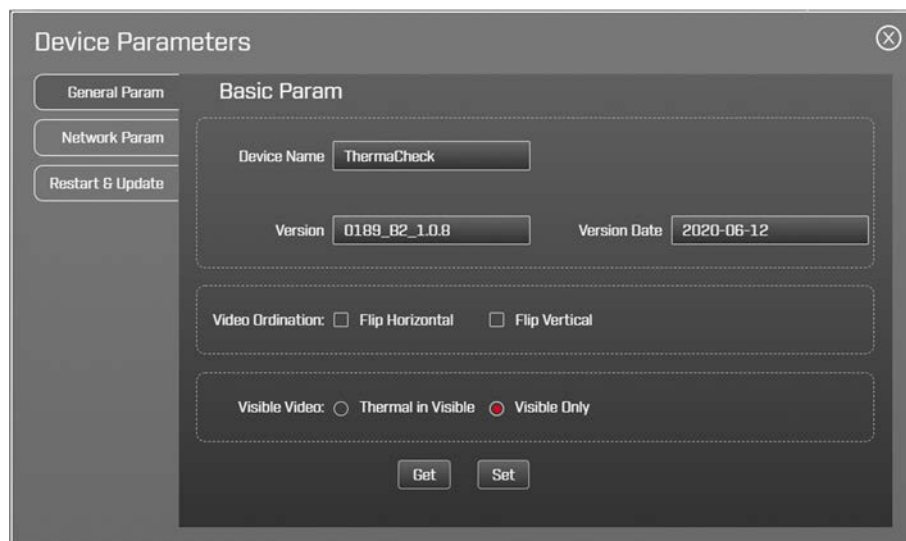
Devices

Management of ThermaCheck camera(s) IP addresses and video picture options.



Notes:

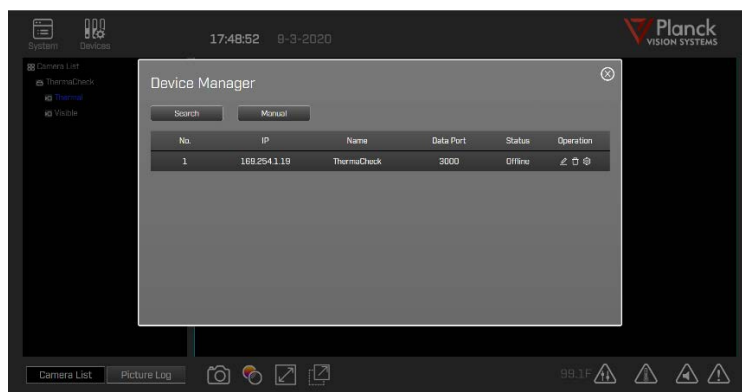
- Camera names can be modified in the Device Manager interface. Select the pencil icon , to modify the text of the camera name, and save the name by selecting the disk icon .
- For management of more than one ThermaCheck camera, please see the **TC160/320 Networking Guide**.
- Video picture options for the camera may be set by pressing the setting icon .




11. Trouble shooting

If the ThermaCheck software does not acquired the camera video stream, please consult the following possible reasons:

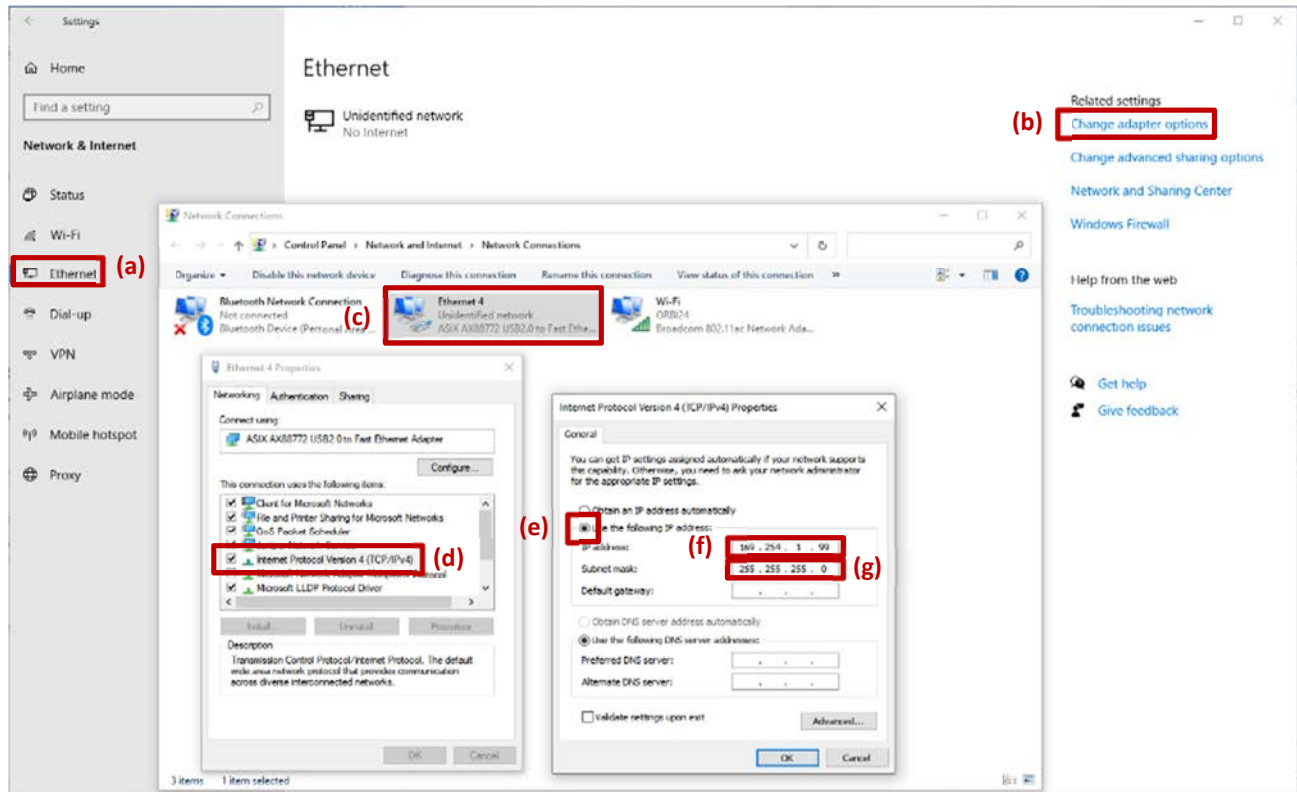
- **Is the USB-to-Ethernet Adapter installed?** If no, connect the USB-to-Ethernet adapter to the computer and the ethernet cable between the adapter and camera.
- **Is the camera “offline”?** The status of the camera can be checked by selecting the Devices icon on the main user interface of the ThermaCheck software.



If camera is offline, then the installation software may have failed to establish the correct Ethernet IP address in the computer settings. This may be set manually with the following steps:

1. Open the computer's "Settings" , choose "Network & Internet" and then select "Ethernet" (a). Choose "Change adapter options" (b) under related settings.
2. Right-click on the Ethernet (c) and select "Properties". *Note: If you are not using the USB-to-ethernet adapter, right-click on the Local Area Connection (instead of Ethernet) and select "Properties".* Double left-click on "Internet Protocol Version (TCP/IPv4)" (d).

3. In the pop-up window, select "Use the following IP address" (e) and set the IP address to 169.254.1.99 (Figure1-f) and set the Subnet mask to: 255.255.255.0 (g).
4. To save the computer IP address settings close out all the network pop-up windows by clicking [OK].



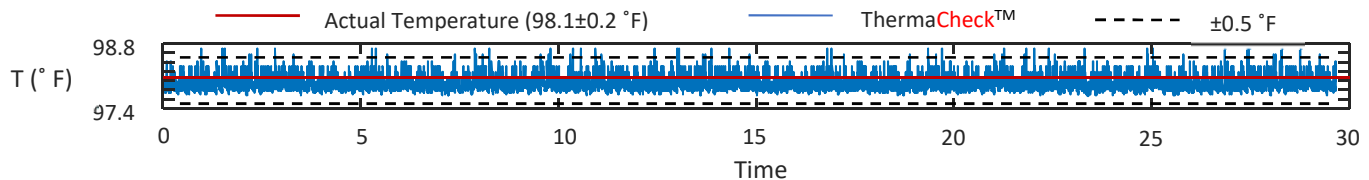
- If the camera is connected normally, the computer ethernet IP settings are correct, but the ThermaCheck software still shows the camera as offline, use the following steps to bring the camera online.
 1. Restart the ThermaCheck software and check for the online status of the camera.
 2. Restart the computer, restart the ThermaCheck software after 30 seconds and check for the online status of the camera.
 3. Reinstall the ThermaCheck software, restart the ThermaCheck program and check for the online status of the camera.
- If you run into any technical difficulties that you are unable to resolve, please contact our technical support team at: help@planckvisionsystems.com. We are happy to help you

12. Why doesn't ThermaCheck need a blackbody?

A blackbody is a stable temperature source used in the factory calibration of thermal cameras to make their temperature measurements as accurate as possible. Some infrared cameras used for human temperature screening require a blackbody source in the background scene to ensure their measurement accuracy. This

increases both the cost and complexity of the entire body temperature measurement solution with minimal added benefit to the user

ThermaCheck, on the other hand, uses a US manufactured infrared sensor core and advanced factory calibration procedures that optimize it for the measurement of human body temperatures. It automatically performs periodic compensation routines that give ThermaCheck superior temperature stability and measurement accuracy. We recommend that our cameras be calibrated on the human face, using a medical grade thermometer.



Stability of ThermaCheck camera shown over a 30hr period.

Note:

- When the environmental temperature in which the ThermaCheck camera is operating changes by more than $\pm 10^{\circ}\text{F}$ ($\pm 6^{\circ}\text{C}$), the camera should be recalibrated for the new conditions. If the user needs to operate the ThermaCheck camera without a stable environmental temperature, it is recommended to use a blackbody in the scene of the camera to provide dynamic calibration.

13. Can ThermaCheck be used to diagnose illness?

No. The ThermaCheck 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.