ThermaCheck™

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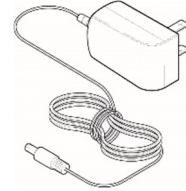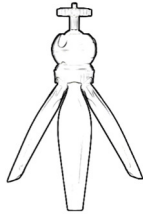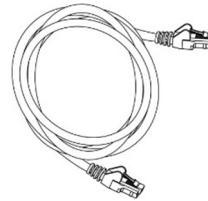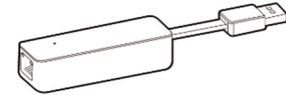

ThermaCheck Camera

Thread Mount Extension

Power Adapter
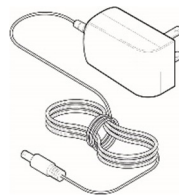
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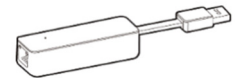
USB-to-Ethernet Adapter

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.*

PlanckVision

GETTING STARTED

ThermaCheck™

Safe, Effective Elevated Body Temperature Screening System

Thank you for your purchase. Please take this time to scan the QR code to register your product, download the quick start guide, product manual, and to start your warranty. We develop our products to deliver reliable, long lasting performance, and we want to make sure you are satisf ed with your purchase. Please get in touch with us at info@planckvisionsystems.com with questions, problems, and comments.

SCAN ME

If you can not scan the QR code with your smart device please visit: www.planckvisionsystems.com/gettingstarted

2. Initial Setup Guide (Single Camera)

Step 1

TC160 Models

Mount the camera on tripod.

Network Port   Power Port

Network Cable   Power Cable

Step 3

Connect camera network port to computer using the USB adaptor (required when not manually setting the camera's IP address)

Step 2

Connect camera power port to wall outlet (ThermaCheck should beep 3 times)
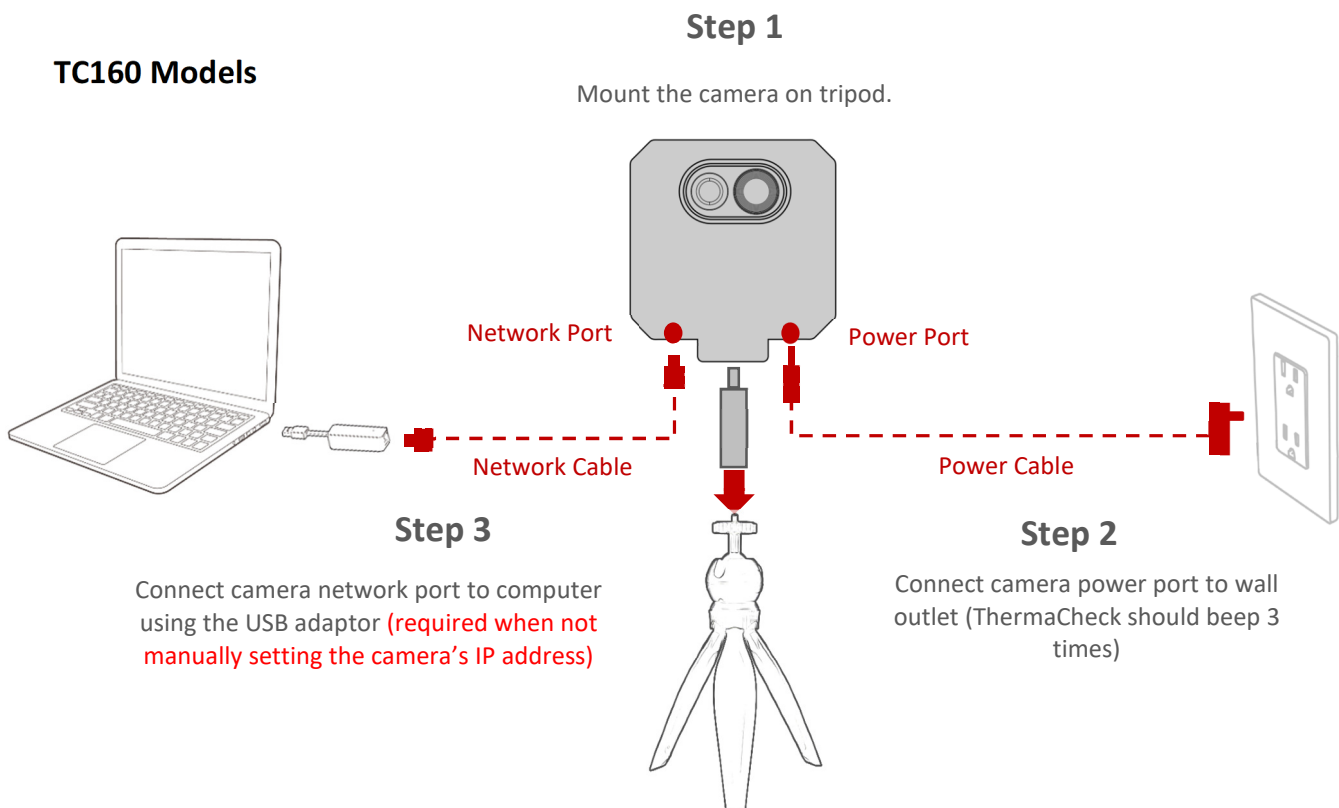
Step 1

Connect camera to user supplied fixture

TC320 Models
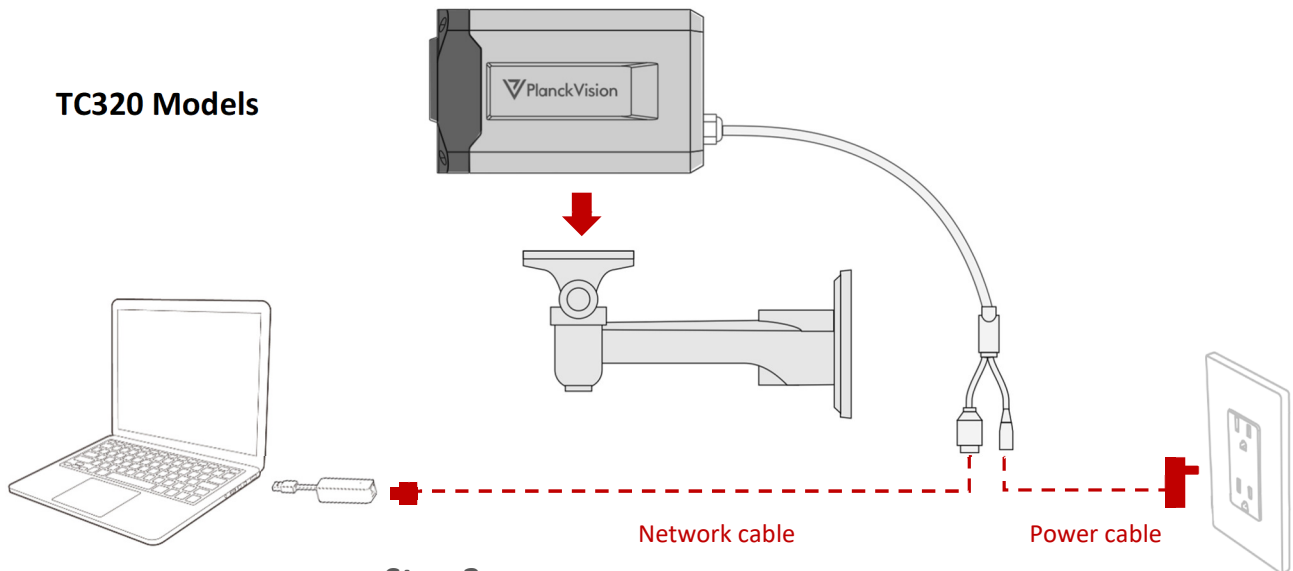
Network cable

Power cable

Step 3

Connect camera network port to computer using the USB adaptor (required when not manually setting the camera's IP address)

Step 2

Connect camera power port to wall outlet

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

 http://www.

1. In your browser go to: https://www.planckvisionsystems.com/downloads/

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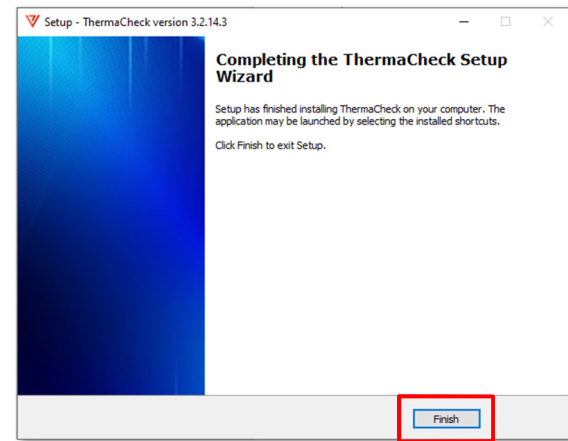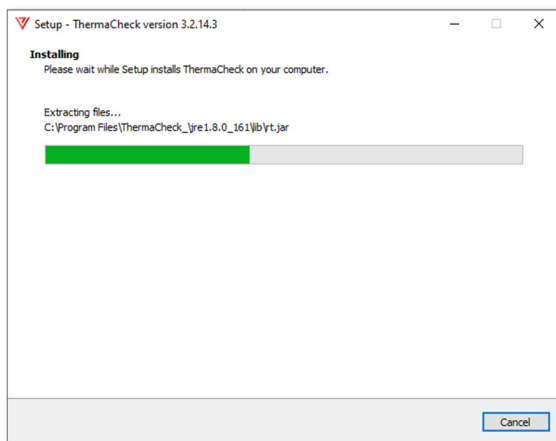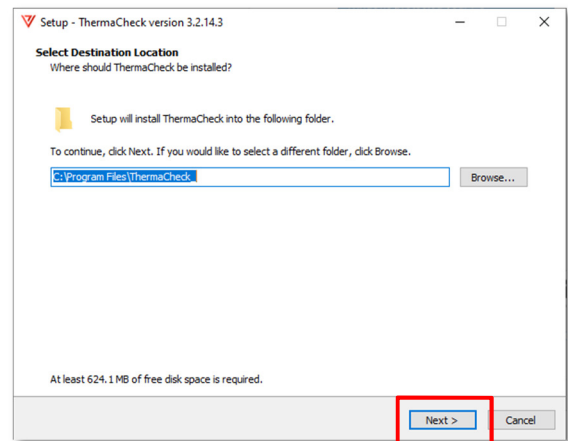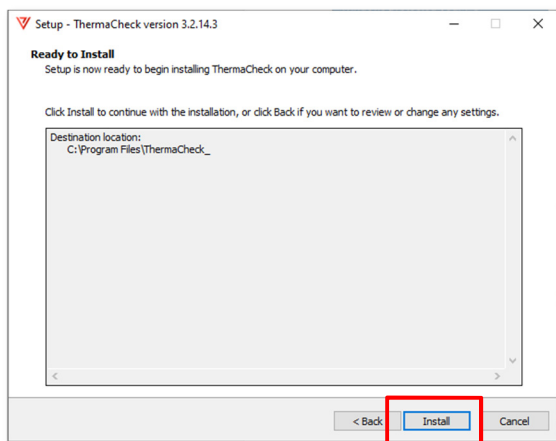
4. Start ThermaCheck software from the desktop icon or start menu.
5. On first run, there may be a delay in acquiring the video streams from the camera. If a video stream fails to appear please consult the Trouble Shooting section of this manual.

4. Basic Operation and User Interface

Main Display
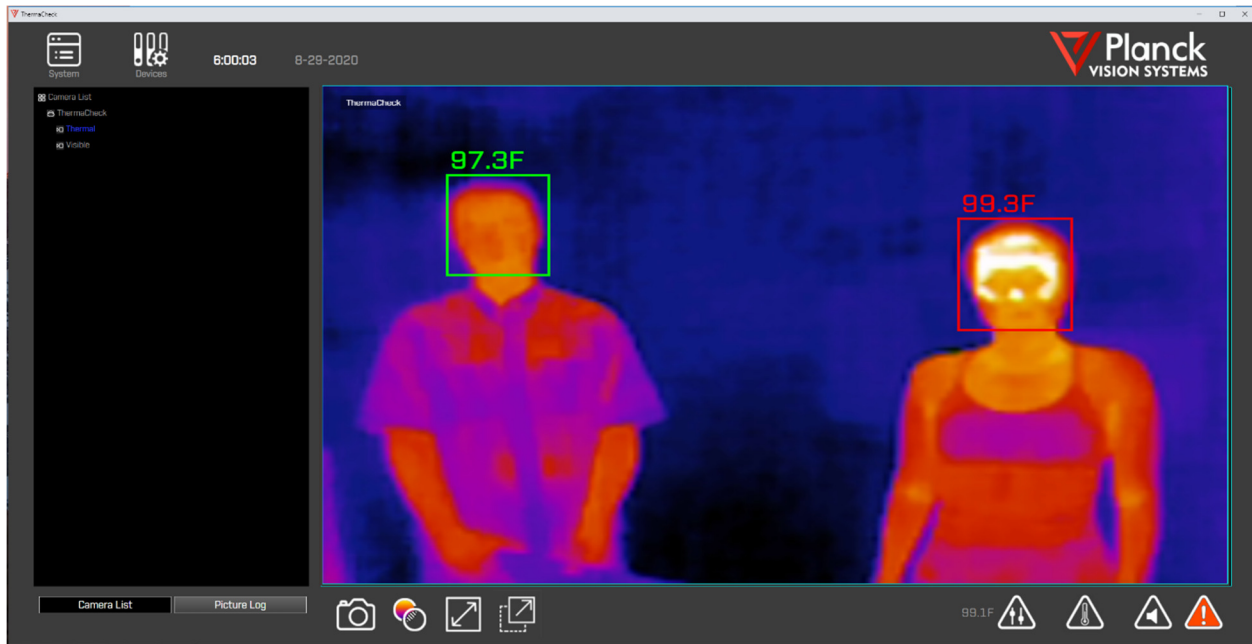
Notes:

- *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

Camera List

List all ThermaCheck cameras connected
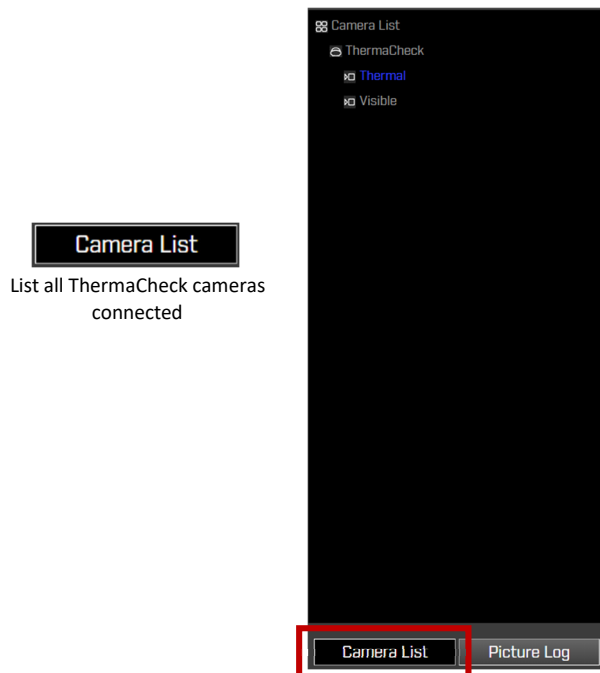
Notes:

- *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 snap-shot.*
- *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.

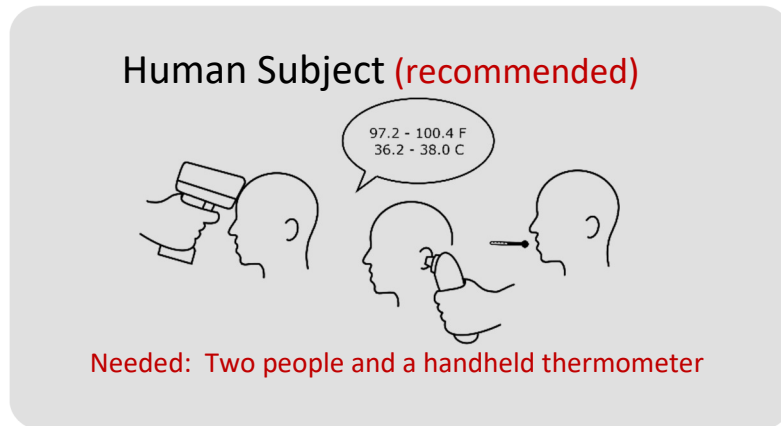**Calibration**
Starts an interactive calibration procedure; Procedure supports calibration on human subjects and the use of a blackbody.

Notes:

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

6. ThermaCheck Calibration

With Human Subject

Human Subject (recommended)

97.2 - 100.4 F
36.2 - 38.0 C

Needed: Two people and a handheld thermometer

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)
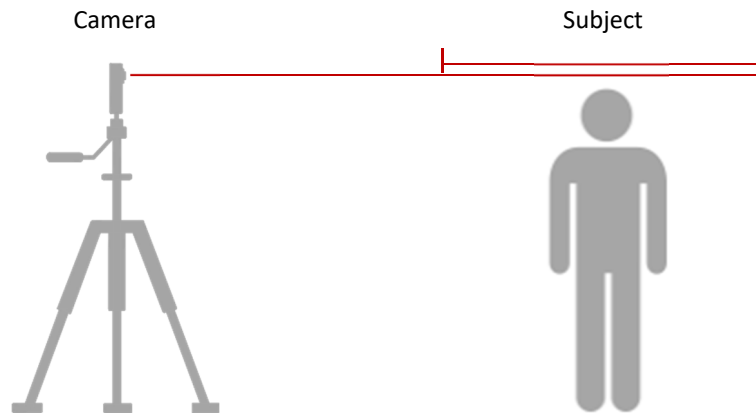
Camera   Subject

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

Blackbody source

Needed: One person and a blackbody source

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

Camera   Blackbody

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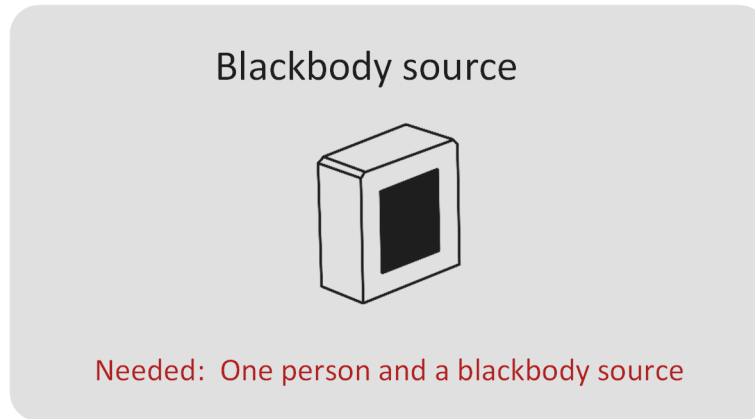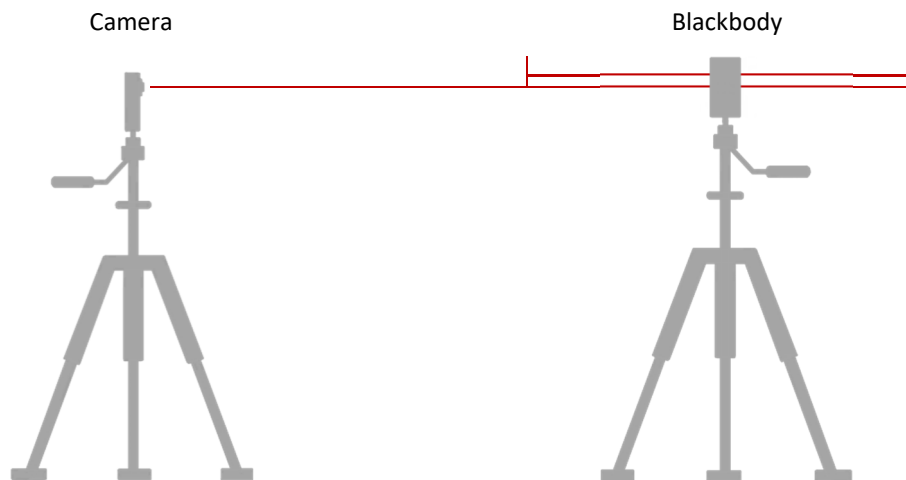3) **Start interactive calibration procedure with icon function found below main display:**

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 ThermaCheck 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 ±10 ˚F (±6 ˚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.*
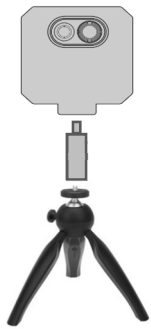
8. Typical Setup
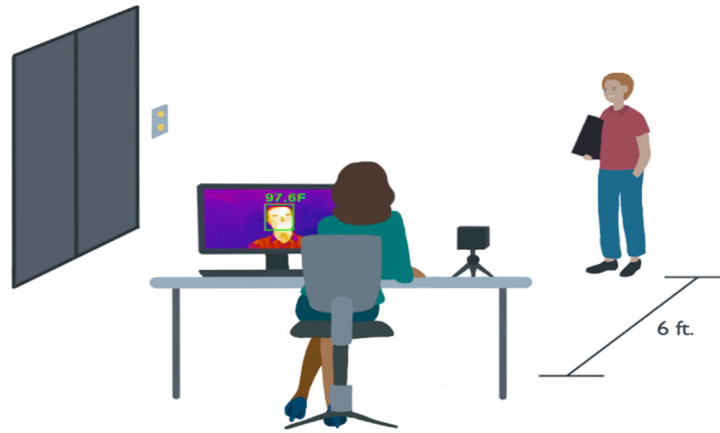
Notes:

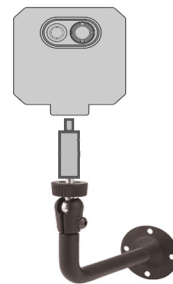- *The ThermaCheck camera has great flexibility of installation options.*

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.
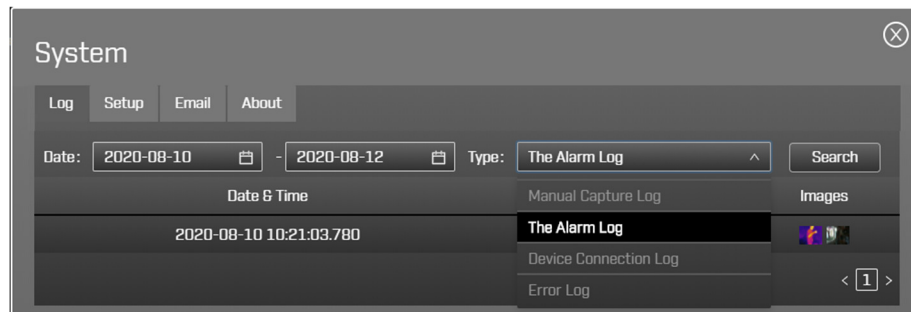

Notes:

- *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:*

    $$year\ 2020\ -\ month\ 08\ -\ day\ 16\quad hour\ 14\ :\ min\ 38\ :\ sec\ 29\ .\ XXX$$

- *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 enables the following 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.
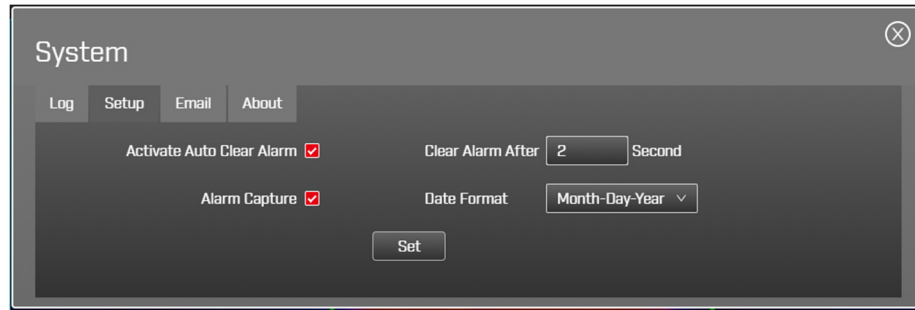
Note: To save changes, press the set button before closing the window.

System: Email allows alarm notification alerts to be sent over email. Alerts contain both visible and thermal still pictures from the alarm capture. Subject line contains user defined text plus the device name of the camera.

> **Alarm Sending Mail:** Tick box used to enable alarm notification alerts over email.
>
> **SMTP Server Address:** Outgoing mail server name. For Gmail, see notes below.
>
> **SMTP Port:** 25 is the default SMTP port. Port 465 is the right choice if you need to connect via SSL.
>
> **User Name:** Email address from which the ThermaCheck alerts will be issued. Note: *For gmail accounts, turn on "Less secure app access" by following the link: https://myaccount.google.com/lesssecureapps.*
>
> **Password:** Password corresponding to the User Name provided for issuing email alerts.
>
> **Subject of the Mail:** Text to appear on the email subject line of alerts. This text is concatenated with the ThermaCheck camera name as set in the Device Manager.
>
> **Email Interval**: Sets a time interval between email alerts issued while the ThermaCheck software is in an alarm state.
>
> **Send To:** Specifies the recipient of the alarm notification alerts. Press "+" to add additional lines, up to 10, and "-" to remove lines.
>
> **CC:** Specifies additional recipients of the alarm notification alerts. Press "+" to add additional lines, up to 10, and "-" to remove lines.
>
> **Test button**: Issues a test email alert. It is recommended to test alert notifications before formal operation.
>
> **Set button**: Changes are NOT SAVED until the set button has been pressed.
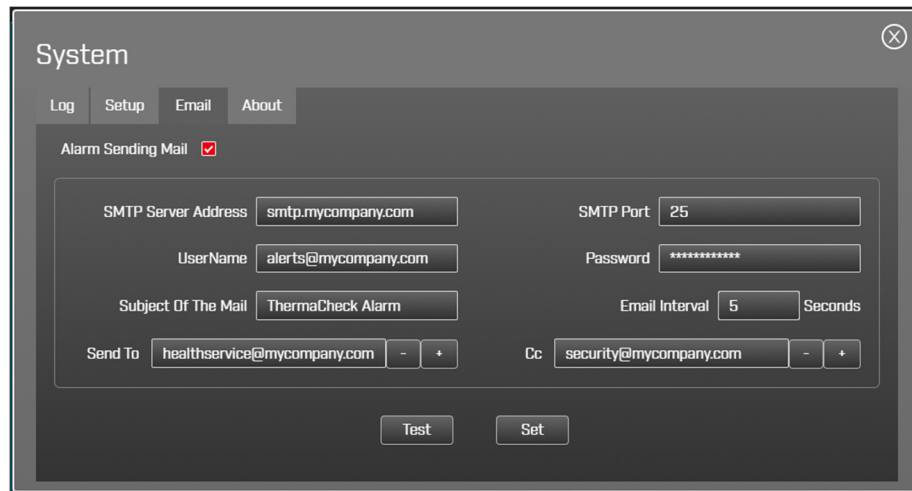
Notes:

- *Except for the Cc parameter, all other parameters are required.*
- *To save changes, press the set button before closing the window.*
- *Only one notification can be sent per "Email Interval" as specified in the settings. In multi-device mode, each device alarms independently of each other.*
- *For Gmail use SMTP Server Address:* smtp.gmail.com *and SMTP Port:* 465. ***Also, turn on "Less secure app access" by following the link: https://myaccount.google.com/lesssecureapps**.*
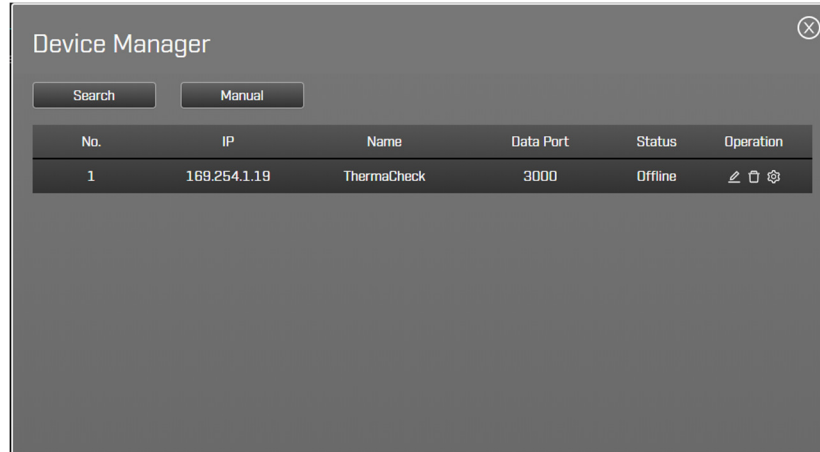
**System: About**

Software version number.
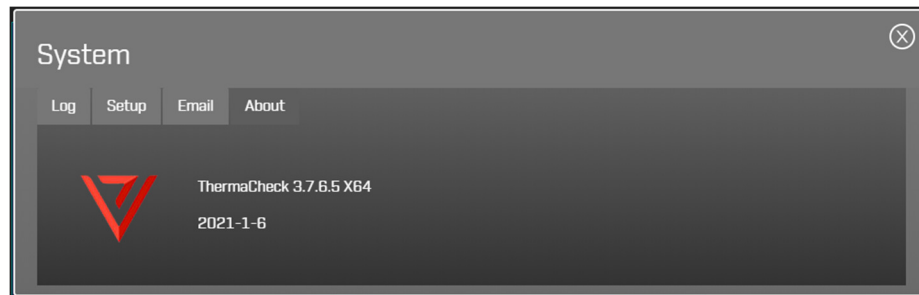
Devices
Management of ThermaCheck camera(s) IP addresses and video picture options.

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 (https://www.planckvisionsystems.com/downloads/thermacheck**).*
- *Video picture options for the camera may be set by pressing the setting icon ⚙ .*
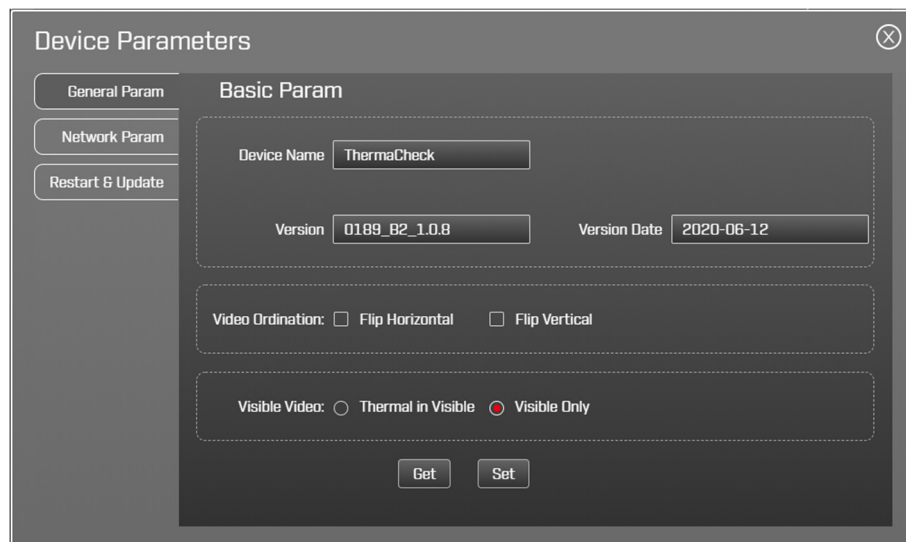
11.   Trouble shooting

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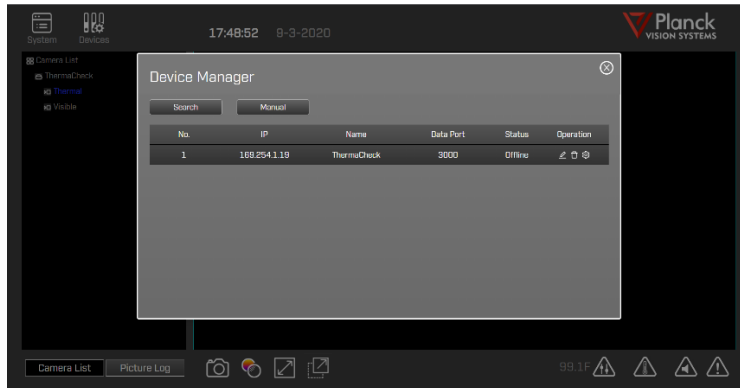
If camera is offline, then the installation software may have failed to establish the correct Ethernet IP address in the computer settings. This may be set manually with the following steps:

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].
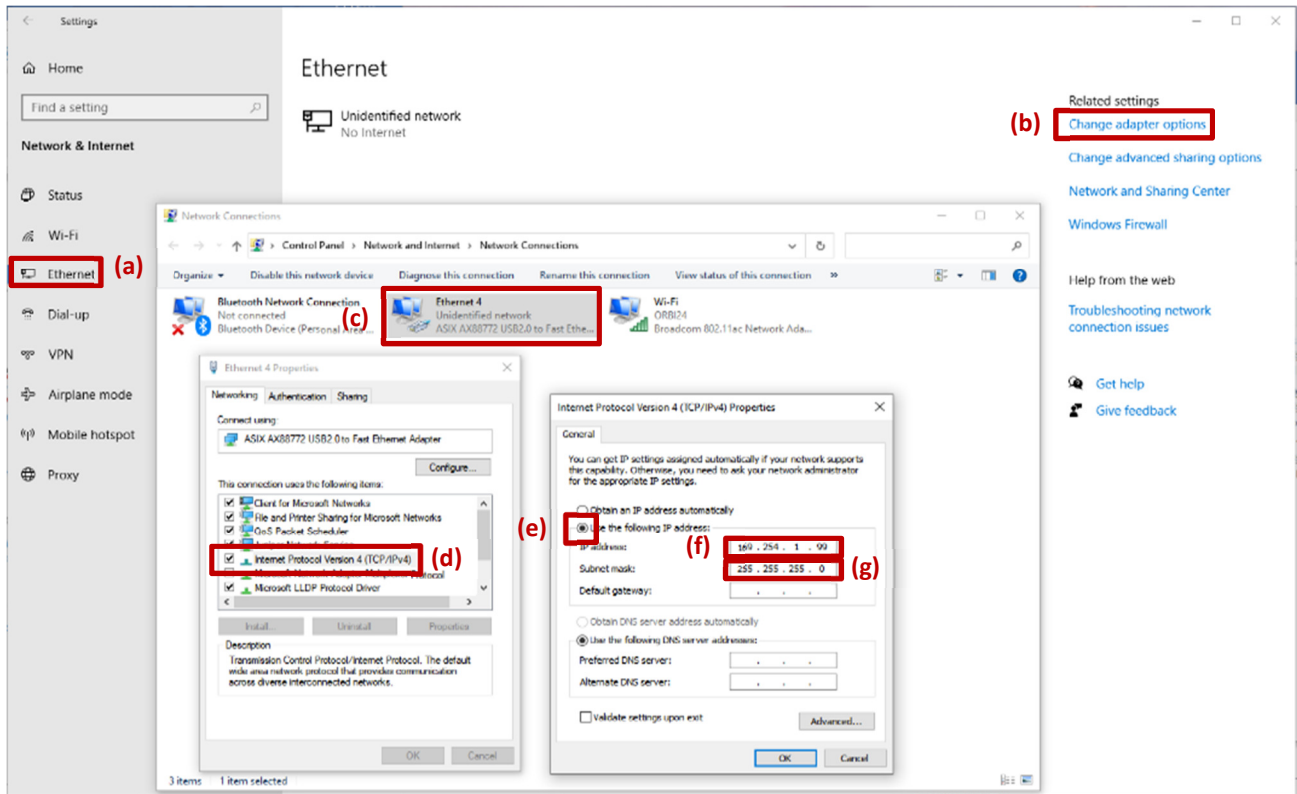
- If the camera is connected normally, the computer ethernet IP settings are correct, but the ThermaCheck software still shows the camera as offline, use the following steps to bring the camera online.
  1. Restart the ThermaCheck software and check for the online status of the camera.
  2. Restart the 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.
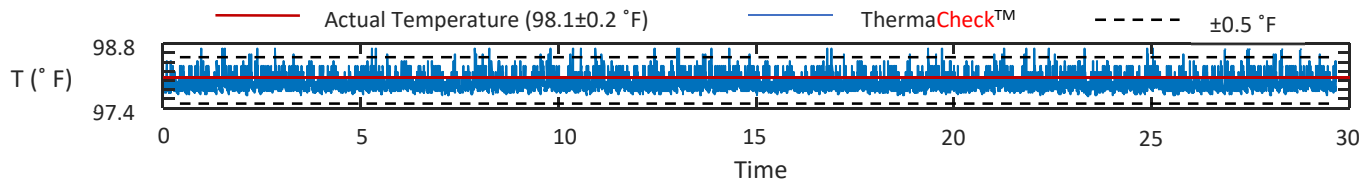
Stability of ThermaCheck camera shown over a 30hr period.

Note:
- *When the environmental temperature in which the ThermaCheck camera is operating changes by more than ±10 ˚F (±6 ˚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.

14.   Thank you

Thank you for your purchase of a ThermaCheck camera. We develop our products to deliver reliable, long lasting performance, and want to make sure you are satisfied with your purchase. For more product information visit www.planckvisionsystems.com, and feel free to get in touch with us at info@planckvisionsystems.com with questions, problems, and comments.