14.4.2   Procedure

Follow this procedure:

1. Open the image in the image archive.
2. Push the joystick and select ⊕⊃ (*Edit*) from the menu.
3. Manual image adjust mode is now active, and the status icon 〗 is displayed. For image adjustment instructions, see 14.5 *Adjusting an infrared image*, page 36.
4. Push the joystick. This displays a context menu.

   - Select ⊗ (*Cancel*) to exit edit mode.

   - Select ╫╽ (*Measurement parameters*) to change the global parameters.

   - Select ▣ (*Image mode*) to change the image mode.

   - Select ✛ (*Measurement*) to add a measurement tool.

   - Select ▶ (*Color*) to change the color palette or set a color alarm.

   - Select ⊕ (*Save*) to save and exit edit mode.

14.5   Adjusting an infrared image

14.5.1   General

An infrared image can be adjusted automatically or manually. When manual image adjust mode is active, the status icon 〗 is displayed.

- In live mode, push the button ▯ to switch between automatic and manual image adjust modes. You can also switch between the modes by touching the temperature scale on the screen.
- In preview/edit mode, manual image adjust mode is active.

14.5.2   Example 1

Here are two infrared images of a building. In the left image, which is auto-adjusted, the large temperature span between the clear sky and the heated building makes a correct analysis difficult. You can analyze the building in more detail if you change the temperature scale to values close to the temperature of the building.

Automatic   Manual
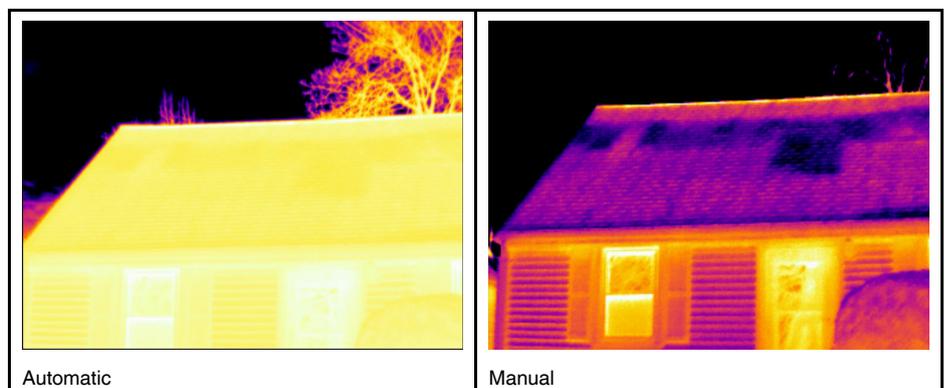
14.5.3   Example 2

Here are two infrared images of an isolator in a power line. To make it easier to analyze the temperature variations in the isolator, the temperature scale in the right image has been changed to values close to the temperature of the isolator.

Automatic | Manual
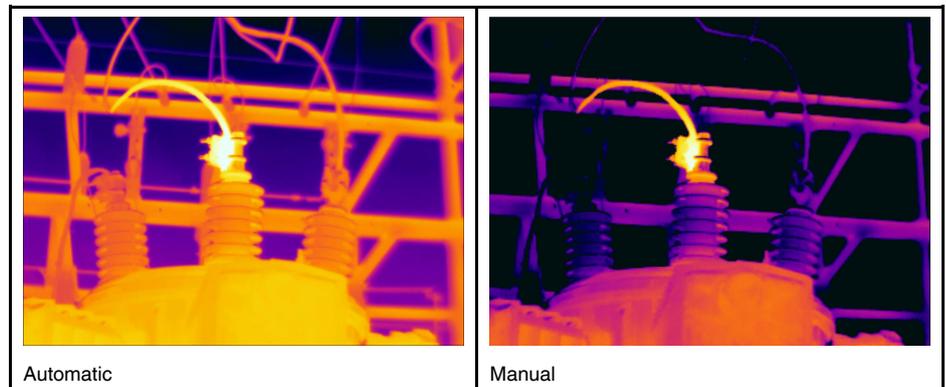
14.5.4   Procedure

Follow this procedure:

1. In live mode, push the button ⚏ to enter manual image adjust mode.
2. To change the temperature scale minimum and maximum limits simultaneously, move the joystick up/down.
3. To change the temperature scale minimum or maximum limit, do the following:

   • Move the joystick left/right to select (highlight) the maximum or minimum temperature.
   • Move the joystick up/down to change the value of the highlighted temperature.

4. (Optional step). In preview/edit mode, push the button ⚏ to perform a one-shot auto-adjust sequence.

14.6   Performing a non-uniformity correction (NUC)

14.6.1   What is a non-uniformity correction?

A non-uniformity correction is *an image correction carried out by the camera software to compensate for different sensitivities of detector elements and other optical and geometrical disturbances*[1].

14.6.2   When to perform a non-uniformity correction?

The non-uniformity correction process should be carried out whenever the output image becomes spatially noisy. The output can become spatially noisy when the ambient temperature changes (such as from day to night operation, and vice versa).

14.6.3   Procedure

To perform a non-uniformity correction, push and hold the Image archive button ▶ for more than 2 seconds.

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1. Definition from the impending international adoption of DIN 54190-3 (Non-destructive testing – Thermographic testing – Part 3: Terms and definitions).

14.7   Changing the temperature range

14.7.1   General

You must change the temperature range according to the expected temperature of the object you are inspecting.

14.7.2   Procedure

Follow this procedure:

1. Push the joystick to display the menu system.

2. Use the joystick to go to ⚙ (*Settings*).
3. Push the joystick to display the *Settings* menu.
4. Select *Device settings* and push the joystick.
5. Select *Set up camera* and push the joystick.
6. Select *Camera temperature range* and push the joystick.
7. Select the appropriate temperature range and push the joystick.

Note   You can also assign the function *Switch temperature range* to the programmable

button. Select ⚙ (*Settings*) > *Programmable button* > *Switch temperature range*.

14.8   Hiding overlay graphics (programmable button)

14.8.1   General

Overlay graphics provide information about an image, e.g., measurement functions and parameters. You can choose to hide all overlay graphics.

14.8.2   Procedure

Follow this procedure:

1. Push the joystick to display the menu system.

2. Use the joystick to go to ⚙ (*Settings*).

3. Push the joystick to display the *Settings* menu.
4. Select *Programmable button* and push the joystick.

5. Select *Hide graphics* and push the joystick. You have now assigned this function to

    the button **P**. This is a programmable button, and you can assign other functions to
    it.

Note   Other functions that can be associated with the programmable button include the following:

*   *Hide graphics*
*   *Calibrate*
*   *Switch Thermal <> Digital camera*
*   *Switch Thermal <> Thermal MSX*
*   *Switch 1x zoom <> Max zoom*
*   *Switch between two latest palettes*
*   *Switch temperature range*
*   *Continuous autofocus*

14.9   Changing the color palette

14.9.1   General

You can change the color palette that the camera uses to display different temperatures. A different palette can make it easier to analyze an image.

14.9.2   Procedure

Follow this procedure:

1. Push the joystick to display the menu system.

2. Use the joystick to go to ▷ (*Color*).

3. Push the joystick to display a submenu.
4. Use the joystick to select a different palette.
5. Push the joystick.

14.10   Deleting an image

14.10.1   General

You can delete an image from the memory card.

14.10.2   Procedure

Follow this procedure:

1. Push the Image archive button ▶.

2. Move the joystick up/down or left/right to select the image you want to delete.
3. Push the joystick to display the image.
4. Push the joystick to display a menu.

5. On the menu, select 🗑 (*Delete*).

6. Push the joystick and confirm the choice.

Note   Note that both images in the image file (thermal and visual) will be deleted.

14.11   Deleting all images

14.11.1   General

You can delete all images from the memory card.

14.11.2   Procedure

Follow this procedure:

1. Push the joystick to display the menu system.

2. Use the joystick to go to ⚙ (*Settings*).

3. Push the joystick to display the *Settings* menu.
4. Select *Reset options* and push the joystick.
5. Select *Delete all saved images...* and confirm the choice.

14.12   Creating a PDF report in the camera

14.12.1   General

You can create a PDF report and save it to the memory card. You can then transfer the PDF report to a computer, iPhone, or iPad using FLIR Tools, and send the report to a customer.

14.12.2   Naming convention

The naming convention for report files is REPORTxxxx.jpg, where xxxx is a unique counter.

14.12.3   Procedure

Follow this procedure:

1. Push the Image archive button ▶.

2. Move the joystick up/down or left/right to select an image.
3. Push the joystick to display the image.
4. Push the joystick to display a context menu.

5. Select ⓘ (*Information & reports*) and push the joystick. This displays information about the image.

6. Select *Create report* and push the joystick.
    The created report will be available in the archive.

15   Working with image modes

15.1   General

The camera captures both thermal and visual images at the same time. By your choice of image mode, you select which type of image to display on the screen.

The camera supports the following image modes:

- *Thermal MSX* (Multi Spectral Dynamic Imaging): The camera displays infrared images where the edges of the objects are enhanced with visual image details.
- *Thermal*: A full infrared image is displayed.
- *Picture in picture*: An infrared image frame is displayed on top of the visual image.
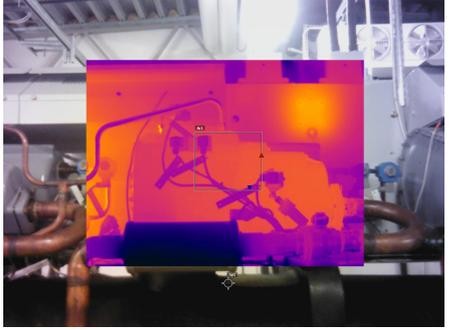- *Digital camera*: The visual image captured by the digital camera is displayed.

Note

- These image modes only work correctly for calibrated lenses. The lens that ships with the camera is factory calibrated. To have a new lens calibrated, you must send in the camera and the lens to your local service department.
- All thermal and visual information is stored when an image is saved. This means that you can edit the image later, in the image archive or in FLIR Tools, and select any of the image modes.

15.2   Image examples

This table explains the different types of image modes.

Image mode	Image
Thermal	
Thermal MSX	

Image mode	Image
Picture in picture	
Digital camera	

15.3 Selecting the image mode

Follow this procedure:

1. Push the joystick to display the menu system.

2. Use the joystick to go to ◻ (*Image mode*).
3. Push the joystick to display a submenu.
4. Use the joystick to go to one of the image modes:

    • ◻ (*Thermal MSX*)

    • ◻ (*Thermal*)

    • ◻ (*Picture in picture*)

    • ◻ (*Digital camera*)

5. Push the joystick confirm.
6. If *Picture in picture* mode is selected, you can at this point move and resize the infrared image frame using the touch screen.

16   Working with measurement tools

16.1   General

To measure a temperature, you can use one or more measurement tools, e.g., a spot-meter or a box.

16.2   Adding/removing measurement tools

Follow this procedure:

1. Push the joystick to display the menu system.
2. Use the joystick to go to ⟡ (*Measurement*).
3. Push the joystick to display a submenu.

   - Select ⟋ (*No measurements*) to remove all tools.

   - Select ⟡ (*Center spot*) to add a center spot.

   - Select 🔴 (*Hot spot*) to add a hot spot detection within a box area.

   - Select 🔵 (*Cold spot*) to add a cold spot detection within a box area.

   - Select 1⃞ (*User preset 1*) to add user preset 1. (Not available in all camera models.)

   - Select 2⃞ (*User preset 2*) to add user preset 2. (Not available in all camera models.)

4. Push the joystick. This displays the measurement tool or the group of preset tools on the screen.

16.3   Working with user presets

16.3.1   General

A user preset is a measurement tool, or a group of measurement tools, with predefined characteristics.

16.3.2   Procedure

Follow this procedure:

1. Push the joystick to display the menu system.
2. Use the joystick to go to ⚙ (*Settings*).
3. Push the joystick to display the *Settings* menu.
4. Select *Define user presets* and push the joystick.
5. Select *Define preset 1* or *Define preset 2* and push the joystick. This displays a context menu.
6. Select ⟡ (*Add measurement*).

7. Push the joystick. This displays a submenu.

   - Select ⬦ (*Add spot*) to add a spot.

   - Select ⌐⌐ (*Add box*) to add a box.

   - Select ◌ (*Add circle*) to add a circle.

   - Select ⊹ (*Add line*) to add a line.

   - Select △ (*Add delta*) to set up a differential calculation.

8. Push the joystick. This displays the measurement tool on the screen.
9. Push the joystick. This displays a context menu, where you can select one or more of the following actions (depending on the type of tool):

   - Remove the tool.
   - Resize, move, center, and rotate the tool.
   - Display maximum, minimum, and average values.
   - Set alarms.
   - Set local parameters.

   - When completed, select ⊘ (*Done*).

10. When all measurement tools have been added, select ⊕ (*Save as preset*).

16.4 Resizing or moving a measurement tool

16.4.1 General

You can resize and move a measurement tool.

16.4.2 Procedure

Note

- This procedure assumes that you have previously laid out a measurement tool or user preset on the screen.
- You can also move and resize the measurement tool by touching the screen.

Follow this procedure:

1. To select the measurement tool, touch the tool on the screen. The tool is now displayed with one or more handles.

   Spot measurement tool:

   Area measurement tool:
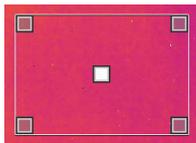
2. Push the joystick—or touch and hold the tool. This displays a context menu.

   - Select ⬈ (*Resize*) to change the size of the tool.

   - Select ⤡ (*Move*) to move the tool.

3. Move the joystick up/down and left/right to resize or move the tool.

4. When completed, push the joystick and select ⊘ (*Done*).

16.5   Changing object parameters

16.5.1   General

For accurate measurements, you must set the object parameters.

16.5.2   Types of parameters

The camera can use these object parameters:

- *External IR window compensation*, i.e., the temperature of any protective windows, external lenses (e.g., the close-up lens), etc., that are set up between the camera and the object of interest. If no protective window, protective shield, or external lens is used, this value is irrelevant and should be left inactive.
- *Object distance*, i.e., the distance between the camera and the object of interest.
- *Atmospheric temperature*, i.e., the temperature of the air between the camera and the object of interest.
- *Relative humidity*, i.e., the relative humidity of the air between the camera and the object of interest.
- *Reflected temperature*, which is used when compensating for the radiation from the surroundings reflected by the object into the camera. This property of the object is called "reflectivity".

- *Emissivity*, i.e., how much radiation an object emits, compared with the radiation of a theoretical reference object at the same temperature (called a "blackbody"). The opposite of emissivity is reflectivity. The emissivity determines how much of the radiation originates from the object as opposed to being reflected by it.

  Note   There is an *Emissivity mode* setting, which you can use to enter the emissivity by material instead of by value. Select ⚙ (*Settings*) > *Device settings* > *Set up camera* > *Emissivity mode* > *Select from materials table*.

Of the object parameters, *Emissivity* is the most important parameter to set correctly. If the *Emissivity* is set to a low value, the *Reflected temperature* also becomes important. The parameters *Object distance*, *Atmospheric temperature*, and *Relative humidity* are relevant for longer distances. The *External IR window compensation* must be activated if a protective window or external lens is used.

16.5.3   Recommended values

If you are unsure about the values, the following are recommended:

Object distance	1.0 m (3.3′)
Atmospheric temperature	20°C (69°F)
Relative humidity	50%
Reflected temperature	20°C (69°F)
Emissivity	0.95

16.5.4   Procedure

You can set the object parameters globally. You can also change the *Emissivity*, *Reflected temperature*, and *Object distance* parameters locally for a measurement tool.

Local parameters are normally only effective for a fixed setup, where each measurement tool is set to a specific object of interest. In a general handheld application, the global parameters are usually sufficient.

Note   Of the object parameters, *Emissivity* and *Reflected temperature* are the two most important to set correctly in the camera.

16.5.4.1   *Setting global parameters*

Follow this procedure:

1. Push the joystick to display the menu system.
2. Use the joystick to go to ⑈ (*Measurement parameters*).
3. Push the joystick to display a submenu. Use the joystick to select one or more of the global object parameters:

    *   ⑆ (*External IR window compensation*)

    *   ⑇ (*Object distance*)

    *   ⑈ (*Atmospheric temperature*)

    *   ⑉ (*Relative humidity*)

    *   ⑊ (*Reflected temperature*)

    *   ᴱ↗ (*Emissivity*)

4. Push the joystick to display a dialog box.
5. Use the joystick to change the parameter.
6. Push the joystick. This closes the dialog box.

16.5.4.2   *Changing local parameters*

You can change the local parameters for a measurement tool.

A *P* next to the measurement tool on the screen indicates that local parameters are activated for the tool.

Follow this procedure:

1. To select the measurement tool, touch the tool on the screen. The tool is now displayed with one or more handles.
2. Push the joystick—or touch and hold the tool. This displays a context menu.
3. Use the joystick to go to ⑈ (*Use local parameters*).
4. Push the joystick. ⑈ (icon with gray indicator) is displayed.
5. Push the joystick to activate the use of local parameters. ⑈ (icon with blue indicator) is displayed together with a submenu.
6. Use the joystick to select an object parameter.
7. Push the joystick to display a dialog box.
8. Use the joystick to change the parameter.
9. Push the joystick. This closes the dialog box.
10. When completed, push the joystick and select ⊘ (*Done*).

16.5.5   Related topics

For in-depth information about parameters, and how to correctly set the emissivity and reflected apparent temperature, see section 31 *Thermographic measurement techniques*, page 467.

16.6   Displaying values in the result table and displaying a graph

16.6.1   General

For the box, circle, and line tools, you can set the camera to display the maximum, minimum, and average values in the result table.

For the line tool, you can also display a graph.

16.6.2   Procedure

Follow this procedure:

1. To select the measurement tool, touch the tool on the screen. The tool is now displayed with one or more handles.
2. Push the joystick—or touch and hold the tool. This displays a context menu.
3. Use the joystick to go to (depending on the tool) ⌐┐ , ◯ , or ⊹ (*Max/Min/Avg/ Alarm*) or (*Graph/Max/Min/Avg/Alarm*).
4. Push the joystick. This displays a submenu.

   - (Option available for the line tool.) Select ⌁ (*Graph*) and push the joystick to display a graph.

   - Select ⬦ (*Max*) and push the joystick to display the maximum value.

   - Select ⬦ (*Min*) and push the joystick to display the minimum value.

   - Select ⊹ (*Avg*) and push the joystick to display the average value.

   - (Optional step.) You can choose to show or hide the maximum and minimum markers (the hot/cold spots). Select ✦ (*Max & min markers*) and push the joystick to toggle:

     ○ When ▣ (icon with grey indicator) is displayed, the markers are hidden.

     ○ When ▣ (icon with blue indicator) is displayed, the markers are shown.

5. When completed, move the joystick down to close the submenu.
6. Select ⊘ (*Done*) and push the joystick.

16.7   Creating and setting up a difference calculation

16.7.1   General

A difference calculation gives the difference between the values of two known measurement results.

16.7.2   Procedure

Note

- You can set up a difference calculation when defining user presets, or when editing an image in the archive.
- This procedure assumes that you have previously laid out at least one measurement tool on the screen.

16.7.2.1   Procedure

Follow this procedure:

1. To set up a difference calculation, select △ (*Add delta*).
2. Push the joystick. This displays a dialog box where you can select the measurement tools that you want to use in the difference calculation. You can also select a fixed-temperature reference.
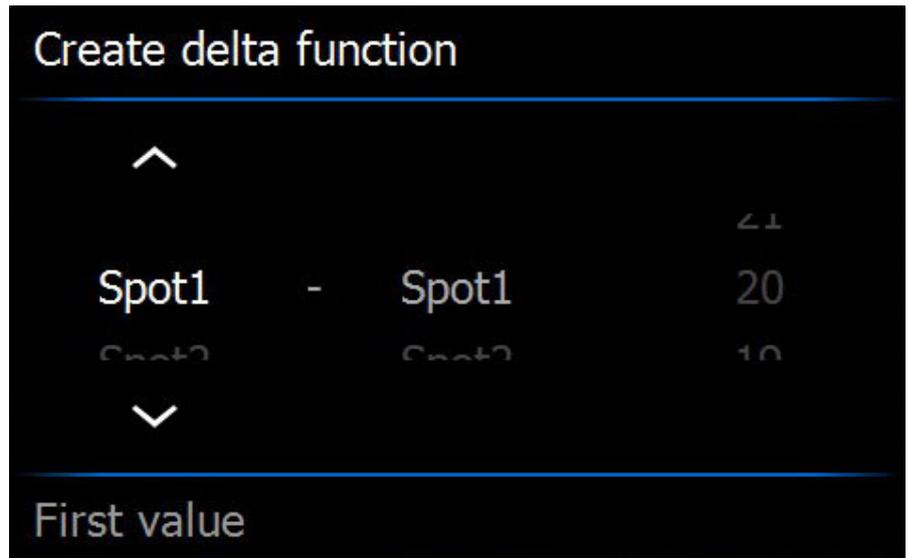
3. Push the joystick. The result of the difference calculation is now displayed on the screen.

16.8   Setting a measurement alarm

16.8.1   General

You can make the camera trigger an alarm when certain measurement conditions are met.

16.8.2   Types of alarm

You can choose between the following alarm types:

*   *Above*: Triggers an alarm when the temperature is above the preset alarm temperature.
*   *Below*: Triggers an alarm when the temperature is below the preset alarm temperature.

16.8.3   Alarm signals

When an alarm is set, the symbol 🔔 is displayed in the result table.

When an alarm is triggered, the value in the result table is displayed in red (above alarm) or blue (below alarm) and the symbol 🔔 (above alarm) or 🔔 (below alarm) is blinking.

You can also set an audible alarm (there will be a "beep" when the alarm is triggered).

16.8.4   Procedure

There are different procedures for setting up an alarm for a spot, box, circle, or line and for a difference calculation.

16.8.4.1 Setting up an alarm for a spot

Follow this procedure:

1. To select the spot, touch the tool on the screen. The tool is now displayed with a frame.
2. Push the joystick—or touch and hold the tool. This displays a context menu.
3. Use the joystick to go to 🔔 (*Set alarm on spot*).
4. Push the joystick. This displays a dialog box where you can define the settings for the alarm.

   • *Alarm condition*: The condition that triggers the alarm. Applicable values are *Above*, *Below*, or *Off*.
   • *Alarm limit*: The temperature value that will be the critical condition when an alarm is triggered or not.
   • *Alarm sound*: Applicable values are *Beep* or *No sound*.

5. Push the joystick. This closes the dialog box.
6. Push the joystick and select ⊘ (*Done*).

16.8.4.2 Setting up an alarm for a box, circle, or line

Note   This procedure assumes that you have previously set the camera to display at least one value (maximum, minimum, or average) in the result table.

Follow this procedure:

1. To select the measurement tool, touch the tool on the screen. The tool is now displayed with one or more handles.
2. Push the joystick—or touch and hold the tool. This displays a context menu.
3. Use the joystick to go to (depending on tool) ⊡ , ◯ , or ⊹ (*Max/Min/Avg/Alarm*) or (*Graph/Max/Min/Avg/Alarm*).
4. Push the joystick. This displays a submenu.
5. Select 🔔 (*Set alarm*).
6. Push the joystick. This displays a dialog box where you can define the settings for the alarm.

   • *Alarm condition*: The condition that triggers the alarm. Applicable values are *Above*, *Below*, or *Off*.
   • *Select measurement*: Applicable settings are the values you have previously defined (*Max*, *Min*, and/or *Avg*).
   • *Alarm limit*: The temperature value that will be the critical condition when an alarm is triggered or not.
   • *Alarm sound*: Applicable values are *Beep* or *No sound*.

7. Push the joystick. This closes the dialog box.
8. Push the joystick and select ⊘ (*Done*).

16.8.4.3 Setting up an alarm for a difference calculation

Note

• You can set up an alarm for a difference calculation when defining user presets, or when editing an image in the archive.
• This procedure assumes that you have previously set up a difference calculation.

Follow this procedure:

1. Select ✛ (*Add measurement*). This displays a submenu.
2. Select ⬉ (*Select*). This displays a dialog box.
3. Select *Delta*. This displays a context menu.
4. Use the joystick to go to 🔔 (*Set alarm on delta*).

5. Push the joystick. This displays a dialog box where you can define the settings for the alarm.

    •   *Alarm condition*: The condition that triggers the alarm. Applicable values are *Above*, *Below*, or *Off*.
    •   *Alarm limit*: The temperature value that will be the critical condition when an alarm is triggered or not.
    •   *Alarm sound*: Applicable values are *Beep* or *No sound*.

6. Push the joystick. This closes the dialog box.

17 Fetching data from external FLIR meters

17.1 General

You can fetch data from an external FLIR meter and merge this data into the infrared image.

When the camera is connected to a FLIR meter via Bluetooth, the measurement value from the meter is displayed in the result table of the camera. The FLIR meter value is also added to the information saved in the image file. In preview mode and when editing an image in the archive, you can add more than one value from the same FLIR meter.

Note

• Before you can use a FLIR meter with the camera, you need to pair the devices. For more information, see 11 *Pairing Bluetooth devices*, page 22.

• To add more than one FLIR meter value when saving an image, preview mode must be enabled. Select ⚙ (*Settings*) > *Save options* > *Preview image before saving* = *On*.

In preview mode and when editing an image in the archive, you can do the following:

• Push the programmable button **P** to add the value currently displayed by the FLIR meter.

• Push and hold the programmable button **P** to remove all FLIR meter values from the image.

Note Any function assigned to the programmable button is temporarily disabled when in preview mode or when editing an image in the archive.

17.2 Supported FLIR meters

• FLIR CM78
• FLIR CM83
• FLIR DM93
• FLIR MR77

17.3 Technical support for external meters

Technical support	
Website	http://support.flir.com
E-mail	TMsupport@flir.com
Phone	855-499-3662
Repairs	repair@flir.com

17.4 Typical moisture measurement and documentation procedure

17.4.1 General

The following procedure can form the basis for other procedures using FLIR meters and infrared cameras.

17.4.2   Procedure

Follow this procedure:

1. Use the infrared camera to identify any potential damp areas behind walls and ceilings.
2. Use the moisture meter to measure the moisture levels at various suspect locations that may have been found.
3. When an area of particular interest is located, store the moisture reading in the moisture meter's memory and identify the measurement area with a handprint or other thermal identifying marker.
4. Recall the reading from the meter memory. The moisture meter will now continuously transmit this reading to the infrared camera.
5. Use the camera to take a thermal image of the area with the identifying marker. The stored data from the moisture meter will also be saved on the image.

17.5   More information

For more information, see the users' manuals that are shipped with the FLIR meters.

18 Working with color alarms and isotherms

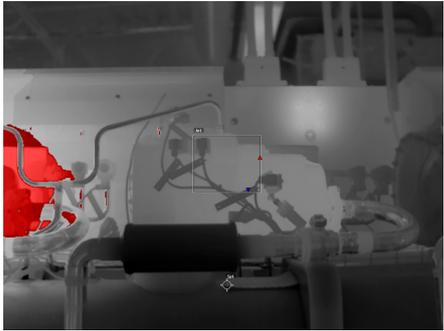## 18.1 Color alarms

18.1.1 General

By using color alarms (isotherms), anomalies can easily be discovered in an infrared image. The isotherm command applies a contrasting color to all pixels with a temperature above, below, or between the set temperature levels. The camera also features isotherm types that are specific to the building trade: condensation and insulation alarms.

You can make the camera trigger the following types of color alarms:

- *Above alarm*: This will apply a contrasting color to all pixels with a temperature above the specified temperature level.
- *Below alarm*: This will apply a contrasting color to all pixels with a temperature below the specified temperature level.
- *Interval alarm*: This will apply a contrasting color to all pixels with a temperature between two specified temperature levels.
- *Condensation alarm*: Triggers when the camera detects a surface where the relative humidity exceeds a preset value.
- *Insulation alarm*: Triggers when there is an insulation deficiency in a wall.

18.1.2 Image examples

This table explains the different color alarms (isotherms).

Color alarm	Image
Above alarm	
Below alarm	
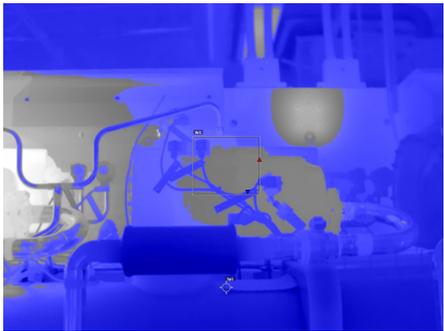
Color alarm	Image
Interval alarm	
Condensation alarm	
Insulation alarm	
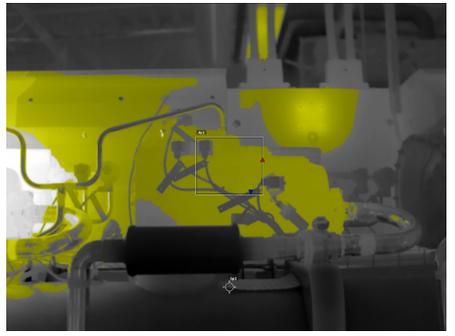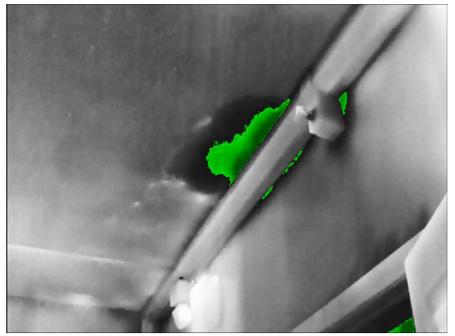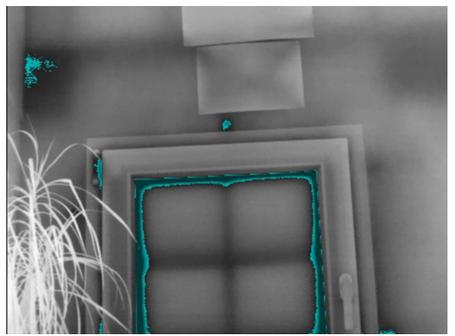
18.2   Setting up above, below, and interval alarms

Follow this procedure:

1. Push the joystick to display the menu system.
2. Use the joystick to go to   (*Color*).
3. Push the joystick to display a submenu. Use the joystick to select the type of alarm:

    - ▮ (*Above alarm*)

    - ▮ (*Below alarm*)

    - ▮ (*Interval alarm*)

4. Push the joystick. The threshold temperature is displayed at the bottom of the screen.

5. To change the threshold temperature, do the following:

    • For the *Interval alarm*, move the joystick left/right to select the low/high-temperature value.
    • Move the joystick up/down to change the threshold temperature.

18.3   Building isotherms

Note   The Condensation and Insulation alarms are not supported by all camera models.

18.3.1   About the *Condensation alarm*

To detect areas with potential moisture problems, you can use the *Condensation alarm*. You can set the relative humidity above which the isotherm will colorize the image.

18.3.2   About the *Insulation alarm*

The *Insulation alarm* can detect areas where there may be an insulation deficiency in the building. It will trigger when the insulation level (which is called the thermal index in the camera) falls below a preset value of the energy leakage through a wall.

Different building codes recommend different values for the insulation level, but typical values are 60–80% for new buildings. Refer to your national building code for recommendations.

18.3.3   Setting up condensation and insulation alarms

Follow this procedure:

1. Push the joystick to display the menu system.

2. Use the joystick to go to   (*Color*).
3. Push the joystick to display a submenu. Use the joystick to select the type of alarm:

    •   (*Condensation alarm*)

    •   (*Insulation alarm*)

4. Push the joystick. This displays a dialog box where you can define the settings for the alarm.

    For the *Condensation alarm*, the following parameters can be set:

    • *Atmospheric temperature*: The current atmospheric temperature.
    • *Relative humidity*: The current relative humidity.
    • *Relative humidity limit*: The relative humidity level at which you want the alarm to be triggered. A relative humidity of 100% means that water vapor condenses from the air as liquid water (= dewpoint). A relative humidity of about 70% or above can cause mold.

    For the *Insulation alarm*, the following parameters can be set:

    • *Indoor temperature*: The current indoor temperature.
    • *Outdoor temperature*: The current outdoor temperature.
    • *Thermal index*: The insulation level, an integer between 0 and 100.

5. Push the joystick. This closes the dialog box.

19   Annotating images

19.1   General

You can save additional information together with an infrared image by using annotations. Annotations make reporting and post-processing more efficient, by providing essential information about the image, e.g., conditions and information about where an image is taken.

Annotations are added to the image file, and can be viewed and edited in the image archive, and also when moving files from the camera to reporting software on the computer.

• You can set the camera to display annotation tools before an image is saved. Select

  ⚙ (*Settings*) > *Save options* > *Add annotation after saving*.

• You can also add annotations to a saved image in the image archive.

Note   This section describes the procedures for adding annotations to a saved image in the image archive. Adding annotations when saving an image works in a similar way.

19.2   Adding a note

19.2.1   General

A text note is grouped with the image file. Using this feature, you can annotate images by entering free-form text.

19.2.2   Procedure

Follow this procedure:

1. Open the image in the image archive.
2. Push the joystick. This displays a context menu.
3. Select ▤ (*Add note*).
4. Push the joystick. This displays a soft keyboard where you can enter the text you want to save.
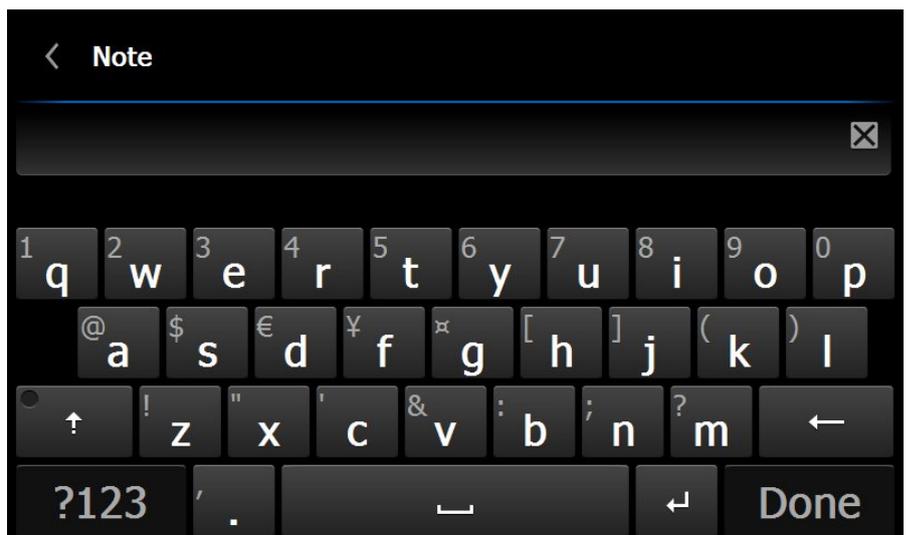
Note   To select special characters, press and hold down the corresponding key on the soft keyboard.

5. When completed, touch *Done* on the soft keyboard.

19.3   Adding a table

19.3.1   General

You can save a table with textual information to the image file. This feature is a very effi-
cient way of recording information when you are inspecting a large number of similar ob-
jects. The idea behind using a table with textual information is to avoid filling out forms or
inspection protocols manually.

The camera has a number of default table templates. You can also import your own table
templates from FLIR Tools. The templates are stored on the memory card.

19.3.2   Procedure

Follow this procedure:

1. Open the image in the image archive.
2. Push the joystick. This displays a context menu.
3. Select ▦ (*Add table*) and push the joystick.
4. Select ▦ (*Add table contents*) and push the joystick.
5. This displays the default table template that ships with the camera.

   Note   You can select another template by first selecting ⊞ (*Select default
   template*).

6. For each row in the table, do the following:

   • Push the joystick. This displays the predefined values.
   • Move the joystick up/down to select a predefined value. Push the joystick to
     confirm.

   • Instead of selecting a predefined value, you can select the keyboard ▭ and enter
     other text.

7. When completed, select *Save & Exit* at the bottom of the table. Push the joystick to
   confirm.

19.4   Adding a voice annotation

19.4.1   General

A voice annotation is an audio recording that is saved to the infrared image file.

The voice annotation is recorded using a Bluetooth headset. The recording can be
played back in the camera, and in image analysis and reporting software from FLIR
Systems.

19.4.2   Procedure

Follow this procedure:

1. Open the image in the image archive.
2. Push the joystick. This displays a context menu.
3. Select 🎤 (*Add voice annotation*) and push the joystick.
4. To start a recording, select ⬤ (*Record*) and push the joystick.
5. To stop the recording, select ◼ (*Stop*) and push the joystick.
6. To listen to the recording, select ▶ (*Play*) and push the joystick.
7. To delete the recording, select 🗑 (*Delete*) and push the joystick.
8. When completed, select ⊘ (*Done*) and push the joystick.

19.5   Adding a sketch

19.5.1   General

You can add a freehand drawing to an image.

19.5.2   Procedure

Follow this procedure:

1. Open the image in the image archive.
2. Push the joystick. This displays a context menu.
3. Select ✎ (*Add sketch*) and push the joystick.
4. You are now in sketch mode. Draw the sketch by touching the screen.
5. Push the joystick. This displays a context menu. Do one or more of the following:

   - To change the color of the sketch tools, select ✎ (*Draw*) and push the joystick. Select the color and push the joystick.

   - To erase, select ✎ (*Eraser*) and push the joystick. Erase parts of the sketch by touching the screen.

   - To add an arrow, circle, or cross, select ⬉ (*Stamp sketch*) and push the joystick. Select the type of stamp and push the joystick. The stamp is displayed in the center of the screen. You can move the stamp by touching the screen.

   - To clear, select ▦ (*Clear all*) and push the joystick.

   - When the sketch is completed, select ⊕ (*Save*) and push the joystick.

20 Programming the camera (time lapse)

20.1 General

You can program the camera to save images periodically (time lapse).

20.2 Procedure

Follow this procedure:

1. Push the joystick to display the menu system.
2. Use the joystick to go to ▣ (*Recording mode*).
3. Push the joystick. This displays a submenu.
4. Select ⏱ (*Time lapse*).
5. Push the joystick. This displays a dialog box, where you can set the save conditions:

    - *Save interval*: Use the joystick to set the time interval between each saved image.
    - *Total number of images*: Periodic saving will stop when the set number of images have been saved.

6. Push the joystick. This closes the dialog box. The time interval is displayed at the top of the screen.
7. To manually start or stop periodic saving, briefly push and release the Autofocus/Save button.

21   Recording video clips

21.1   General

You can record and save video clips to the memory card.

Note   The camera can be configured to save video in *.mpg or *.csq format. Select ⚙
(*Settings*) > *Save options* > *Video compression*.

- *Mpeg (*.mpg)*: Mpeg recordings cannot be edited after the file has been saved.
- *Radiometric storage (*.csq)*: A *.csq file supports full radiometry but is only supported by FLIR Systems software. The file does not include any visual-image information.

21.2   Procedure

Follow this procedure:

1. Push the joystick to display the menu system.

2. Use the joystick to go to ▣ (*Recording mode*).
3. Push the joystick. This displays a submenu.

4. Select ▤ (*Video*) and push the joystick.
5. Do the following:

    - To start a recording, push and release the Autofocus/Save button. A counter at the top of the screen displays the duration of the recording.
    - To stop a recording, push and release the Autofocus/Save button.

6. The recording is automatically saved to the image archive, where you can play or delete it.

22 Screening alarm

22.1 General

The screening alarm can be used, for example, at airports to detect passengers with elevated body temperatures, which may indicate the presence of a fever.

Activating the screening alarm will turn on a measurement box and screening data in the result table.

$\overline{X}$ The sampled average temperature.

The alarm temperature.

The measured temperature.

The alarm will trigger when the measurement box measures a temperature higher than the alarm temperature. The alarm temperature is, in turn, the sum of a specified allowed deviation and a sampled average value.

22.2 Procedure

Follow this procedure:

1. Enable the screening mode by selecting (*Settings*) > *Device settings* > *Set up camera* > *Screening mode* = *On*.
2. Push the joystick to display the menu system.
3. Use the joystick to go to (*Recording mode*).
4. Push the joystick. This displays a submenu.
5. Select (*Screening*).
6. Push the joystick. This displays a dialog box where you can define the settings for the alarm.

   • *Allowed deviation*: The allowed deviation from the sampled average.
   • *Alarm sound*: Applicable values are *Beep* or *No sound*.

7. Push the joystick. This closes the dialog box.
8. Aim the camera toward a point of interest. The object should be within the frame of the measurement box.
9. Push and hold the programmable button **P** to reset the sampled average.
10. Push the programmable button **P** to sample.
11. Aim the camera toward more points of interest. Sample 10 times to build up a sample base by pushing the programmable button **P**.

   The alarm is now set up and ready to use. Occasionally record a few samples if the alarm is used for a long time or if the conditions change.

Note

• The algorithm has a memory of the last 10 samples. It discriminates between the highest and lowest values, and calculates an average of the remaining values.
• Do not modify the measurement setup or activate another alarm because this will deactivate the screening alarm.

23 Changing settings

23.1 General

The *Settings* menu includes the following:

- *Define user presets*
- *Save options*
- *Programmable button*
- *Reset options*
- *Device settings*

23.1.1 *Define user presets*

- *Define preset 1*
- *Define preset 2*

23.1.2 *Save options*

- *Preview image before saving*
- *Add annotation after saving*
- *Image resolution*
- *Video compression*
- *Photo as separate JPEG*

23.1.3 *Programmable button*

- *No action*
- *Hide graphics*
- *Calibrate*
- *Switch Thermal <> Digital camera*
- *Switch Thermal <> Thermal MSX*
- *Switch 1x zoom <> Max zoom*
- *Switch between two latest palettes*
- *Switch temperature range*
- *Continuous autofocus*

23.1.4 *Reset options*

- *Reset default camera mode...*
- *Reset device settings to factory default...*
- *Delete all saved images...*

Note   When an option is selected, a dialog box is displayed with more information. You can choose to execute the reset/delete action or to cancel.

23.1.5 *Device settings*

- *Set up camera*

  - *Camera temperature range*: The temperature range used for measuring objects. You must change the temperature range according to the expected temperature of the object you are inspecting.
  - *Auto orientation*
  - *Continuous autofocus*
  - *Display intensity*
  - *Lamp & laser*
  - *Viewfinder intensity*
  - *HDMI*
  - *Emissivity mode*

- *Wi-Fi*: For more information, see 12 *Configuring Wi-Fi*, page 23.
- *GPS & compass*
- *Bluetooth including METERLiNK*: For more information, see 11 *Pairing Bluetooth devices*, page 22.

- *Language, time & units*
- *Camera information*: Information about the model, serial number, part number, and software versions. No changes can be made.

23.2 Procedure

Follow this procedure:

1. Push the joystick to display the menu system.
2. Use the joystick to go to ⚙ (*Settings*).
3. Push the joystick to display the *Settings* menu.
4. Use the joystick to select the setting you want to change.
5. To exit the *Settings* menu or a submenu, push the Back button ↰.

24 Technical data

Table of contents

24.1   Online field-of-view calculator

Please visit http://support.flir.com and click the photo of the camera series for field-of-view tables for all lens–camera combinations.

24.2   Note about technical data

FLIR Systems reserves the right to change specifications at any time without prior notice. Please check http://support.flir.com for latest changes.

24.3   Note about authoritative versions

The authoritative version of this publication is English. In the event of divergences due to translation errors, the English text has precedence.

Any late changes are first implemented in English.

24.4   FLIR T600 15° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-1015
Rev.: 43545

General description
The FLIR T600 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600 is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T600 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T600 allows you to connect to smart phones or tables for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.55 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011867
UPC-12	845188012977
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.

- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.5   FLIR T600 15° (incl. Wi-Fi)

P/N: 55903-0922
Rev.: 43545

General description
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Benefits:
• Highest performance with the latest technology: The FLIR T600 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600 allows you to connect to smart phones or tables for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.55 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
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Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006641
UPC-12	845188006990
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.

- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.6   FLIR T600 25° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-1016
Rev.: 43545

General description
The FLIR T600 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T600 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600 allows you to connect to smart phones or tables for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.92 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - Extended calibration certificate - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Printed documentation - Tripod adapter - USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011874
UPC-12	845188012984
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.

- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.7   FLIR T600 25° (incl. Wi-Fi)

P/N: 55903-1022
Rev.: 43545

General description
The FLIR T600 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T600 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600 allows you to connect to smart phones or tables for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.92 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006658
UPC-12	845188007003
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.

- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.8   FLIR T600 25° and 15° w/case

P/N: 55903-1007
Rev.: 43545

General description
The FLIR T600 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T600 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600 allows you to connect to smart phones or tables for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.92 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 μm
Detector pitch	17 μm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, f=41.3 mm (15°) with case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
EAN-13	7332558011843
UPC-12	845188012953
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.

- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.9   FLIR T600 25° and 45° w/case

P/N: 55903-1008
Rev.: 43545

General description
The FLIR T600 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T600 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600 allows you to connect to smart phones or tables for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.92 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, f=13.1 mm (45°) with case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
EAN-13	7332558011850
UPC-12	845188012960
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.

- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.10   FLIR T600 45° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-1017
Rev.: 43545

General description
The FLIR T600 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T600 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600 allows you to connect to smart phones or tables for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.73 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - Extended calibration certificate - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Printed documentation - Tripod adapter - USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011881
UPC-12	845188012991
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.

- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.11   FLIR T600 45° (incl. Wi-Fi)

P/N: 55903-1522
Rev.: 43545

General description
The FLIR T600 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T600 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600 allows you to connect to smart phones or tables for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.73 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - Printed documentation - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Tripod adapter - USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006665
UPC-12	845188007010
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.

- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.12   FLIR T600bx 25° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-2823
Rev.: 43545

General description
The FLIR T600bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T600bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.92 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +350°C (+212°F to +662°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - Extended calibration certificate - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Printed documentation - Tripod adapter - USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011898
UPC-12	845188013004
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.

- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.13   FLIR T600bx 25° (incl. Wi-Fi)

P/N: 55903-2822
Rev.: 43545

General description
The FLIR T600bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T600bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T600bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.92 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +350°C (+212°F to +662°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	- Simultaneous storage of thermal and digital photo in same JPEG file. - Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	- MPEG-4 using Wi-Fi - Uncompressed colorized video using USB
Visual video streaming	- MPEG-4 using Wi-Fi - Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - Printed documentation - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Tripod adapter - USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006696
UPC-12	845188007041
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.

- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.14   FLIR T600bx 45° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-2923
Rev.: 43545

General description
The FLIR T600bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T600bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T600bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.73 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +350°C (+212°F to +662°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011904
UPC-12	845188013011
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.

- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.15   FLIR T600bx 45° (incl. Wi-Fi)

P/N: 55903-2922
Rev.: 43545

General description
The FLIR T600bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 480 × 360 pixel infrared resolution. The FLIR T600bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T600bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T600bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.

Imaging and optical data	
IR resolution	480 × 360 pixels
UltraMax	No
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.73 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +350°C (+212°F to +662°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Separate PC software with extensive report generation

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006702
UPC-12	845188007058
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.

- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.16   FLIR T610 15° (incl. Wi-Fi)

P/N: 55903-8022
Rev.: 43545

General description
The FLIR T610 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T610 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T610 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T610 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006740
UPC-12	845188007096
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter

- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.17   FLIR T610 25° (incl. Wi-Fi)

P/N: 55903-3922
Rev.: 43545

General description
The FLIR T610 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T610 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T610 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T610 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 μm
Detector pitch	17 μm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006757
UPC-12	845188007102
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter

- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.18   FLIR T610 45° (incl. Wi-Fi)

P/N: 55903-4022
Rev.: 43545

General description
The FLIR T610 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T610 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T610 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T610 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006764
UPC-12	845188007119
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter

- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.19   FLIR T620 15° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-5023
Rev.: 43545

General description
The FLIR T620 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	- USB-A: Connect external USB device - USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	- Standard: 802.11 b/g - Frequency range: 2412–2462 MHz - Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	- ETSI EN 301 489-1 (radio) - ETSI EN 301 489-17 - EN 61000-6-2 (Immunity) - EN 61000-6-3 (Emission) - FCC 47 CFR Part 15 Class B (Emission) - ICES-003
Radio spectrum	- ETSI EN 300 328 - FCC Part 15.247 - RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011911
UPC-12	845188013028
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup

- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.20   FLIR T620 15° (incl. Wi-Fi)

P/N: 55903-5022
Rev.: 43545

General description
The FLIR T620 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006801
UPC-12	845188007157
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter

- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.21 FLIR T620 25° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-5125
Rev.: 43545

General description
The FLIR T620 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620 camera is equipped with the innovative "Multi Spectral Dynamic Imaging (MSX)" feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011928
UPC-12	845188013035
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup

- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.22   FLIR T620 25° (incl. Wi-Fi)

P/N: 55903-5122
Rev.: 43545

General description
The FLIR T620 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620 is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T620 camera is equipped with the innovative "Multi Spectral Dynamic Imaging (MSX)" feature, which produces an image richer in detail than ever before. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T620 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. •   Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006818
UPC-12	845188007164
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter

- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.23   FLIR T620 25° and 15° (incl. Wi-Fi)

P/N: 55903-5123
Rev.: 43545

General description
The FLIR T620 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620 camera is equipped with the innovative "Multi Spectral Dynamic Imaging (MSX)" feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, 15° • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	5.7 kg (12.5 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011249
UPC-12	845188012120
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup

- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.24   FLIR T620 25° and 45° (incl. Wi-Fi)

P/N: 55903-5124
Rev.: 43545

General description
The FLIR T620 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620 camera is equipped with the innovative "Multi Spectral Dynamic Imaging (MSX)" feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, 45° • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	5.7 kg (12.5 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011256
UPC-12	845188012137
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup

- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.25   FLIR T620 45° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-5223
Rev.: 43545

General description
The FLIR T620 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620 is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T620 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T620 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. •   Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - Extended calibration certificate - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Printed documentation - Tripod adapter - USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011935
UPC-12	845188013042
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup

- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.26 FLIR T620 45° (incl. Wi-Fi)

P/N: 55903-5222
Rev.: 43545

General description
The FLIR T620 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - Printed documentation - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Tripod adapter - USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006825
UPC-12	845188007171
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter

- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.27   FLIR T620bx 15° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-5623
Rev.: 43545

General description
The FLIR T620bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T620bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T620bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. •   Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	- USB-A: Connect external USB device - USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	- Standard: 802.11 b/g - Frequency range: 2412–2462 MHz - Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	- ETSI EN 301 489-1 (radio) - ETSI EN 301 489-17 - EN 61000-6-2 (Immunity) - EN 61000-6-3 (Emission) - FCC 47 CFR Part 15 Class B (Emission) - ICES-003

Environmental data	
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011942
UPC-12	845188013059
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m

- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.28   FLIR T620bx 15° (incl. Wi-Fi)

P/N: 55903-5622
Rev.: 43545

General description
The FLIR T620bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003

Environmental data	
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006863
UPC-12	845188007218
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m

- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.29 FLIR T620bx 25° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-5723
Rev.: 43545

General description
The FLIR T620bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 μm
Detector pitch	17 μm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	- USB-A: Connect external USB device - USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	- Standard: 802.11 b/g - Frequency range: 2412–2462 MHz - Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	- ETSI EN 301 489-1 (radio) - ETSI EN 301 489-17 - EN 61000-6-2 (Immunity) - EN 61000-6-3 (Emission) - FCC 47 CFR Part 15 Class B (Emission) - ICES-003

Environmental data	
Radio spectrum	- ETSI EN 300 328 - FCC Part 15.247 - RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - Extended calibration certificate - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Printed documentation - Tripod adapter - USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011959
UPC-12	845188013066
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m

- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.30   FLIR T620bx 25° (incl. Wi-Fi)

P/N: 55903-5722
Rev.: 43545

General description
The FLIR T620bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	- USB-A: Connect external USB device - USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	- Standard: 802.11 b/g - Frequency range: 2412–2462 MHz - Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	- ETSI EN 301 489-1 (radio) - ETSI EN 301 489-17 - EN 61000-6-2 (Immunity) - EN 61000-6-3 (Emission) - FCC 47 CFR Part 15 Class B (Emission) - ICES-003

Environmental data	
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006870
UPC-12	845188007225
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m

- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.31   FLIR T620bx 45° (incl. Wi-Fi and Ext. cal.)

P/N: 55903-5823
Rev.: 43545

General description
The FLIR T620bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T620bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T620bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003

Environmental data	
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011966
UPC-12	845188013073
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m

- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.32   FLIR T620bx 45° (incl. Wi-Fi)

P/N: 55903-5822
Rev.: 43545

General description
The FLIR T620bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T620bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T620bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before.   •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views.   •   Extensive communication options: The Wi-Fi connectivity of the FLIR T620bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image.   •   Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003

Environmental data	
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006887
UPC-12	845188007232
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case
• T198059; Close-up IR lens, 2.9× (50 µm) with case
• T198060; Close-up IR lens, 5.8× (100 µm) with case
• T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
• T198065; IR lens, f=6.5 mm (80°) with case
• T198066; Close-up IR lens, 1.5× (25 µm) with case
• T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
• T910814; Power supply, incl. multi plugs
• T198126; Battery charger, incl. power supply with multi plugs T6xx
• T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
• T911650ACC; Memory card SD Card 8 GB
• 1910423; USB cable Std A <-> Mini-B
• T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
• T910930ACC; HDMI type C to DVI cable 1.5 m
• T910891ACC; HDMI type C to HDMI type A cable 1.5 m

- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.33   FLIR T630 15° (incl. Wi-Fi)

P/N: 55904-6222
Rev.: 43545

General description
The FLIR T630 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T630 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T630 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T630 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	5
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006924
UPC-12	845188007270
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup

- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.34   FLIR T630 25° (incl. Wi-Fi)

P/N: 55904-6322
Rev.: 43545

General description
The FLIR T630 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T630 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T630 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T630 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	5
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006931
UPC-12	845188007287
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup

- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.35   FLIR T630 45° (incl. Wi-Fi)

P/N: 55904-6422
Rev.: 43545

General description
The FLIR T630 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T630 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T630 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T630 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be sub-stantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<40 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 μm
Detector pitch	17 μm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	5
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image

Laser pointer	
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	−15°C to +50°C (+5°F to +122°F)
Storage temperature range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2

Environmental data	
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006948
UPC-12	845188007294
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup

- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.36   FLIR T630sc 15° (incl. Wi-Fi)

P/N: 55904-8023
Rev.: 43545

General description
The FLIR T630sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with streaming options make the FLIR T630sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T630sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T630sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T630sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the FLIR T630sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR ResearchIR Max 4 • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558008737
UPC-12	845188009250
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx

- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.37   FLIR T630sc 25° (incl. Wi-Fi)

P/N: 55904-8123
Rev.: 43545

General description
The FLIR T630sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with streaming options make the FLIR T630sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T630sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T630sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T630sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the FLIR T630sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR ResearchIR Max 4 • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558008713
UPC-12	845188009236
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case
• T198059; Close-up IR lens, 2.9× (50 µm) with case
• T198060; Close-up IR lens, 5.8× (100 µm) with case
• T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
• T198065; IR lens, f=6.5 mm (80°) with case
• T198066; Close-up IR lens, 1.5× (25 µm) with case
• T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
• T910814; Power supply, incl. multi plugs
• T198126; Battery charger, incl. power supply with multi plugs T6xx

- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.38   FLIR T630sc 25° and 45° w/case

P/N: 55904-8124
Rev.: 43545

General description
The FLIR T630sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with streaming options make the FLIR T630sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T630sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T630sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T630sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the FLIR T630sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR ResearchIR Max 4 • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, f=13.1 mm (45°) with case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
EAN-13	7332558012062
UPC-12	845188013165
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case
• T198059; Close-up IR lens, 2.9× (50 µm) with case
• T198060; Close-up IR lens, 5.8× (100 µm) with case
• T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
• T198065; IR lens, f=6.5 mm (80°) with case
• T198066; Close-up IR lens, 1.5× (25 µm) with case
• T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
• T910814; Power supply, incl. multi plugs
• T198126; Battery charger, incl. power supply with multi plugs T6xx
• T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
• T911650ACC; Memory card SD Card 8 GB

- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.39   FLIR T630sc 45° (incl. Wi-Fi)

P/N: 55904-8223
Rev.: 43545

General description
The FLIR T630sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with streaming options make the FLIR T630sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T630sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T630sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T630sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the FLIR T630sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Automatic (one shot) or manual
Digital zoom	1–4× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR ResearchIR Max 4 • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558008744
UPC-12	845188009267
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx

- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.40   FLIR T640 15° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-6823
Rev.: 43545

General description
The FLIR T640 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011973
UPC-12	845188013080
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs

- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.41   FLIR T640 15° (incl. Wi-Fi)

P/N: 55904-6822
Rev.: 43545

General description
The FLIR T640 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640 is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T640 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640 the first fully automatic infrared camera on the market. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. •   Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	- USB-A: Connect external USB device - USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	- Standard: 802.11 b/g - Frequency range: 2412–2462 MHz - Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006986
UPC-12	845188007331
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case
• T198059; Close-up IR lens, 2.9× (50 µm) with case
• T198060; Close-up IR lens, 5.8× (100 µm) with case
• T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
• T198065; IR lens, f=6.5 mm (80°) with case
• T198066; Close-up IR lens, 1.5× (25 µm) with case
• T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
• T910814; Power supply, incl. multi plugs
• T198126; Battery charger, incl. power supply with multi plugs T6xx

- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.42 FLIR T640 25° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-6925
Rev.: 43545

General description
The FLIR T640 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011980
UPC-12	845188013097
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case
• T198059; Close-up IR lens, 2.9× (50 μm) with case
• T198060; Close-up IR lens, 5.8× (100 μm) with case
• T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
• T198065; IR lens, f=6.5 mm (80°) with case
• T198066; Close-up IR lens, 1.5× (25 μm) with case
• T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
• T910814; Power supply, incl. multi plugs

- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.43   FLIR T640 25° (incl. Wi-Fi)

P/N: 55904-6922
Rev.: 43545

General description
The FLIR T640 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558006993
UPC-12	845188007348
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx

- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.44　FLIR T640 25° and 15° (incl. Wi-Fi)

P/N: 55904-6923
Rev.: 43545

General description
The FLIR T640 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, 15° • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	5.7 kg (12.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011263
UPC-12	845188012144
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case
• T198059; Close-up IR lens, 2.9× (50 µm) with case
• T198060; Close-up IR lens, 5.8× (100 µm) with case
• T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
• T198065; IR lens, f=6.5 mm (80°) with case
• T198066; Close-up IR lens, 1.5× (25 µm) with case
• T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
• T910814; Power supply, incl. multi plugs

- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.45   FLIR T640 25° and 45° (incl. Wi-Fi)

P/N: 55904-6924
Rev.: 43545

General description
The FLIR T640 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, 45° • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	5.7 kg (12.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011270
UPC-12	845188012151
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case
• T198059; Close-up IR lens, 2.9× (50 μm) with case
• T198060; Close-up IR lens, 5.8× (100 μm) with case
• T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
• T198065; IR lens, f=6.5 mm (80°) with case
• T198066; Close-up IR lens, 1.5× (25 μm) with case
• T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
• T910814; Power supply, incl. multi plugs

- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.46 FLIR T640 45° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-7023
Rev.: 43545

General description
The FLIR T640 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640 is flexible and can meet your every need, and has extensive communication options.

Benefits:
• Highest performance with the latest technology: The FLIR T640 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558011997
UPC-12	845188013103
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs

- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.47   FLIR T640 45° (incl. Wi-Fi)

P/N: 55904-7022
Rev.: 43545

General description
The FLIR T640 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640 is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• –40°C to +150°C (–40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	- USB-A: Connect external USB device - USB Mini-B: Data transfer to and from PC / un-compressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	- Standard: 802.11 b/g - Frequency range: 2412–2462 MHz - Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles

Environmental data	
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558007006
UPC-12	845188007355
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case
• T198059; Close-up IR lens, 2.9× (50 μm) with case
• T198060; Close-up IR lens, 5.8× (100 μm) with case
• T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
• T198065; IR lens, f=6.5 mm (80°) with case
• T198066; Close-up IR lens, 1.5× (25 μm) with case
• T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
• T910814; Power supply, incl. multi plugs
• T198126; Battery charger, incl. power supply with multi plugs T6xx

- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.48   FLIR T640bx 15° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-7423
Rev.: 43545

General description
The FLIR T640bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
•   Highest performance with the latest technology: The FLIR T640bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640bx the first fully automatic infrared camera on the market. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T640bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. •   Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Alarm	
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	- Simultaneous storage of thermal and digital photo in same JPEG file. - Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	- Instant Report (*.pdf file) in camera - Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558012000
UPC-12	845188013110
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in.
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.49   FLIR T640bx 15° (incl. Wi-Fi)

P/N: 55904-7422
Rev.: 43545

General description
The FLIR T640bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640bx the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Alarm	
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558007051
UPC-12	845188007393
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case

- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.50   FLIR T640bx 25° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-7523
Rev.: 43545

General description
The FLIR T640bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640bx the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Alarm	
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558012017
UPC-12	845188013127

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case

- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.51 FLIR T640bx 25° (incl. Wi-Fi)

P/N: 55904-7522
Rev.: 43545

General description
The FLIR T640bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640bx the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Alarm	
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	- Simultaneous storage of thermal and digital photo in same JPEG file. - Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	- Instant Report (*.pdf file) in camera - Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558007068
UPC-12	845188007409

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case

- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.52   FLIR T640bx 45° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-7623
Rev.: 43545

General description
The FLIR T640bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640bx is flexible and can meet your every need, and has extensive communication options.
Benefits:
• Highest performance with the latest technology: The FLIR T640bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640bx the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Alarm	
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558012031
UPC-12	845188013134
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in.
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.53   FLIR T640bx 45° (incl. Wi-Fi)

P/N: 55904-7622
Rev.: 43545

General description	
The FLIR T640bx is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T640bx is flexible and can meet your every need, and has extensive communication options.	
Benefits:	
• Highest performance with the latest technology: The FLIR T640bx is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T640bx the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640bx allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.	

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<30 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 μm
Detector pitch	17 μm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Alarm	
Humidity alarm	1 humidity alarm, including dew point alarm
Insulation alarm	1 insulation alarm

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	- Simultaneous storage of thermal and digital photo in same JPEG file. - Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	- Instant Report (*.pdf file) in camera - Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558007075
UPC-12	845188007416
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case

- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.54   FLIR T650sc 15° (incl. Wi-Fi)

P/N: 55904-7723
Rev.: 43545

General description
The FLIR T650sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with radiometric recording and streaming options make the FLIR T650sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T650sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. With real-time radiometric recording by the camera, it is possible to capture fast events on an SD card for further analysis by the supplied analysis software. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T650sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T650sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the T650sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Viewfinder	Built-in 800 × 480 pixels
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±1°C (±1.8°F) or ±1% of reading for limited temperature range for measuring object within +5°C to +120°C (+ 41ºF to +248 ºF) and ambient temperatures of +10°C to +35°C (+49ºF to +95ºF). This is only valid for the temperature range -40°C to +120°C (-40°F to +248°F).

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR ResearchIR Max 4 • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.95 kg (15.3 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558007082
UPC-12	845188007423
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in.
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.55   FLIR T650sc 25° (incl. Wi-Fi)

P/N: 55904-7823
Rev.: 43545

General description
The FLIR T650sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with radiometric recording and streaming options make the FLIR T650sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T650sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. With real-time radiometric recording by the camera, it is possible to capture fast events on an SD card for further analysis by the supplied analysis software. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T650sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T650sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the T650sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Viewfinder	Built-in 800 × 480 pixels
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±1°C (±1.8°F) or ±1% of reading for limited temperature range for measuring object within +5°C to +120°C (+ 41ºF to +248 ºF) and ambient temperatures of +10°C to +35°C (+49ºF to +95ºF). This is only valid for the temperature range -40°C to +120°C (-40°F to +248°F).

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR ResearchIR Max 4 • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.95 kg (15.3 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558007099
UPC-12	845188007430
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.56   FLIR T650sc 25° and 15° w/case

P/N: 55904-7824
Rev.: 43545

General description
The FLIR T650sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with radiometric recording and streaming options make the FLIR T650sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T650sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. With real-time radiometric recording by the camera, it is possible to capture fast events on an SD card for further analysis by the supplied analysis software. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T650sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T650sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the T650sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Viewfinder	Built-in 800 × 480 pixels
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±1°C (±1.8°F) or ±1% of reading for limited temperature range for measuring object within +5°C to +120°C (+ 41ºF to +248 ºF) and ambient temperatures of +10°C to +35°C (+49ºF to +95ºF). This is only valid for the temperature range -40°C to +120°C (-40°F to +248°F).

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	- Simultaneous storage of thermal and digital photo in same JPEG file. - Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	- Instant Report (*.pdf file) in camera - Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR ResearchIR Max 4 • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, f=41.3 mm (15°) with case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
EAN-13	7332558012048
UPC-12	845188013141
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case

- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.57   FLIR T650sc 25° and 45° w/case

P/N: 55904-7825
Rev.: 43545

General description
The FLIR T650sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with radiometric recording and streaming options make the FLIR T650sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T650sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. With real-time radiometric recording by the camera, it is possible to capture fast events on an SD card for further analysis by the supplied analysis software. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T650sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T650sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the T650sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Viewfinder	Built-in 800 × 480 pixels
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±1°C (±1.8°F) or ±1% of reading for limited temperature range for measuring object within +5°C to +120°C (+ 41ºF to +248 ºF) and ambient temperatures of +10°C to +35°C (+49ºF to +95ºF). This is only valid for the temperature range -40°C to +120°C (-40°F to +248°F).

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	- ETSI EN 301 489-1 (radio) - ETSI EN 301 489-17 - EN 61000-6-2 (Immunity) - EN 61000-6-3 (Emission) - FCC 47 CFR Part 15 Class B (Emission) - ICES-003
Radio spectrum	- ETSI EN 300 328 - FCC Part 15.247 - RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - FLIR ResearchIR Max 4 - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - IR lens, f=13.1 mm (45°) with case - Large eyecap - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Printed documentation - Tripod adapter - USB cable, Std A to Mini-B
EAN-13	7332558012055
UPC-12	845188013158
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case

- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.58 FLIR T650sc 45° (incl. Wi-Fi)

P/N: 55904-7923
Rev.: 43545

General description
The FLIR T650sc is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality of 640 × 480 pixel infrared resolution. High accuracy and sensitivity together with radiometric recording and streaming options make the FLIR T650sc well suited for advanced research and development.
Benefits:
• Tailor made for research and development: The FLIR T650sc has high accuracy and high sensitivity to accurately measure the smallest temperature differences. With real-time radiometric recording by the camera, it is possible to capture fast events on an SD card for further analysis by the supplied analysis software. • Flexible and feature rich: A wide variety of measuring and analysis functions makes the camera flexible and able to meet your every need. A programmable button provides easy access to favorite functions. • Highest performance with the latest technology: The FLIR T650sc is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T650sc the first fully automatic infrared camera on the market. • Extensive communication options: The Wi-Fi connectivity of the T650sc allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait

Image presentation	
Viewfinder	Built-in 800 × 480 pixels
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	±1°C (±1.8°F) or ±1% of reading for limited temperature range for measuring object within +5°C to +120°C (+ 41ºF to +248 ºF) and ambient temperatures of +10°C to +35°C (+49ºF to +95ºF). This is only valid for the temperature range -40°C to +120°C (-40°F to +248°F).

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR ResearchIR Max 4 • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.95 kg (15.3 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558007105
UPC-12	845188007447
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.59   FLIR T660 15° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-8423
Rev.: 43545

General description
The FLIR T660 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T660 is flexible and can meet your every need.
Benefits:
• Highest performance with the latest technology: The FLIR T660 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T660 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T660 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558012079
UPC-12	845188013172
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.60   FLIR T660 15° (incl. Wi-Fi)

P/N: 55904-8422
Rev.: 43545

General description
The FLIR T660 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T660 is flexible and can meet your every need.
Benefits:
• Highest performance with the latest technology: The FLIR T660 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T660 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T660 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	15° × 11°
Minimum focus distance	0.5 m (1.64 ft.)
Focal length	41 mm (1.63 in.)
Spatial resolution (IFOV)	0.41 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558008751
UPC-12	845188009274
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case

- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.61   FLIR T660 25° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-8523
Rev.: 43545

General description
The FLIR T660 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T660 is flexible and can meet your every need.
Benefits:
• Highest performance with the latest technology: The FLIR T660 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T660 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558012086
UPC-12	845188013189
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in.
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.62   FLIR T660 25° (incl. Wi-Fi)

P/N: 55904-8522
Rev.: 43545

General description
The FLIR T660 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T660 is flexible and can meet your every need.
Benefits:
• Highest performance with the latest technology: The FLIR T660 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T660 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Printed documentation • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558008720
UPC-12	845188009243
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case

- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.63   FLIR T660 25° and 15° w/case

P/N: 55904-8524
Rev.: 43545

General description
The FLIR T660 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T660 is flexible and can meet your every need.
Benefits:
• Highest performance with the latest technology: The FLIR T660 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T660 the first fully automatic infrared camera on the market. • Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. • Extensive communication options: The Wi-Fi connectivity of the FLIR T640 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. • Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	25° × 19°
Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	- Simultaneous storage of thermal and digital photo in same JPEG file. - Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	- Instant Report (*.pdf file) in camera - Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • IR lens, f=41.3 mm (15°) with case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
EAN-13	7332558012093
UPC-12	845188013196
Country of origin	Sweden

Supplies & accessories:

• T197914; IR lens, f=41.3 mm (15°) with case
• T197922; IR lens, f=24.6 mm (25°) with case
• T197915; IR lens, f=13.1 mm (45°) with case

- T198059; Close-up IR lens, 2.9× (50 µm) with case
- T198060; Close-up IR lens, 5.8× (100 µm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.64   FLIR T660 25° and 45° w/case

P/N: 55904-8525
Rev.: 43545

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Minimum focus distance	0.25 m (0.82 ft.)
Focal length	25 mm (0.97 in.)
Spatial resolution (IFOV)	0.68 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 µm
Detector pitch	17 µm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	−40°C to +150°C (−40°F to +302°F) +100°C to +650°C (+212°F to +1202°F) +300°C to +2000°C (+572°F to +3632°F)
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Spotmeter	10
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Profile	1 line profile with max/min temp
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Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
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File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
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METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

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Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
Visual video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB

Digital camera	
Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	- ETSI EN 301 489-1 (radio) - ETSI EN 301 489-17 - EN 61000-6-2 (Immunity) - EN 61000-6-3 (Emission) - FCC 47 CFR Part 15 Class B (Emission) - ICES-003
Radio spectrum	- ETSI EN 300 328 - FCC Part 15.247 - RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	- Infrared camera with lens - Battery (2 ea.) - Battery charger - Bluetooth headset - Calibration certificate - HDMI-DVI cable - HDMI-HDMI cable - Hard transport case - IR lens, f=13.1 mm (45°) with case - Large eyecap - Lens cap - Memory card - Neck strap - Power supply, incl. multi-plugs - Printed documentation - Tripod adapter - USB cable, Std A to Mini-B
EAN-13	7332558012109
UPC-12	845188013202
Country of origin	Sweden

Supplies & accessories:

- T197914; IR lens, f=41.3 mm (15°) with case
- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case

- T198059; Close-up IR lens, 2.9× (50 μm) with case
- T198060; Close-up IR lens, 5.8× (100 μm) with case
- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 μm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198625ACC; Hard transport case
- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
- T198499; Neck strap
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- 19250-100; IR Window 2 in
- 19251-100; IR Window 3 in.
- 19252-100; IR Window 4 in.
- 19250-200; SS IR Window 2 in.
- 19251-200; SS IR Window 3 in.
- 19252-200; SS IR Window 4 in.
- T198496; Stylus pen
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10004; FLIR Tools (MacOS Application)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

24.65   FLIR T660 45° (incl. Wi-Fi and Ext. cal.)

P/N: 55904-8623
Rev.: 43545

General description
The FLIR T660 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and a walk-up-and-use interface with superior image quality of 640 × 480 pixel infrared resolution. The FLIR T660 is flexible and can meet your every need.
Benefits:
•   Highest performance with the latest technology: The FLIR T660 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. Continuous auto-focus makes the FLIR T660 the first fully automatic infrared camera on the market. •   Ground-breaking efficiency: You can highlight objects of interest, on both the infrared and the visual images, by sketching or adding predefined stamps directly onto the camera's capacitive touch screen. The user interface is intuitive and logical for effective operation. Auto-orientation allows you to tilt between landscape and portrait views. •   Extensive communication options: The Wi-Fi connectivity of the FLIR T660 allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The Bluetooth-based METERLiNK function transfers readings from external measurement instruments to the infrared image. •   Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be sub-stantially enhanced when importing the images into FLIR Tools.

Imaging and optical data	
IR resolution	640 × 480 pixels
UltraMax	Yes
Thermal sensitivity/NETD	<20 mK @ +30°C (+86°F)
Field of view (FOV)	45° × 34°
Minimum focus distance	0.15 m (0.49 ft.)
Focal length	13 mm (0.52 in.)
Spatial resolution (IFOV)	1.30 mrad
Lens identification	Automatic
F-number	1.0
Image frequency	30 Hz
Focus	Continuous, one shot or manual
Digital zoom	1–8× continuous
Digital image enhancement	Adaptive digital noise reduction

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–14 μm
Detector pitch	17 μm

Image presentation	
Display	Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels
Display type	Capacitive touch screen
Auto orientation	Automatic landscape or portrait
Viewfinder	Built-in 800 × 480 pixels

Image presentation	
Automatic image adjustment	Continuous, histogram based
Manual image adjustment	Linear based; possible to adjust level/span/max./min.

Image presentation modes	
Infrared image	Full-color IR image
Visual image	Full color visual image
Thermal MSX	Thermal image with enhanced detail presentation
Picture in Picture	Resizable and movable IR area on visual image

Measurement	
Object temperature range	• −40°C to +150°C (−40°F to +302°F) • +100°C to +650°C (+212°F to +1202°F) • +300°C to +2000°C (+572°F to +3632°F)
Accuracy	• ±1°C (±1.8°F) or ±1% of reading for limited temperature range. • ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.

Measurement analysis	
Spotmeter	10
Area	5 + 5 areas (boxes or circles) with max./min./average (in post-acquisition analysis)
Profile	1 line profile with max/min temp
Automatic hot/cold detection	Auto hot or cold spotmeter markers within area and profile
Measurement presets	No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2
User presets (in live images)	The user can select and combine measurements from any number of available spots/boxes/circles/profiles/delta
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set using difference temperature
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or selected from materials list
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on inputs of window transmission and temperature
Measurement corrections	Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external IR window compensation
Colors (palettes)	Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava

Alarm	
Color Alarm (isotherm)	Above/below/interval
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
Screening	Difference temperature alarm, audible

Set-up	
Set-up commands	Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information

Service functions	
Camera software update	Use PC software FLIR Tools

Storage of images	
Image storage	Standard JPEG, including digital photo and measurement data, on memory card
Storage media	Removable memory SD card
Image storage mode	• Simultaneous storage of thermal and digital photo in same JPEG file. • Optional to store digital photo as a separate JPEG file.
Time lapse	15 seconds to 24 hours
File formats	Standard JPEG, measurement data included
File formats, visual	Standard JPEG, automatically associated with corresponding thermal image

Image annotations (in still images)	
Voice	60 seconds (via Bluetooth) stored with the image
Text	Add table. Select between predefined templates or create your own in FLIR Tools
Image description	Add short note (stored in JPEG EXIF tag)
Sketch	Draw on thermal/digital photo or add predefined stamps
METERLiNK	Wireless connection (Bluetooth) to: FLIR meters with METERLiNK
Report generation	• Instant Report (*.pdf file) in camera • Separate PC software with extensive report generation

Geographic Information System	
GPS	Location data automatically added to every still image from built-in GPS
Compass	Camera direction automatically added to every still image

Video recording in camera	
Radiometric IR video recording	CSQ to memory card
Non-radiometric IR video recording	MPEG-4 to memory card
Visual video recording	MPEG-4 to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB or to mobile devices using Wi-Fi.
Non-radiometric IR video streaming	• MPEG-4 using Wi-Fi • Uncompressed colorized video using USB
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Built-in digital camera	5 Mpixels with LED light (photo as separate image)
Digital camera, FOV	Adapts to the IR lens
Video lamp	Built-in LED light

Laser pointer	
Laser	Activated by dedicated button
Laser alignment	Position is automatic displayed on the IR image
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

Data communication interfaces	
Interfaces	USB-mini, USB-A, Bluetooth, Wi-Fi, Digital Video Output
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer (ad hoc) or infrastructure (network)
SD Card	One card slot for removable SD memory cards

USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC / uncompressed colorized video
USB, standard	USB 2.0 high speed

Video output	
Video out	Digital video output (DVI)
Video, connector type	HDMI compatible

Radio	
Wi-Fi	• Standard: 802.11 b/g • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm
METERLiNK/Bluetooth	Frequency range: 2402–2480 MHz
Antenna	Internal

Power system	
Battery type	Rechargeable Li ion battery
Battery operating time	> 2.5 hours at 25°C (+68°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 90 % capacity, charging status indicated by LED's

Power system	
Charging temperature	0°C to +45°C (+32°F to +113°F)
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)

Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
EMC	• ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003
Radio spectrum	• ETSI EN 300 328 • FCC Part 15.247 • RSS-247 Issue 2
Encapsulation	IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	EN/UL/CSA/PSE 60950-1

Physical data	
Weight	1.3 kg (2.87 lb.)
Camera size, excl. lens (L × W × H)	143 × 195 × 95 mm (5.6 × 7.7 × 3.7 in.)
Tripod mounting	UNC ¼"-20
Housing material	Magnesium

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • Extended calibration certificate • HDMI-DVI cable • HDMI-HDMI cable • Hard transport case • Large eyecap • Lens cap • Memory card • Neck strap • Power supply, incl. multi-plugs • Printed documentation • Tripod adapter • USB cable, Std A to Mini-B
Packaging, weight	6.6 kg (14.6 lb.)
Packaging, size	495 × 192 × 370 mm (19.49 × 7.56 × 14.57 in.)
EAN-13	7332558012116
UPC-12	845188013219
Country of origin	Sweden

Supplies & accessories:

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- T197922; IR lens, f=24.6 mm (25°) with case
- T197915; IR lens, f=13.1 mm (45°) with case
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- T198166; IR lens, f=88.9 mm (7°) with case and support for T6xx
- T198065; IR lens, f=6.5 mm (80°) with case
- T198066; Close-up IR lens, 1.5× (25 µm) with case
- T197896; High temperature option +300°C to 2000°C (+572°F to 3632°F)
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- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911650ACC; Memory card SD Card 8 GB
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- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
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- T198495; Pouch
- T198497; Large eyecup
- T198498; Tripod Adapter
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- 19252-100; IR Window 4 in.
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