



THT8


User manual



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1 PRECAUTIONS AND SAFETY MEASURES

The instrument has been designed in accordance with the directives on electronic measuring instruments. For your safety and to avoid damaging the instrument, please follow the procedures described in this manual and read with particular care all the notes preceded by the symbol . Before and during the execution of the measures follow these indications:



ATTENTION

- Do not carry out measurements in the presence of gases or explosive materials, combustible or in humid or dusty environments
- Do not make any measurements if anomalies are found in the instrument such as deformations, breakages, leaks of substances, absence of display on the display, etc.
- Keep the instrument stable during each measurement operation
- **Do not use the instrument in environments with temperatures that exceed the limits specified in § 7.1.1 in order not to damage it**
- **Do not point the instrument at sources with high radiation intensity (ex: sun) to avoid damage to the IR sensor**
- Avoid shocks or strong vibrations on the instrument to avoid damage
- In the passage of the instrument from a cold environmental condition to a very hot one, leave it on for a sufficient time for the evaporation of the condensation effects

The following symbol is used in this manual and on the instrument:



Attention: follow the instructions in the manual; improper use could cause damage to the instrument or its components.

1.1 DURING USE



ATTENTION

- Failure to observe warnings and/or instructions may damage the instrument or be a source of danger to the operator
- Use the instrument only in the temperature ranges given in § 7

2 GENERAL DESCRIPTION

The THT8 instrument is an extremely small professional digital camera capable of carrying out infrared temperature measurements directly connected to a mobile device (**Android smartphones only**) via integrated USB-C output. Image viewing and instrument management is only possible via '**HTSmartCamera** APP' downloadable and installable on your mobile device.

Main features of the tool are:

- Infrared temperature measurement with range from -20°C to 400°C
- Image display in connection with mobile device via **HTSmartCamera** APP
- Sensor resolution: 120x90pxl
- Thermal sensitivity: $<0.05^{\circ}\text{C}$ @ 30°C / 50mK
- Temperature measurement in $^{\circ}\text{C}$ / $^{\circ}\text{F}$
- "Screening" function for facial temperature measurement
- Automatic image focusing
- Saving IR snapshots in JPG format
- Saving IR video to MP4 format
- USB-C output for mobile device connection

3 PREPARATION FOR USE

3.1 INITIAL CHECKS

The instrument, before being shipped, was checked electrically and mechanically. All possible precautions were taken so that it could be delivered without damage. However, it is advisable in any case to briefly check the instrument to ascertain any damage suffered during transport. If any anomalies are found, contact the shipper immediately. It is also advisable to check that the packaging contains all the parts indicated in § 6.4.1. In case of discrepancies contact the dealer. If you need to return the instrument, please follow the instructions in § 8.

3.2 POWERING THE INSTRUMENT

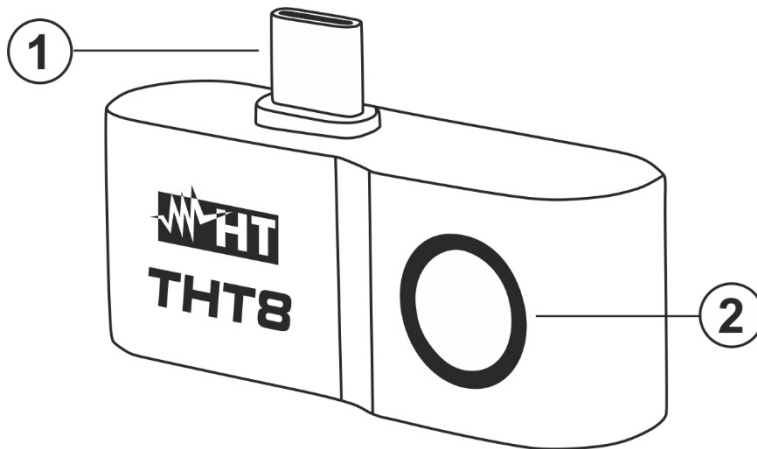
The instrument is powered directly from the mobile device to which it is connected via the USB-C output (see Fig. Fig. 1 – part 1).

3.3 STORAGE

To ensure precise measurements, after a long storage period in extreme environmental conditions, wait for the instrument to return to normal conditions (see §7.1.1).

4 NOMENCLATURE

4.1 DESCRIPTION OF THE INSTRUMENT





CAPTION

- 1. USB-C output
- 2. IR sensor

Fig. 1: Description of the instrument

5 USE OF HTSMARTCAMERA APP

The THT8 camera is managed only in combination with the **HTSmartCamera APP** available only for Android systems freely downloadable from the relative Store (frame the relative QR code below).

	Compatibility with Android systems version 4.4 or higher Quad Core A35 processor 2GB RAM or better	
	HTSmartCamera APP also downloadable from link: www.ht-instruments.com/download	

5.1 GENERAL DESCRIPTION

The HTSmartCamera APP allows the following features:

- Real-time connection in USB-C connection with Android mobile devices (smartphones)
- Real-time analysis of the images on display
- Cursor in central fixed position
- 9 color palettes available
- Advanced analysis (Points, Lines, Areas)
- Automatic hot/cold spot detection of the image
- Saving JPG images (snapshots) on mobile device
- Recording IR MP4 Video on mobile device
- Activation of the internal mobile device torch
- PDF Reporting

5.2 RUNNING THE APPLICATION

1. Install the HTSmartCamera APP on your mobile device
2. Run the APP on your mobile device. The initial splash screen (see Fig. 2 – left side) is shown for a few moments. The screen of Fig. 2 – central part indicating the unconnected thermal imaging camera is shown
3. Connect the THT8 thermal imaging camera to the mobile device via the USB-C output (see Fig. 1 – Part 1). The recognition of the instrument is automatic by the mobile device
4. After a few seconds of waiting, the IR image of the framed subject is present on the display of the mobile device (see Fig. 2 – right side)

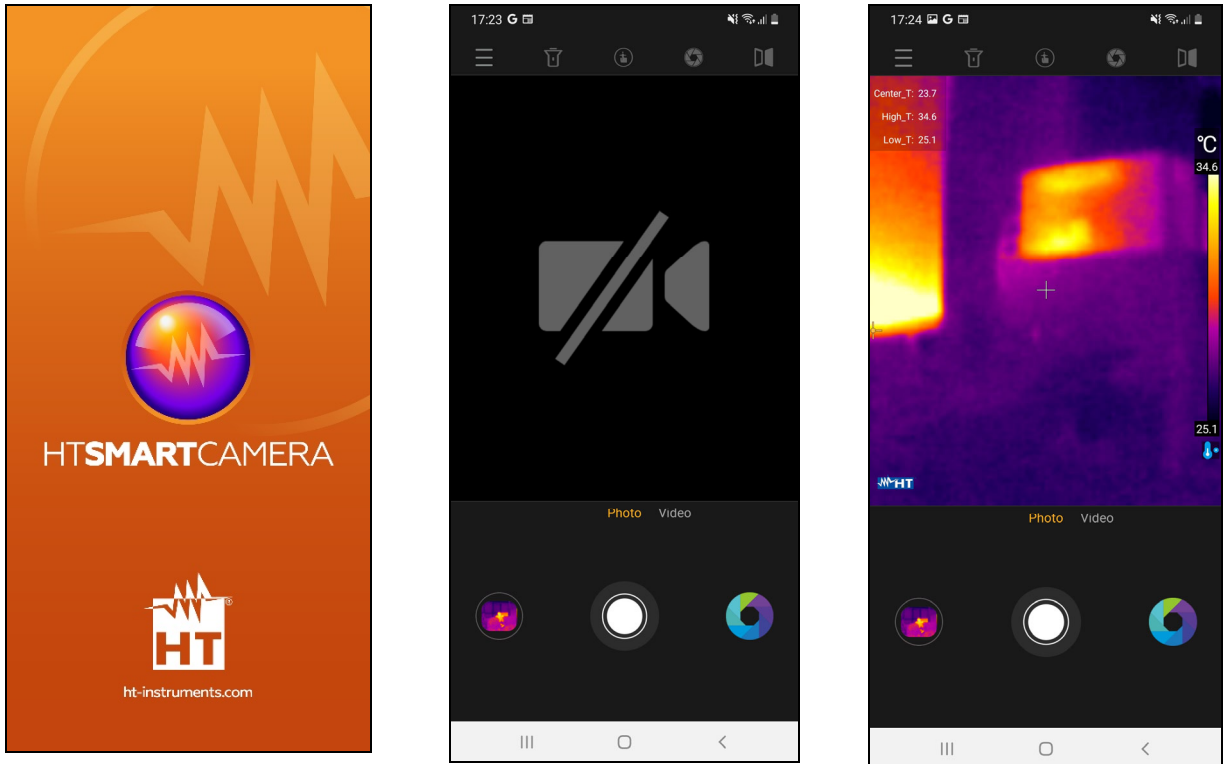
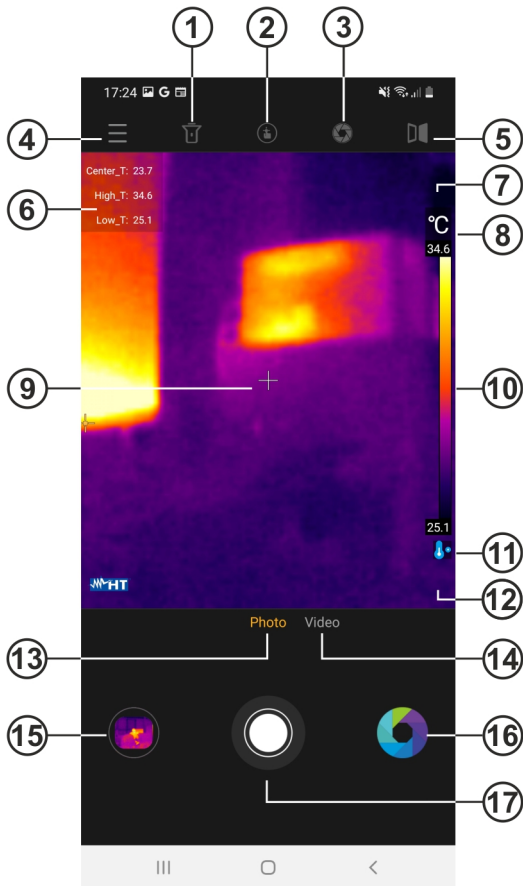


Fig. 2: Initial splash screen and instrument connection

5.3 MAIN SCREEN



CAPTION:

1. Mobile device flashlight
2. Advanced analytics tools
3. Manual instrument calibration
4. General menu
5. Image mirror function
6. Temperatures hot spots, cold and central slider
7. Temperature measurement units
8. Maximum temperature associated with the palette
9. Central fixed cursor
10. Color palette
11. Minimum temperature associated with the palette
12. Selected measuring range
13. IR Photo Selection
14. IR Video Selection
15. Access to saved image/video gallery
16. Color palette selection
17. Image Save/Start-Stop Video

Fig. 3: Main screen display

Icon	Description
	Tap this icon to turn on/off your mobile device's flashlight
	Tap this icon to enter the advanced analysis section in order to add points, lines or areas on the image (see § 5.5)
	Tap this icon to perform manual calibration of the camera. The message "IR calibration..." is shown for a moment on display
	Tap on this icon to perform the "mirror" function. The display image is reflected with respect to the vertical axis
	Tap this icon to access the general menu (see § 5.4)
	Tap this icon to change the color palette of the image among the 9 available options
	Tap this icon to save the IR image (JPG snapshot) present on display in the memory of the mobile device (see § 5.7)
	Tap on this icon to activate the IR video in the "Video" section
	Tap this icon to access the Gallery of images/videos saved in the memory of your mobile device

5.4 GENERAL MENU

1. Tap the icon to enter the general menu of the application. The screen of Fig. 4 – left side is shown on display

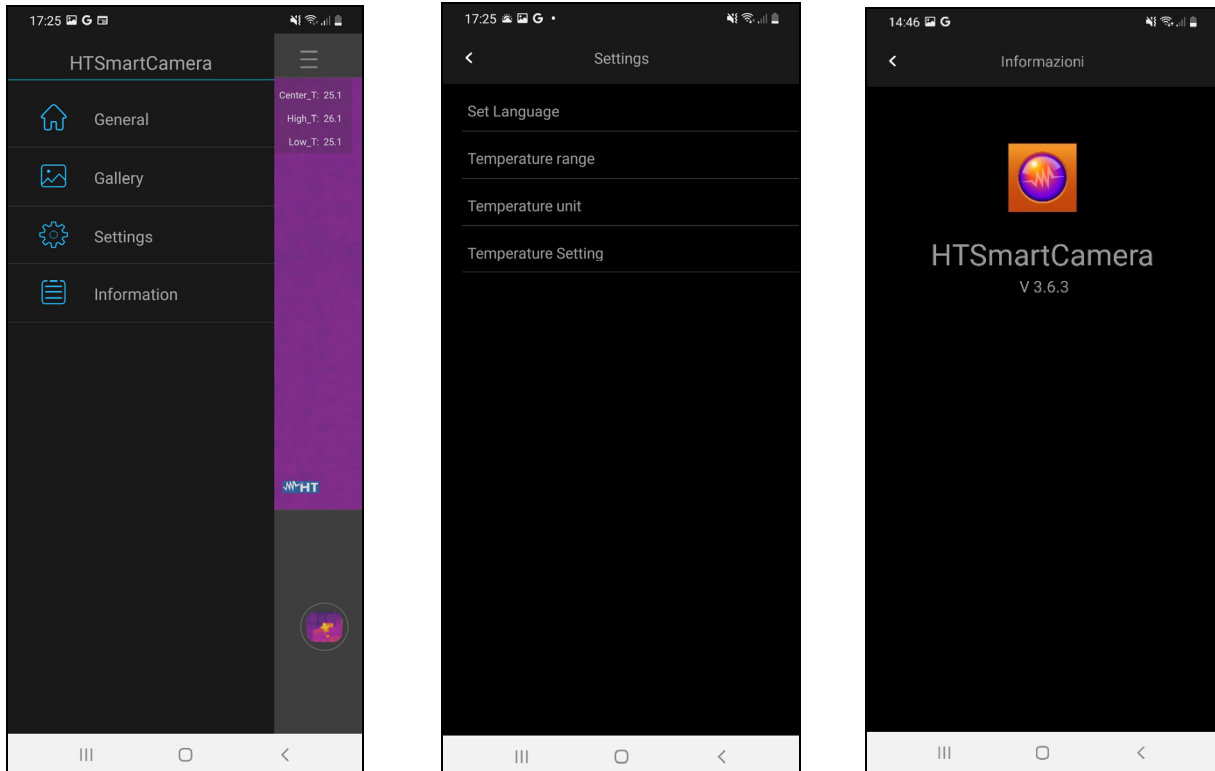


Fig. 4: General menu

Icon	Description
	Tap this icon to show the main screen of the application
	Tap this icon to enter the Gallery of Saved IR Images/Videos (see § 5.8)
	Tap this icon to enter the "Settings" section (see Fig. 4 – central part)
	Tap this icon to enter the "About" section where the version of the application is indicated (see Fig. 4 – right side)

2. Tap on the icon to make the general settings within the application. The following options are available:

- **Set Language** → allows the selection of the language of the application from those available. The "Available system language" option allows automatic selection of the system language of the mobile device (see Fig. 5 – left side)
- **Temperature range** → the instrument performs temperature measurements in the field: $-20^{\circ}\text{C} \div 400^{\circ}\text{C}$ divided into the two sub-fields $-20^{\circ}\text{C} \div 130^{\circ}\text{C}$ (icon shown) and $130^{\circ}\text{C} \div 400^{\circ}\text{C}$ (icon shown). It is also possible to select the field of the **Screening Mode** (facial temperature measurement) $32^{\circ}\text{C} \div 42^{\circ}\text{C}$ (icon shown)
- **Temperature Unit** → allows the selection of the unit of measurement of temperature among the options: $^{\circ}\text{C}$ and $^{\circ}\text{F}$ (see Fig. 5 – right side)

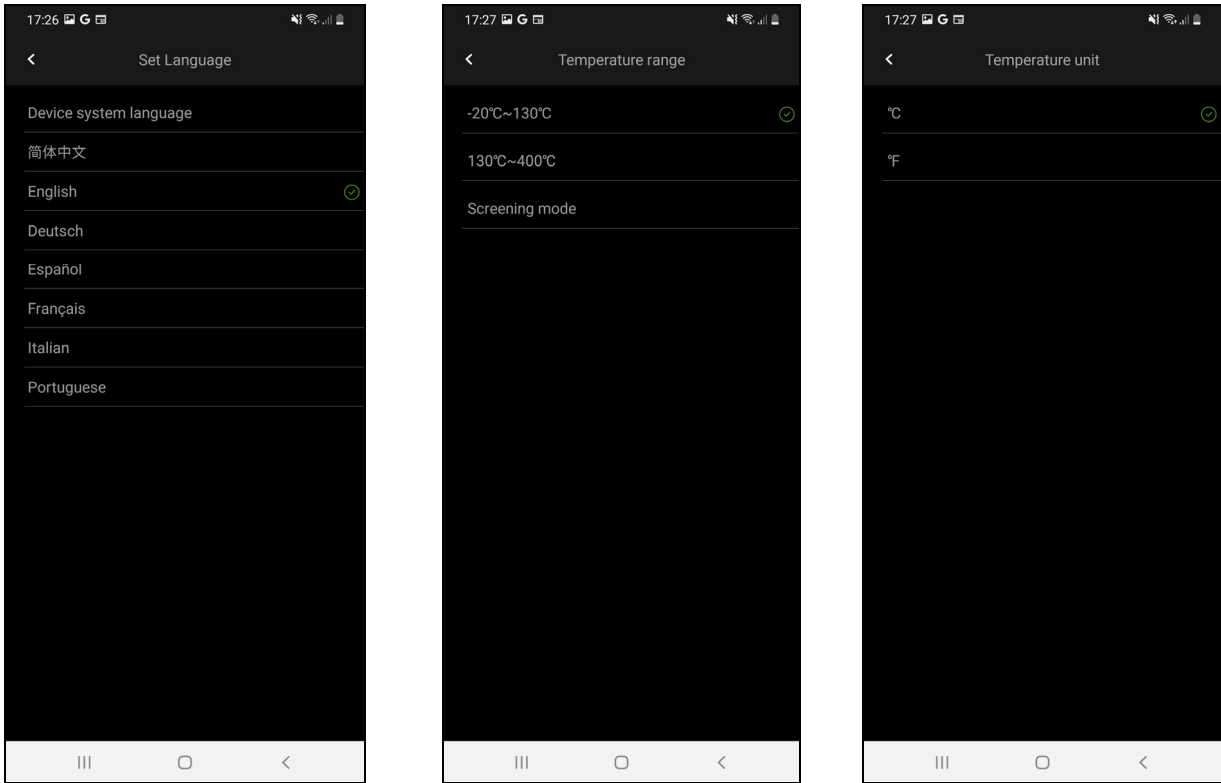


Fig. 5: Visualization of settings section

- **Temperature Settings**→ allows you to select the display of the sliders associated with the temperature measurement of the "hot" point, the "cold" point and the central cursor of the image (see Fig. 6)

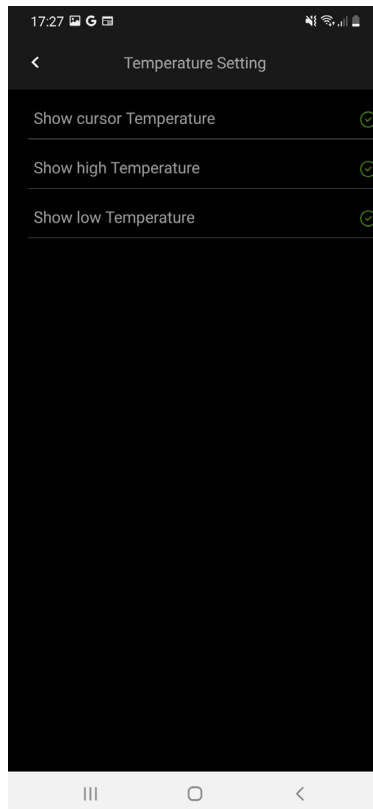
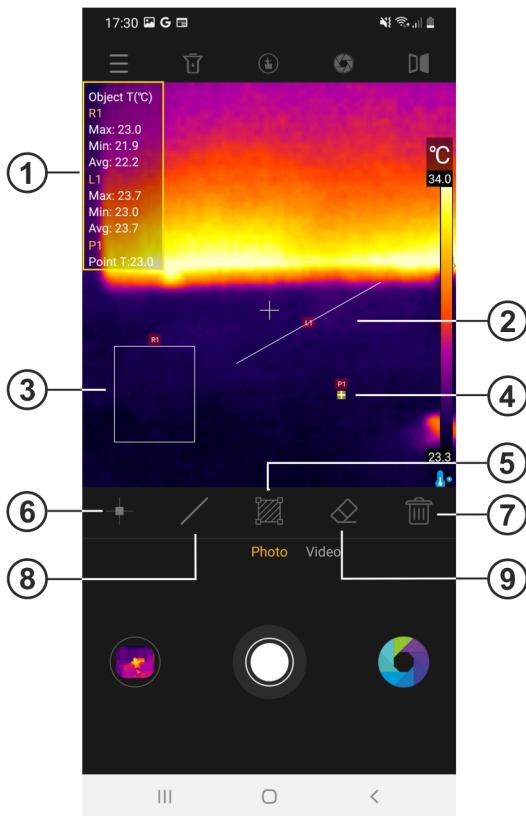


Fig. 6: Visualization of Temperature settings

5.5 ADVANCED ANALYSIS SECTION




CAPTION:

1. Object temperature information on image
2. Line on Image object
3. Area object on image
4. Point object on image
5. Manual instrument calibration
6. Added Point on image
7. Deleting all objects on the image
8. Adding Line on Image
9. Deletion of the last object on the image

Fig. 7: Visualization of the advanced analysis section

Icon	Description
	Tap this icon to add a Measure Point (Px) on the image (max 5 points) that can be dragged to each position. The message "Add point" appears for a moment. The temperature associated with the point is shown at the top of the screen (see Fig. 7 – part 1) and varies dynamically at displacement
	Tap this icon to add a Measurement Line (Lx) on the image (max 4 lines) that can be edited and dragged to each position. The message "Add line" appears for a moment. The Min, Max and Average temperatures associated with the points of the line are shown at the top of the screen (see Fig. 7 – part 1) and vary dynamically with each movement
	Tap this icon to add a Measurement Area (Rx) on the image (max 2 areas) that can be edited and dragged to each position. The message "Add area" appears for a moment. The Min, Max and Average temperatures associated with the inner points of the area are shown at the top of the screen (see Fig. 7 – part 1) and vary dynamically at displacement
	Tap this icon to delete the last object placed on the image
	Tap this icon to erase all objects placed on the image

5.6 COLOR PALETTES

1. Tap the icon  to select the color palette to associate with the IR image on your mobile device's display. The following screen is shown

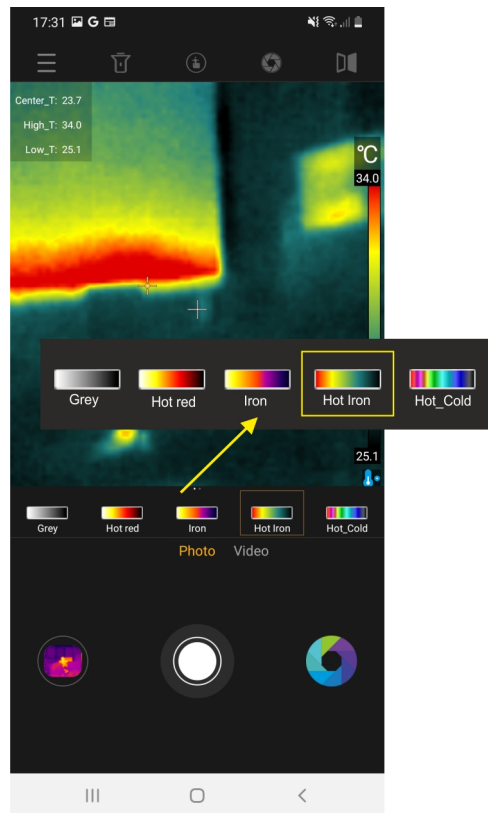


Fig. 8: Display of color palettes

2. Select by dragging the desired color palette from the 9 possible options available. The effect is automatically visible on the display image

5.7 SAVING IMAGES AND VIDEOS

The application allows you to save images (snapshots) in JPG format and IR videos in MP4 format that can be called up from the Gallery (see Fig. 3 – part 15).

1. Tap the white center icon (see Fig. 3 – part 17) to save the image on the display. The message "Saved photo" is shown for a moment and the corresponding snapshot is shown in the icon at the bottom left (see Fig. 3 – part 15), as shown in Fig. 9 – left side
2. Tap on the "Video" option (see Fig. 3 – part 14) to run IR videos and tap on the red middle icon to start the operation. Tap again the central icon to finish and save the IR video. The message "Saved video" is shown for a moment
3. Saved IR images and videos are available in the "**DCIM/Snapshots_pics**" folder of the connected mobile device
4. Tap the icon at the bottom left (see Fig. 3 – part 15) to access the Gallery of saved images and videos (see Fig. 9 – right side).

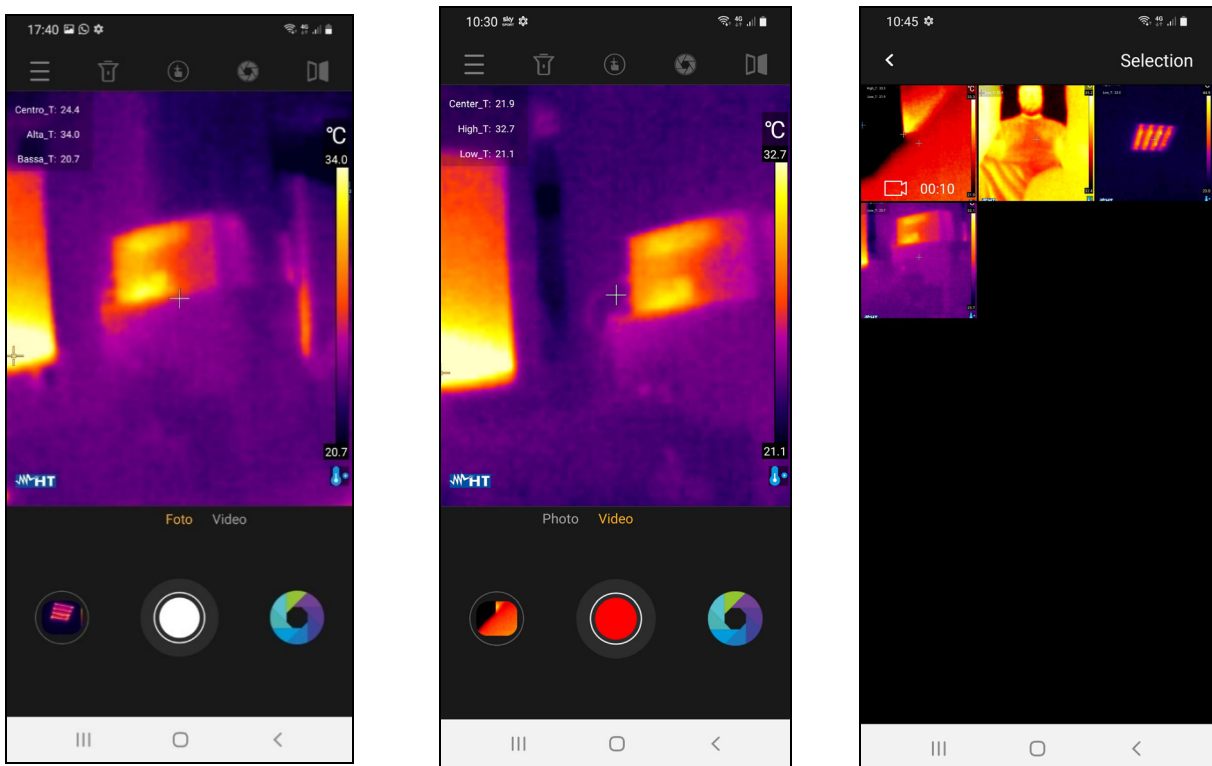


Fig. 9: Saving images and videos

5. Tap the "Selection" command to access the individual icons within the Gallery. The following screen is shown:

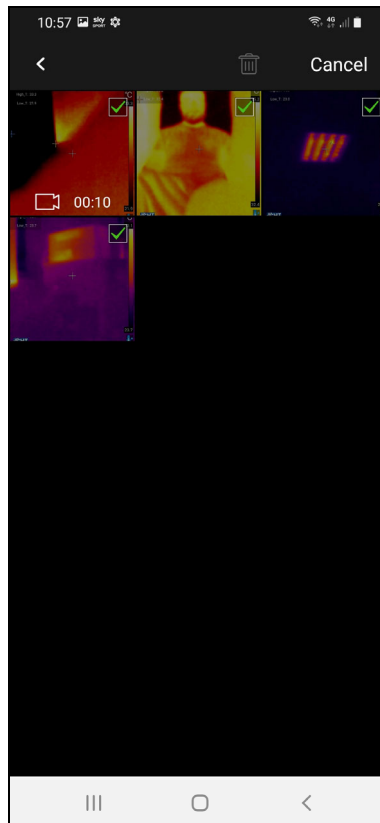






Fig. 10: Selection of images/videos in the Gallery

6. Select the icons of the images/videos you want to delete. Tap on the icon to perform the operation or "Cancel" to return to the previous screen 

5.8 EDIT IMAGES AND CREATING REPORT

The application allows you to edit an image saved in the gallery (change palette and add objects) and create a PDF report with the inclusion of a visible image selected by the user.

Edit saved image

1. Enter the Gallery and select the desired image (see § 5.7) as shown in Fig. 11 – left side
2. Tap the  icon to open the image editing section
3. Tap the  icon to change the color palette (see § 5.6) and the  icon to open the advanced analysis tool (see Fig. 11 – right side)
4. Insert any objects on the image (see § 5.5) and tap the "Save" icon at the top right of the display (see Fig. 11 – right side)

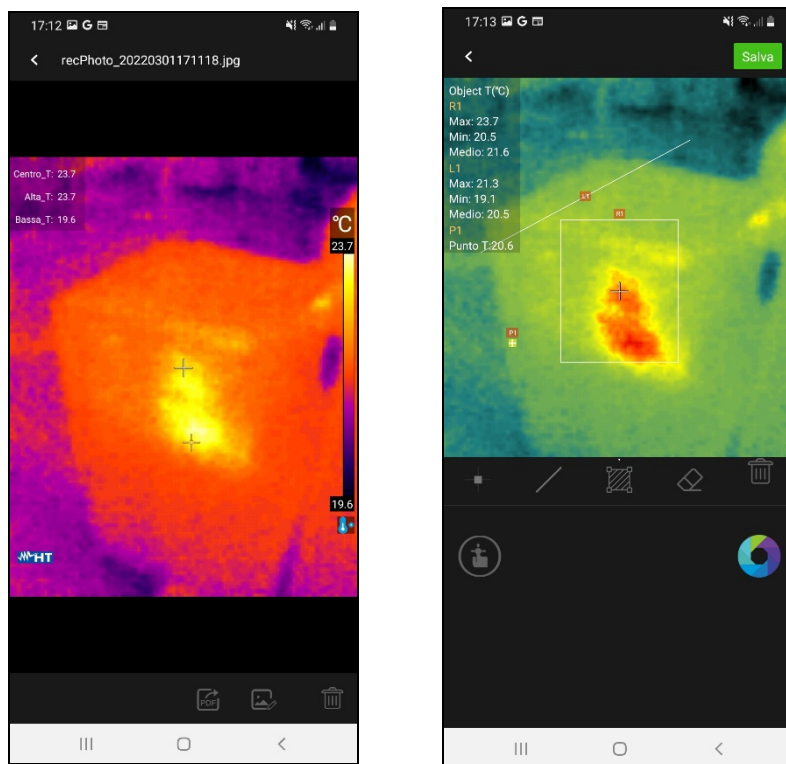



Fig. 11: Edit saved images

PDF Reporting

1. Enter the Gallery and select the desired image (see § 5.7) as shown in Fig. 11 – right side
2. Tap the  icon to create the PDF report associated with the selected image. The screen of Fig. 12 – left side is shown on display. Confirm with "OK" to start the operation
3. Select a visible image from those available within the mobile device, or take an instant snapshot of the framed object (see Fig. 12 – central part)
4. Insert any comment associated with the framed image that will be included in the final report or tap on the "Skip" option to continue

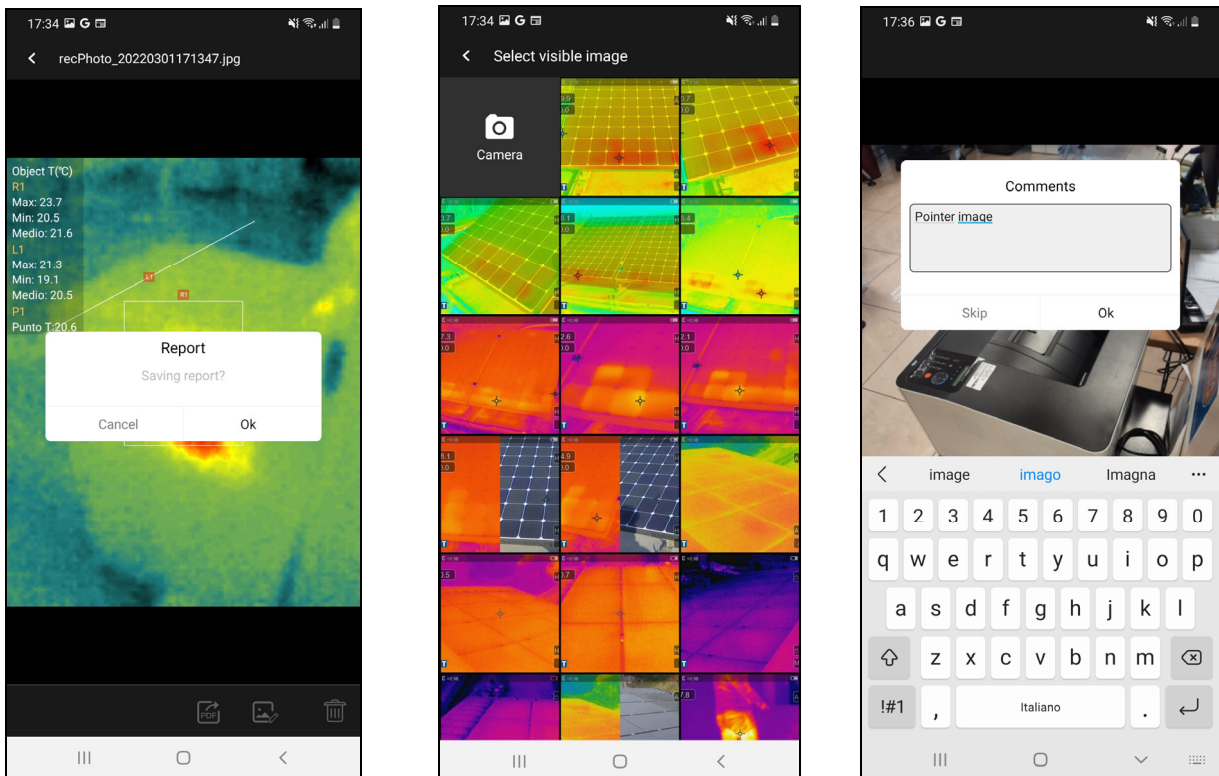


Fig. 12: Creation of PDF report

5. The PDF report is automatically created and saved in the "**DCIM/Report_pdf**" folder of the connected mobile device as shown in Fig. 13

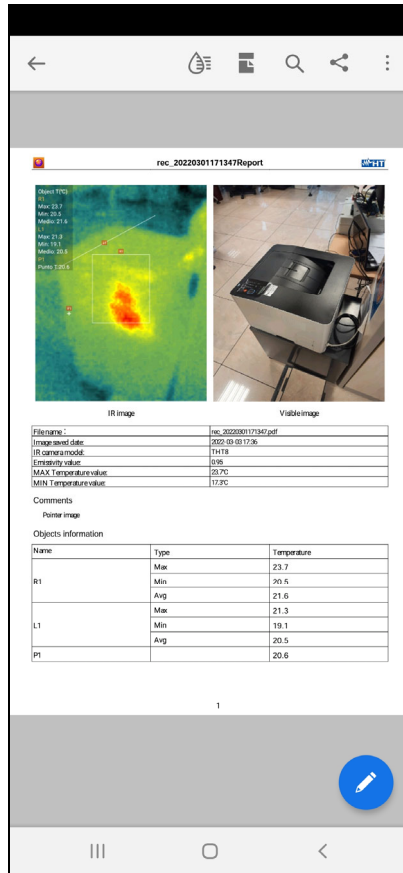


Fig. 13: Visualization of PDF report

6 MAINTENANCE

6.1 GENERAL

During use and storage comply with the recommendations listed in this manual to avoid possible damage or danger during use. Do not use the tool in rooms with high humidity or high temperature. Do not expose directly to sunlight. Always turn off the tool after use.

6.2 CLEANING THE INSTRUMENT

For cleaning the tool use a soft, dry cloth. Never use damp cloths, solvents, water, etc.

6.3 END OF LIFE



CAUTION: The symbol on the instrument indicates that the equipment, its accessories and batteries must be collected separately and treated correctly.

6.4 ACCESSORIES

6.4.1 Supplied accessories

- Protection case
- USB-C / Micro USB adapter
- Download web cards

7 TECHNICAL SPECIFICATIONS

Temperature measurement

Range	Resolution	Accuracy (*)
-20.0°C ÷ 400.0°C	0.1°C	±3%reading or ±3°C (higher value)
-4.0°F ÷ 752.0°F	0.1°F	±3%read or ±5.4°F (higher value)

(*) Ambient temperature: 10°C ÷ 26°C, Object temperature: >0°C

Temperature measurement in Screening Mode

Range	Resolution	Accuracy
32.0°C ÷ 42.0°C	0.1°C	±0.5°C
89.6°F ÷ 107.6°F	0.1°F	±0.9°F

General Specifications

IR Sensor Type / Resolution:	UFPA (120x90pxl, 17µm)
Spectral response:	8 ÷ 14µm
Field of view (FOV):	50°x 38°
Focal lens / number F	2.3mm / 1.13
I FOV:	7.29mrad
Thermal sensitivity/NETD:	<0.05°C@30°C (86°F) / 50mK
Image Frequency:	25Hz
Focusing:	automatic
Minimum Focal Length:	0.5m
Temperature readings:	°C, °F
Available color palettes:	9 palettes selectable from HTSmartCamera APP
Emissivity:	fixed 0.95
Advanced analytics:	central fixed cursor points (5), lines (4), areas (2), "Hot/Cold" cursors
Image format:	JPG (snapshots)
IR Video Recording:	MP4 Format
Interface to mobile devices:	USB-C (with HTSmartCamera APP)
Mobile device compliance:	Android version 4.4 or higher

Power supply

Power supply:	from connected mobile device
Power consumption:	<150mW

Mechanical characteristics

Dimensions (L x W x H):	50 x 30 x 20mm (2 x 1 x 1in)
Weight:	20g (1ounce)
Mechanical protection:	IP54 according to IEC 529

7.1 ENVIRONMENT

7.1.1 Environmental conditions of use

Operating temperature:	0°C ÷ 35°C (32°F ÷ 95°F) optimal 16°C ÷ 22°C (61°F ÷ 72°F)
Storage temperature:	-10°C ÷ 55°C (14°F ÷ 131°F)
Operating humidity:	5%RH ÷ 95%RH
Max height of use:	3000m (9.843ft)

**This instrument complies with the requirements of the EMC Directive 2014/35/EU
This instrument complies with the requirements of the European Directive
2011/65/EU (RoHS) and the European Directive 2012/19/EU (WEEE)**

8 ASSISTANCE

8.1 WARRANTY CONDITIONS

This tool is guaranteed against any defect in material and workmanship, in accordance with the general conditions of sale. During the warranty period, defective parts can be replaced, but the manufacturer reserves the right to repair or replace the product. If the instrument is to be returned to the after-sales service or to a retailer, the transport is charged to the Customer. The shipment must, in any case, be previously agreed. Attached to the shipment must always be inserted an explanatory note about the reasons for sending the instrument. For shipping use only the original packaging; any damage caused by the use of non-original packaging will be charged to the Customer. The manufacturer declines all responsibility for damage caused to persons or objects.

The warranty is not applied in the following cases:

- Repair and/or replacement of accessories and battery (not covered by warranty).
- Repairs that are necessary due to incorrect use of the tool or its use with incompatible equipment.
- Repairs that are necessary due to inadequate packaging.
- Repairs that are necessary due to interventions carried out by unauthorized personnel.
- Changes made to the instrument without the explicit permission of the manufacturer.
- Use not covered by the instrument specifications or user manual.

The contents of this manual may not be reproduced in any form without the manufacturer's permission.

Our products are patented, and trademarks registered. The manufacturer reserves the right to make changes to specifications and prices if this is due to technological improvements.

8.2 ASSISTANCE

If the tool does not work properly, contact Support. If the instrument continues to malfunction, check if the procedure for using it complies with what is indicated in this manual. If the instrument is to be returned to the after-sales service or to a retailer, the transport is charged to the Customer. The shipment must, in any case, be previously agreed. Attached to the shipment must always be inserted an explanatory note about the reasons for sending the instrument. For shipping use only, the original packaging; any damage caused by the use of non-original packaging will be charged to the Customer.



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