






ENGLISH


Quick reference guide



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1 PRECAUTIONS AND SAFETY MEASURES

The instrument has been designed in compliance with the directives relevant to electronic measuring instruments. For your safety and in order to prevent damaging the instrument, please carefully follow the procedures described in this manual and read all notes preceded by symbol  with the utmost attention. Before and after carrying out the measurements, carefully observe the following instructions:



CAUTION

- Do not carry out any measurements in case gas, explosive materials or flammables are present, or in humid or dusty environments
- Do not carry out any measurement in case you find anomalies in the instrument such as deformation, breaks, substance leaks, absence of display on the screen, etc
- Keep the instrument steady during any measuring operation
- **Do not use the instrument in environments with temperatures exceeding the operating and storage limits specified in § 3.1.1 in order not to damage it**
- Only the accessories provided together with the instrument will guarantee safety standards. They must be used only if in good conditions and replaced with identical models, when necessary
- Check that the battery is correctly inserted
- Check that the LCD display gives indications consistent with the function selected
- **Do not direct the instrument at very high intensity radiation sources (e.g. the sun) in order to prevent damaging the IR sensor**
- Prevent hits or strong vibrations in order to keep the instrument from damage
- When bringing the instrument from a cold to a hot environment, leave it on long enough for condensation water to evaporate

In this manual, and on the instrument, the following symbols are used:



Caution: observe the instructions given in this manual; improper use could damage the instrument or its components.



This symbol on the display means that the instrument is able to emit a laser pointer in Class 2. **Do not direct the radiation towards the eyes in order to prevent physical damage to people.**

1.1 DURING USE



CAUTION

- Failure to comply with the caution notes and/or instructions may damage the instrument and/or its components or be a source of danger for the operator.
- Use the instrument only in the temperature ranges indicated in this manual.

1.2 AFTER USE

When measurement is complete, switch off the instrument. If you expect not to use the instrument for a long period, remove the battery.



CAUTION

Please read the instruction manual of the instrument which is included on CD-ROM support, before use

2 NOMENCLATURE

2.1 INSTRUMENT DESCRIPTION

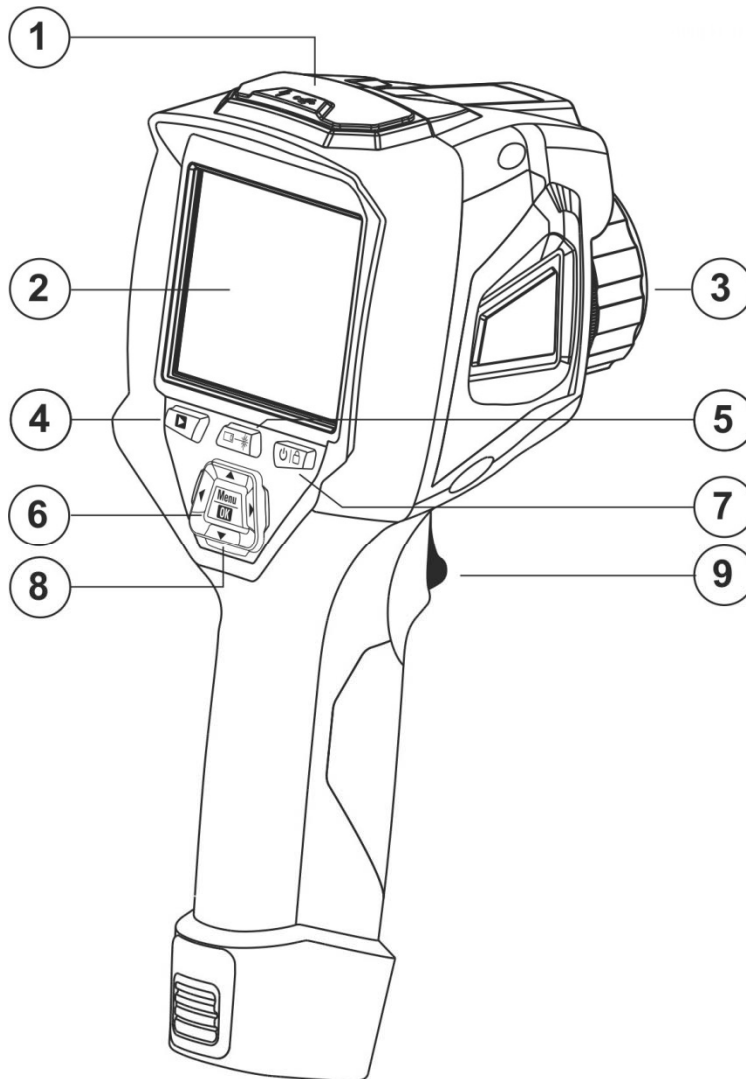


Fig. 1: Description of the instrument's backside

CAPTION:

1	Audio/Microphone, USB, micro SD and HDMI
2	LCD touch-screen display
3	Lens associated with the IR sensor
4	Function key (Image/video gallery)
5	Function key (Laser/Distance)
6	Function key Menu/OK
7	Function key (ON/OFF and Measuring Mode)
8	Arrow keys
9	Trigger key (T)

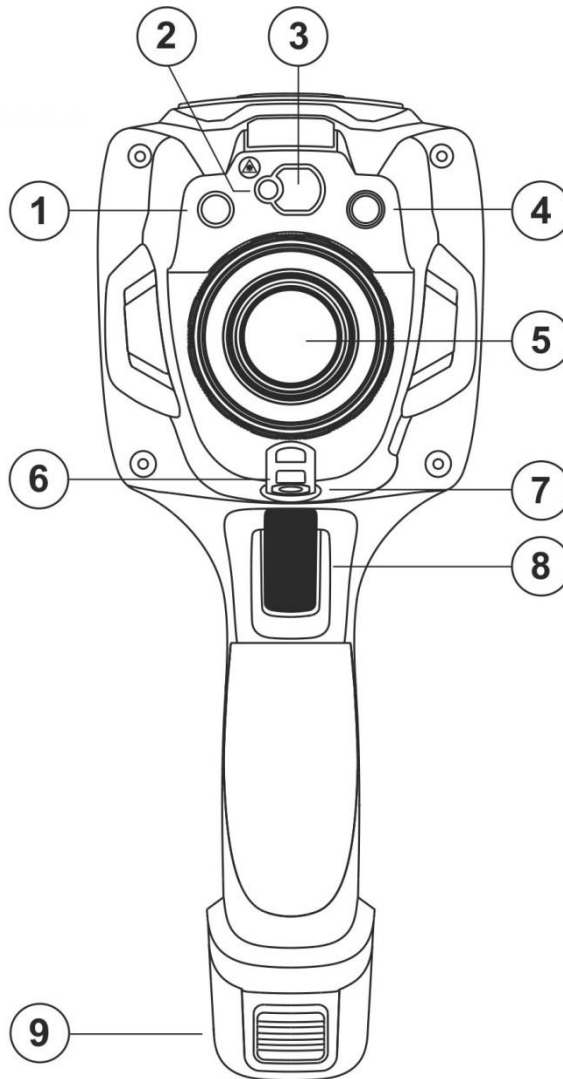


Fig. 2: Description of the instruments front side

CAPTION:

1	Built-in white LED illuminator
2	Laser pointer
3	Laser pointer for distance measurement
4	Photo camera
5	Lens associated with the IR sensor
6	Slot for non-slip strap insertion
7	Threaded hole (1/4") for tripod insertion
8	Trigger key (T)
9	Rechargeable battery

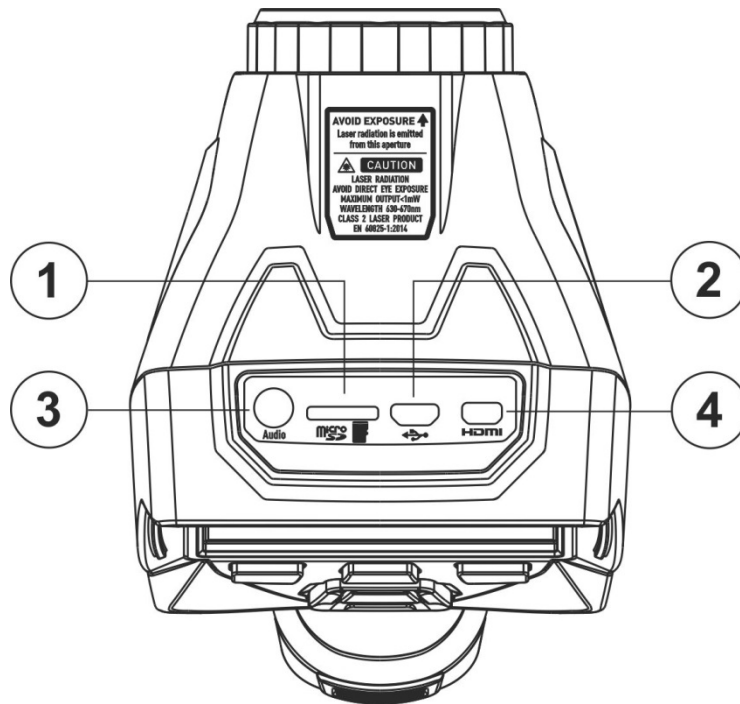


Fig. 3: Description of the upper part of the instrument

CAPTION

1	Slot for micro SD card insertion
2	Micro USB port
3	Headphone/microphone input
4	HDMI video output

2.2 DESCRIPTION OF FUNCTION KEYS

The instrument has 8 function keys described further in this text and a trigger key “T” with multiple functions.

2.2.1 Switching on the instrument

1. Press and hold key for **2s** to switch on the instrument. After the initial splash screen is displayed (see Fig. 4 – left side), the instrument needs for a certain heating time (approx. 30s) in order to provide accurate temperature measurements and quality images.
2. The instrument initially shows the visible image for a few seconds and the message “IR Calibration...” while it correctly calibrates the internal sensor (see Fig. 4 – middle).
3. After a few seconds, the IR image is shown on the display and the instrument is ready for measurement (see Fig. 4 – right side).



Fig. 4: Sequence upon switching on the instrument



CAUTION

- The sound that accompanies the message “IR Calibration...” is a necessary condition for the instrument's internal calibration.
- Pressing the key allows switching on/off the instrument. The instrument also has an Auto-Power-Off function with selectable time.

2.2.2 Switching off the instrument

1. Press and hold key for **at least 4s** to switch off the instrument. The following screen appears on the display

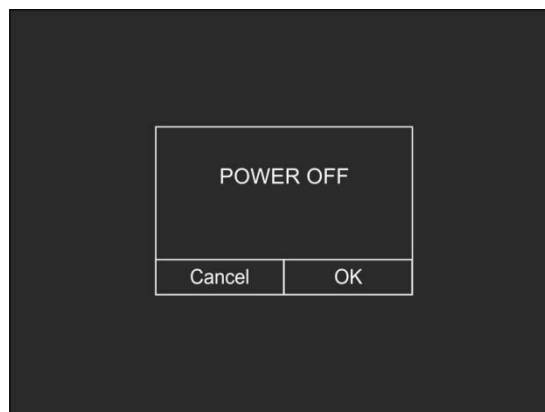



Fig. 5: Switching off the instrument

2. Touch the virtual button “OK” to switch off the instrument.
3. Touch the virtual button “Cancel” to cancel the operation and go back to normal display.
4. By pressing and holding the key for **at least 7s**, the instrument is directly switched off

2.2.3 Key

Press and hold key for **2s** to switch on/off the instrument's laser pointer. The symbol “” is found in the top part of the display. The same key is also used for measuring the distance between the instrument and the framed target.

2.2.4 Key

Press key  to enter the gallery of images/videos saved in the internal memory or on the inserted micro SD card.





2.2.5 T key (Trigger)

Pressing the **T** key found on the front part of the instrument allows freezing the IR image on the display and automatically opens the section for saving the image. Press the **T** key again to unfreeze the image on the display.

2.2.6 Key Menu/OK

Pressing the key **Menu/OK** allows displaying/hiding the instrument's main menu. The operation is always possible also by touching the display.

2.2.7 Key |

Long pressing key  |  allows switching on/off the instrument. With the instrument switched on, by pressing key  |  several times, it is possible to select the image temperature adjusting modes.

3 TECHNICAL SPECIFICATIONS

Temperature measurement

Range	Resolution	Accuracy (*)
-20.0°C ÷ 650.0°C	0.1°C	±2%reading or ±2°C (higher value)
-4.0°F ÷ 1202.0°F	0.1°F	±2%reading or ±3.6°F (higher value)

(*) Environmental temperature: 10°C ÷ 35°C, Temperature of target: >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

Type of IR sensor / Resolution:	UFPA (160x120pxl, 17µm)
Spectrum response:	8 ÷ 14µm
Visible range (FOV) / Lens:	17.3° x 13° / 9mm
IFOV (@ 1m):	1.89mrad
Thermal sensitivity / NETD:	<0.05°C@30°C (86°F) / 50mK
Image frequency:	50Hz
Focusing:	manual
Minimum focus distance:	0.5m
Temperature readings:	°C, °F, K
Available colour palettes:	8 palettes+ 4 isotherm lines
Laser pointer:	Class 2 according to IEC 60825-1
Electronic zoom:	x1.0 ÷ x32.0 in steps of 0.1
Emissivity correction:	0.01 ÷ 1.00 in steps of 0.01
Image adjustment modes:	Automatic / Manual / Histograms (HG)
Measuring functions:	corrections according to environmental temperature, reflected temperature, distance, relative humidity, offset.
Advanced analyses:	fixed central cursor spots (3), lines (2), areas (3), "Hot/Cold" cursors
Face temp. detection:	max 10 people at the same time (distance 2m)
Inbuilt photo camera:	5Mpxl, FOV 59°
Image modes:	IR, Visible, Fusion PiP, Auto Fusion
Laser distance measurement:	range: 0.05m÷30m, accuracy:±1.5mm
Alarm conditions:	visible and acoustic
Video output:	HDMI
Image format:	JPG (snapshots), HIR (radiometric)
IR video recording:	MP4 format
Voice annotation:	up to 60s / image
Text annotation:	with virtual keyboard
Memory:	Internal (3.4GB) + micro SD card 8GB (max 32GB)
No. of images/videos:	1000 photos/45min video (internal memory) >6000 photos (micro SD card)
PC interface:	USB 2.0
Interface to mobile devices:	WiFi (with APP HTProCamera)

Power supply

Internal supply:	rechargeable Li-ION battery, 3.7V 5200mAh
External supply:	adapter 100-240VAC (50/60Hz)/5VDC, 2400mA
Battery duration:	approx. 3 hours (stand-by and WiFi off)

Display

Characteristics:	Colour, TFT LCD 3.5", 640x480pxl capacitive touch-screen
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Mechanical characteristics

Dimensions (L x W x H):	260 x 101 x 120mm (10 x 4 x 5in)
Weight (battery included):	850g (30ounces)

3.1 ENVIRONMENT

3.1.1 Environmental conditions for use

Operating temperature:	-15°C ÷ 50°C (5°F ÷ 122°F)
Storage temperature:	-40°C ÷ 70°C (-40°F ÷ 158°F)
Allowable relative humidity:	10%RH ÷ 90%RH
Mechanical protection:	IP54 in compliance with IEC 529
Falling test:	2m
Shock:	25G in compliance with IEC60068-2-29
Vibrations:	2G in compliance with IEC60068-2-6

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