HT INSTRUMENTS THT Series Thermal Camera User Guide

INSTRUMENTS THT Series Thermal Camera
QUICK REFERENCE GUIDE
THT 120, THT 200,
THT 300, THT 400

Contents

PRECAUTIONS AND SAFETY MEASURES

In the whole manual, the word "instrument" generically indicates THT120, THT200, THT300 and THT400 models unless otherwise indicated. The instrument has been designed in compliance with the directives relevant to electronic measuring instruments. For your safety and 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 § 3.2 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

The herewith symbols are used on meter:

⚠ **CAUTION:** keep to what described by the manual. An incorrect use could damage the instrument or its components

🗑 **CAUTION:** this symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal

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 § 3.2

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

For detailed use of the instrument please read the complete user manual downloadable from **www.ht-instruments.com/download** website

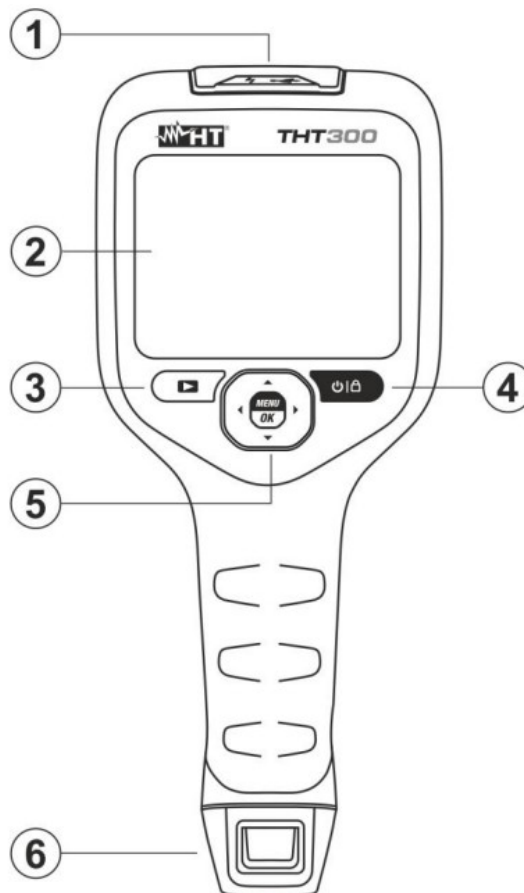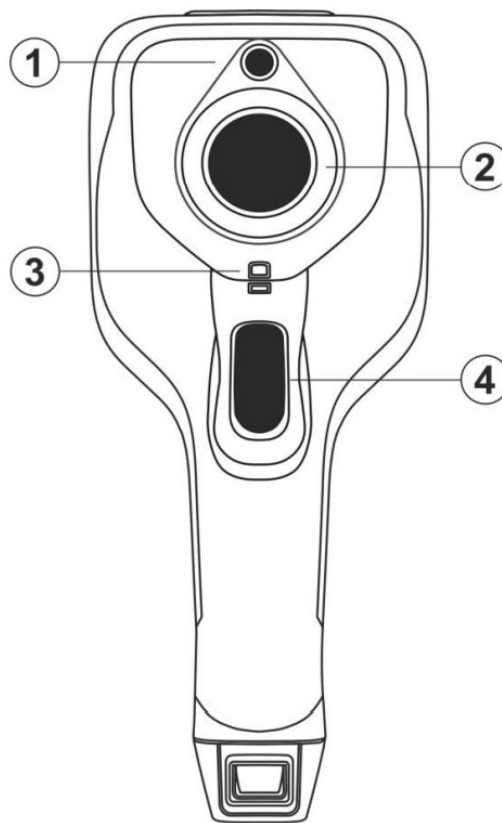## NOMENCLATURE

2.1. INSTRUMENT DESCRIPTION

Fig.1: Description of the instrument's backside

1. USB-C and micro SD section
2. LCD touch-screen display
3. Function key ▶ (Gallery)
4. Function key ⏻|🔒 (ON/OFF and Measuring Mode)
5. Function key **Menu/OK** and arrow keys ▶,◀,▼,▲
6. Rechargeable battery

1. Photo camera

2. IR sensor

3. Slot for non-slip strap insertion of protection lens cover
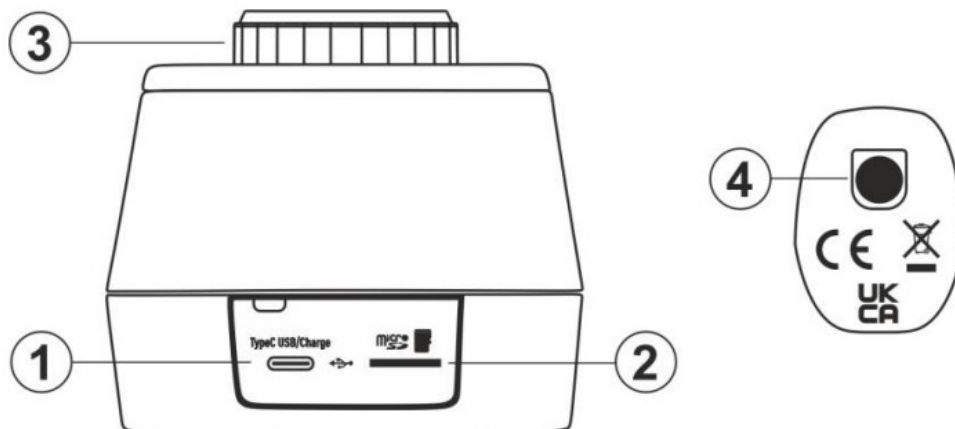
4. Trigger key **(T)**

Fig. 3: Description of the upper and bottom parts of the instrument

1. USB-C output for PC / external charger connection

2. Slot for micro SD card insertion

3. Lens associated to the IR sensor

4. Threaded hole (¼") for tripod insertion

2.2. DESCRIPTION OF FUNCTION KEYS
Key ON/OFF – Switching on the instrument

Press and hold key ⏻|🔒 for 2s to switch on the instrument. After the initial splash screen is displayed, the instrument needs for a certain heating time (approx. 30s) in order to provide accurate temperature measurements and quality images. The instrument initially shows the visible image for a few seconds and the message "IR

Calibration…" while it correctly calibrates the internal sensor After a few seconds, the IR image is shown on the display and the instrument is ready for measurement

⚠ **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-PowerOff function with selectable time

Key ON/OFF – Switching off the instrument

Press and hold key ⏻🔒 for at least 4s to switch off the instrument.
Touch the virtual button "OK" to switch off the instrument. Touch the virtual button "Cancel" to cancel the operation and go back to normal display. By pressing and holding the key ⏻🔒 for at least 7s, the instrument is directly switched off

Key ▶

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

Key T (Trigger)

Pressing the **T** key on the front of the instrument allows freezing the IR image on the display and automatically opens the image saving section. Press the **T** key again to save the image on the display or touch the display to return to normal viewing

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

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

TECHNICAL SPECIFICATIONS

3.1. TECHNICAL CHARACTERISTICS

Temperature measurement (THT120, THT200, THT300)		
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 (THT400)		
Range	**Resolution**	**Accuracy (*)**
-20.0°C÷ 550.0°C	0.1°C	±2%reading or ±2°C (higher value)
-4.0°F ÷ 1022.0°F	0.1°F	±2%reading or ±2°C (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

3.2. GENERAL CHARACTERISTICS
General specifications

Type of IR sensor/Resolution:	UFPA (384x288pxl, 17mm) (THT300) UFPA (160x120pxl, 17mm) (THT200) UFPA (120x120pxl, 17mm) (THT120) UFPA (640x480pxl, 17mm) (THT400)
Spectrum response:	8 ÷ 14mm
Visible range (FOV) / Lens:	41.5° x 31.1°/ 9mm (THT300) 20.7° x 15.6° / 7.5mm (THT200) 15.6° x 15.6° / 7.5mm (THT120) 31.9° x 25.7° / 13.5mm (THT400)
Spatial resolution (IFOV):	1.89mrad (THT300) 2.26mrad (THT200) 2.26mrad (THT120) 1.26mrad (THT400)
Thermal sensitivity/NETD:	<0.05°C@30°C (86°F) / 50mK
Image frequency:	50Hz (THT120/THT200/THT300), 25Hz(THT400)
Focusing:	Manual (THT120, THT200, THT300), Automatic (THT400)
Minimum focus distance:	0.5m
Temperature units:	°C, °F, K
Available colour palettes:	8 palettes + 4 isotherm lines
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:	Auto / 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
Screening function:	max 10 people (distance 2m)
Inbuilt photo camera:	2Mpxl, FOV 65°
Image modes:	IR, Visible, Fusion PiP, Auto Fusion
Alarm conditions:	visible and acoustic

Image format:	JPG (snapshots), HIR (radiometric)
IR video recording:	MP4 (640×480 @ 30fps), >60min on SD card
Text annotation:	with virtual keyboard
Memory:	Internal (3.4GB) + micro SD card 16GB (max 32GB)
No. of images/videos:	1000 photos/45min video (internal memory); 6000 photos (micro SD card)
PC interface:	USB-C
Interface to mobile devices:	WiFi (with APP HTProCamera)
Display	
Characteristics:	Colour, TFT LCD 3.5", 640x480pxl, capacitive touch-screen
Power supply	
Internal supply:	rechargeable Li-ION battery, 3.7V 2600mAh
External supply:	adapter 100-240VAC (50/60Hz)/5VDC, 2400mA
Battery duration:	approx. 4 hours (stand-by and WiFi off)
Mechanical characteristics	
Dimensions (L x W x H):	240 x 100 x 110mm (9 x 4 x 4in)
Weight (battery included):	535g (THT120, THT200, THT300), 480g (THT400)
Mechanical protection:	IP54 in compliance with IEC 529
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
Falling test:	2m
Shock:	25G in compliance with IEC60068-2-29
Vibrations:	2G in compliance with IEC60068-2-6

This product conforms to the prescriptions of the European directive on low voltage 2014/35/EU, to EMC directive 2014/30/EU and to RED 2014/53/EU directive
This instrument satisfies the requirements of 2011/65/EU (RoHS) directive and 2012/19/EU (WEEE) directive

HT ITALIA S.R.L.

Via della Boaria, 40 48018 Faenza (RA) Italia
T +39 0546 621002
F +39 0546 621144
M ht@ht-instruments.com
ht-instruments.com
WHERE WE ARE

Documents / Resources

HT INSTRUMENTS THT Series Thermal Camera [pdf] User Guide
THT120, THT200, THT300, THT400, THT Series Thermal Camera, THT Series, THT Series Camera, Thermal Camera, Camera

References

- 🏠 **Download area | HT Instruments**