

PeakTech®

Unser Wert ist messbar...



PeakTech® 5620

Operation Manual

Thermal Imaging Camera

Table of contents

Chapter		Page
1.	Safety instructions for the operation of the device	34
2.	General specification	35
3.	Controls	36
3.1	Summary	37
3.2	Charging the battery	38
3.2.1	Charging via the USB port	40
3.3	Settings of the menus	40
3.4	Adjusting the focusing lens	41
3.5	Export files	42
3.6	Update the software	42
4	Measuring	43
4.1	Temperature settings	43
4.1.1	Configuration of Custom Ads	46
4.1.2	Delete the Custom Ads	48
4.2	Network configuration	48
4.2.1	Wi-Fi settings	48
4.2.2	Setting a Wi-Fi hotspot	49
4.2.3	Bluetooth settings	49
4.3	Storage management	50
4.3.1	Settings of the video recording	50
4.3.2	Settings of the photographs	50
4.3.3	Display of recorded pictures / videos	50
4.4	Image configurations	51
4.4.1	Temperature ranges	51
4.4.2	Color palette settings	52
4.4.3	Thermal / optical configuration	53
4.5	Alarm configuration	54
4.6	General configurations	55
4.6.1	Digital zoom	55
4.6.2	LED lamp	55
4.6.3	Setting the laser	55
4.6.4	Client Software	56
5	System settings	56
5.1	Display settings	56
5.2	Settings for the duration of the automatic shutdown	56
5.3	Device Initialization	57
5.4	Device informations	57
6	Emission factor	57
7	Specifications	59

EU Declaration of Conformity PeakTech 5620

Hereby PeakTech Prüf- und Messtechnik GmbH declares that the radio equipment type [P 5620 - Thermal Imaging Camera with Bluetooth Interface] complies with Directive 2014/53/EU and electromagnetic compatibility with Directive 2014/30/EU.



The full text of the EU Declaration of Conformity is available on the PeakTech homepage.

1. Safety instructions

This product complies with the requirements of the following European Community. Directives: 2014/30/EU (Electromagnetic Compatibility)

Damages resulting from failure to observe the following safety precautions are exempt from any legal claims whatever.

- * Do not subject the equipment to direct sunlight, extreme temperatures, extreme humidity or dampness
- * Do not operate the equipment near strong magnetic fields (motors, transformers etc.)
- * Do not subject the equipment to shocks or strong vibrations
- * Keep hot soldering iron or guns away from the equipment
- * Allow the equipment to stabilise at room temperature before taking up measurement (important for exact measurement)
- * Do not modify the equipment in any way
- * Opening the equipment and service- and repair work must only be performed by qualified service personnel
- * **Measuring instruments don't belong to children hands!**

Cleaning the cabinet

Clean only with a damp soft cloth and a commercially available mild household cleanser. Ensure that no water gets inside the equipment to prevent possible shorts and damage to the equipment.

2. General specifications

The new PeakTech 5620 thermal imager offers pin-sharp thermal images with a resolution of 384 x 288 heat points and a high frame rate of 25 Hz, which are particularly useful in video recording.

In addition, this model has a real-time camera with 1920 x 1080 pixels, which can be connected in different modes with the thermal image. Use the "Fusion" function to put the contours of the real image over the thermal image to get an even better result or the picture-in-picture function to display the thermal image in the center, while the outside area is displayed as a real image.

In the development, particular attention has been paid to a long durability and high quality of this thermal imaging camera, which is why we give a three-year manufacturer's warranty from the date of purchase on all functions and components. The device is also IP54 protected and subjected to a 2m drop test.

Here you get a state-of-the-art touch screen thermal imaging camera with a variety of measurement functions, WiFi & Bluetooth interfaces, video with audio recording and extensive accessories such as the charging station, replacement battery or the sturdy case.

- * State-of-the-art IR thermal imaging technology
- * Wi-Fi, hotspot and Bluetooth function
- * Easy operation by keyboard or touchscreen
- * Manual focusing of the camera via rotary knob
- * Various zoom settings (1x, 2x, 4x zoom)
- * Thermal image, fusion, picture-in-picture or real-image display
- * Six color palettes (grayscale, iron, rainbow etc.)
- * Photo and video recordings with audio commentary
- * Professional analysis software and app for mobile devices

3. Controls






Accessories



- 2xLi-Ion Batterie
- Charging station
- Power Adaptor
- Outlet Plugs
- USB Cable
- Memory Card

3.1 Summary

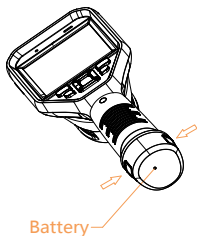
- Press the  button for approx. 4 seconds to switch on the device.
- To change to the menu mode, briefly press the OK button
- With the arrow keys ◀ ▶ it is possible to choose between the different modes
- By pressing the OK - button you reach the respective subitems to make further settings.
- After you have edited the desired value / mode, press the  key to return to the top menu
- The adjustment ring, located on the front of the lens, allows you to adjust the sharpness of the displayed image
- Press the shutter button to take a picture of the current screen. Modifications may be made in the captured image, such as e.g. insert a text or add a new marker
- To switch off the device, press the  button for approx. 5 seconds

3.2. Charging the battery

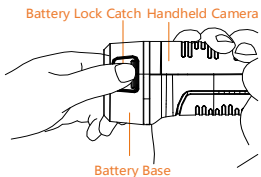
Note: Please charge the camera with the charging station supplied by the manufacturer (or according to the input voltage from the technical data).

Steps:

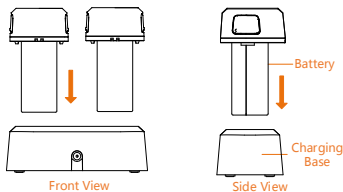
1. Hold the camera firmly and press both battery lock latches as shown below.



2. While holding the latches, pull out the battery socket to remove the battery as shown below.

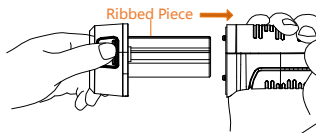


3. Insert the battery into the charging station, as shown below. You can read the charge status via the indicator light on the charging station.



4. When the battery is fully charged, remove the battery from the charging station.

5. Align the ribbed part of the battery with the notch on the camera and insert the battery into the camera as shown below.



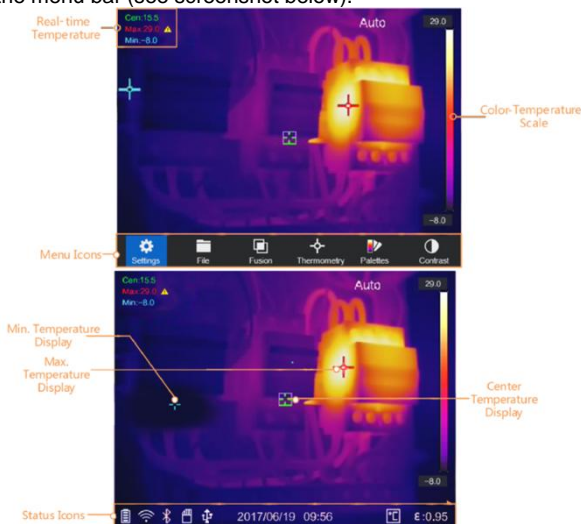
3.2.1 Charging via the USB port

Note: Please ensure that the battery is properly installed in the thermal camera before Charging the battery.






1. Open the top cover of the camera.
2. Connect the USB port and the power adapter with a USB cable.





3.3 Settings of the menus

Touch the screen in the interface or press the OK button to display the menu bar (see screenshot below).



The descriptions of the menu buttons can be found in the following table.

	Settings	In the local settings interface () you can set basic parameters, including the settings for the thermometry units and the range.
	File	Display the stored pictures or videos.
	Thermal/Optical	In the thermal / optical settings () you can set the display to thermal / optical / PIP / combined (fuse).

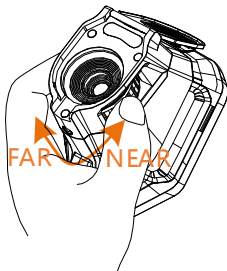
	Thermometry	In the thermometry rule configuration mode () , you can view the real-time temperature using various controls.
	Palettes	You can change the color palettes of the display to represent structures / devices differently.
	Contrast	You can adjust the contrast of the display manually or automatically.

3.4 Adjusting the Focusing Lens

Before you start:

Adjust the focal length of the lens properly before making any other adjustments as this may affect image display and temperature accuracy.

1. Turn on the thermal camera.
2. Point the camera lens at the object to be measured.
3. Adjust the lens clockwise or counterclockwise as shown below.



DO NOT touch the lens to avoid affecting the display effect.

3.5 Export Files

Note: The first connection automatically installs the driver.

Connect the thermal camera to your PC using a USB cable to export the captured videos and images.

1. Open the USB cover.
2. Connect the camera to your PC using a USB cable and open the detected device.
3. Enter USB> Image and USB> Capture to view the videos and images.
 - Select and copy the videos to the PC and play the file with the media player.
 - Select the desired images and copy them to the PC.
4. Disconnect the device from your PC.

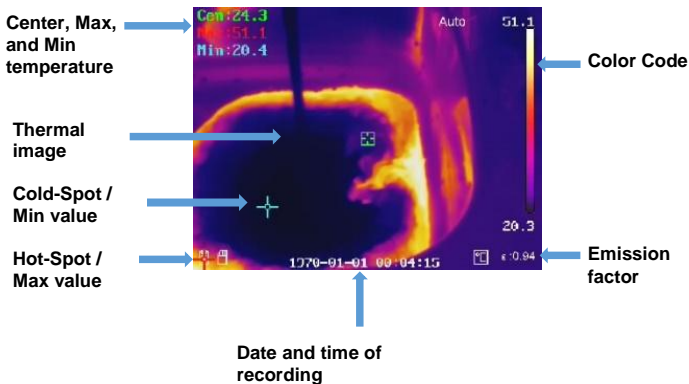
3.6 Update the software

Note: After the upgrade, the device will restart automatically. You can see the current version under Local Settings (I)> Device Information.

1. Connect the thermal imager to your PC using a USB cable and open the detected device.
2. Copy the update file and paste it into the root directory of the device.
3. Disconnect the device from your PC.
4. Restart the device and it will update automatically. The update process will be displayed on the screen.

4. Measuring

The measured temperature in the middle of the display is displayed in the upper left corner of the screen. The setting of the radiation coefficient (emission factor) is displayed in the lower right corner of the screen. Move the unit until the heat source or cold bridge matches the center of the screen. Point the device in the direction of the object whose temperature is higher or lower than the ambient temperature to obtain optimum measurement results.



4.1 Temperature settings

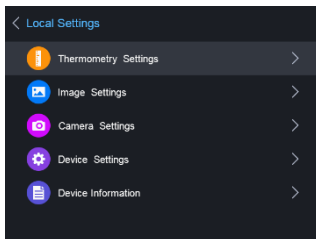
At the beginning, it is advisable to set the temperature unit of the image display.

To set up, open the main menu by pressing the OK button. Select the menu Settings and after that choose the Device Settings. Then select the sub-item Units and in the following the temperature menu. Now it is possible to choose between the temperature units.

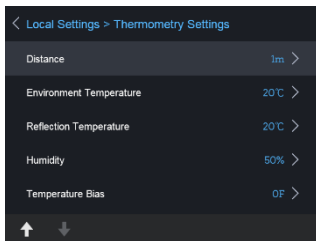
It is also possible to set the temperature parameters, as these influence the accuracy of the temperature measurement.

Method:

1. In the main menu, select Settings (⚙️).
2. In the Settings interface, select Thermal Settings.



Set the thermal range, the emission factor, the distance, the background temperature, the reflection temperature, the humidity and the temperature correction value.



- **thermal area**
Select the thermal area. The unit can detect the temperature and automatically switch the thermal range in auto-switch mode.

- **emission factor**
Set the emission factor of your device / component to be measured as the effectiveness of the energy emission as heat radiation.
Note: For informations about the emissivities see the list, under 6.1 Common Material Emissivity.
 - **distance (m / ft)**
The straight-line distance between the component to be measured and the thermal camera. You can adjust the target distance or select the target distance as near, middle or long distance.
 - **background temperature**
The average ambient temperature.
 - **Reflection temperature**
If an object (not the device / component) with high temperature is in the range to be measured and the emissivity of the target is low, set the reflection temperature as high temperature to correct the thermal effect.
 - **Humidity**
Adjust the relative humidity to the environment.
 - **Temperature correction value**
The device may have slight deviations from the temperature measurement. You can adjust these deviations with the temperature correction value.
3. After the settings of the camera, return to the menu to save the changes.

4.1.1 Configuration of Custom Ads

The thermal parameters influence the accuracy of the temperature measurement.

Configuration:


1. Select Thermal Configuration (📍) in the main menu
2. Set the dot / line / frame display as shown below.




You can set the thermal center, the highest temperature point, the lowest temperature point, and the user-defined thermal point.

- Thermal Center (📍)
The system detects the temperature of the center
- Highest temperature point (🔴)
The system detects the highest temperature point
- Lowest temperature point (🟢)
The system detects the point of the lowest temperature
- Custom Thermal Point (📍)
The system detects the temperature of the specified point




Setting custom measuring point:

1. Select  in the interface
2. Press the OK button
3. Move the measuring point with the arrow keys or select the desired measuring point with the touch screen.
4. Press the OK button to confirm. The temperature of the user-defined point (for example P1) indicates P1 Max: XX
5. Repeat step 1 to 4 to set more custom points.
Note: There will be a maximum of ten custom points

Setting the lines Display:



1. Select  in the interface
2. Press the OK button to create a standard line
3. Use the arrow keys / touchscreen to move the line / change the position.
4. The line can also be lengthened or shortened using the touchscreen
5. Press the OK button to confirm. The max. Temperature, the min. Temperature and average temperature of the line (for example L1) show L1 Max: XX Min: XX Cen: XX. The real-time temperature trend graph is displayed

Setting the frame display:

1. Select  in the interface
2. Press the OK button to create a standard frame
3. Use the arrow keys / touchscreen to move the frame / change the position.
4. Press  to enlarge the frame and  to make the frame smaller. The touch screen also makes it possible to resize the frame.
5. Press the OK button to confirm. The max. Temperature, the min. Temperature and average temperature of the frame (for example S1) indicate S1 Max: XX Min: XX Cen: XX. The real-time temperature trend graph is displayed.

6. Repeat step 1 to 5 to create more frames (up to three frames can be created).

4.1.2 Delete the Custom Ads

To remove all defined displays, press  and after that the OK button. To delete individual displays, select the respective display and press the  button.

4.2 Network configuration

The portable thermal camera is able to connect to the Wi-Fi, as well as with a Wi-Fi hotspot.

4.2.1 Wi-Fi settings

It is possible to connect the camera to the Wi-Fi network to control it with a smartphone.

Settings:

1. In the main menu, select Settings
2. Open the device settings to select the Wi-Fi settings
3. Tap on Connect to Wi-Fi. The found networks are listed below.
4. Select your Wi-Fi. Tap the button. The keyboard will appear and you can enter your password.
5. After entering the password, confirm with OK

4.2.2 Setting a Wi-Fi hotspot

The hotspot feature requires the thermal camera to be connected to a Wi-Fi network. The feature is used to create a hotspot that allows you to connect a smartphone with the camera to control it.

Settings:

1. Select the device settings in the menu
2. Open the Wi-Fi settings
3. Activate the hotspot function
4. After activating the function "Set Hotspot" you have to change the name and the password

Note: The password must be at least 8 characters long, otherwise it will not be possible to complete the password change.

4.2.3 Bluetooth settings

With the Bluetooth function, it is possible to pair the thermal Camera with a Bluetooth headset or other Bluetooth audio players. This feature is very useful for the recorded audio data included with the videos.

Settings:

1. Select the device settings in the settings menu
2. Open the Bluetooth settings
3. When the Bluetooth feature is activated, the thermal imager will start searching for nearby devices
4. After the camera has been connected to an audio device, you can play the sound during a video recording as well as playing a video.

4.3 Storage Management

To save the videos and photos which are taken, a memory card must be inserted in the device. The memory card is included in the delivery.

It is not possible to save video or still images while the main menu is displayed or the thermal camera is connected to the PC. In the device settings "Filename Header", it is possible to change the name of the data to be saved.

4.3.1 Settings of the video recording

The video function is activated in the Camera setting.

After the video function has been activated, return to the measurement screen to film the desired object.

After pressing the release button, the recording starts (visible at the top of the screen). Press the release button again to stop recording.

4.3.2 Settings of the photographs

The photo function is activated in the Camera setting (see chapter 4.3.1).

To record a thermal image, press the trigger button of the thermal camera. After the picture is taken, the picture is shown in the display and you can choose whether the picture should be provided with a text or a sound recording. It is also possible to subsequently make custom settings with regard to the measuring points (see chapter 4.1.1).

4.3.3 Display of recorded pictures / videos

The saved pictures and videos can be viewed at any time, the folder can be found in the main menu. Use the arrow keys to switch between the pictures and videos. If images have been provided with a voice / sound note, it is possible to play them.

4.4 Image Configurations


In the image configuration, the different color palettes, the image contrast, the thermal configuration and the configuration of the alarm are treated and explained in more detail.

4.4.1 Temperature ranges


The temperature ranges can be set to Automatic or Manual.

Select the temperature range setting in the main menu “Contrast”

Setting automatic ranges:

1. Select Auto 
2. The thermal imager will now automatically adjust the temperature ranges







Setting the manual areas:

1. Select the Manual function 
2. After confirming, the manual setting will open, selecting the temperature ranges based on the temperature displayed on the right
3. Use the arrow keys to set the range and the difference between the minimum and maximum values

4.4.2 Color palette settings

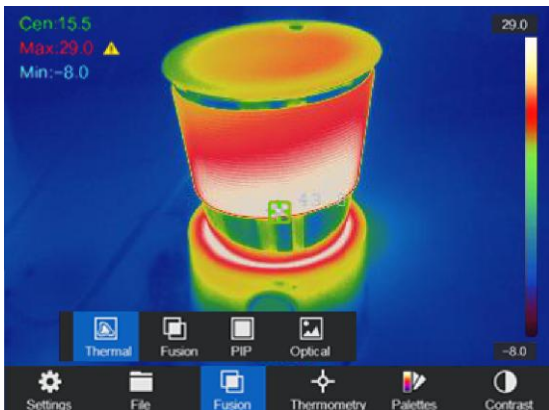
In the menu "Palettes Settings", the thermal image display is set.





The following color palettes are adjustable:

	White Hot:	The maximum value is displayed bright. The minimum value is displayed dark
	Black Hot:	The maximum value is displayed dark. The minimum value is displayed bright
	Rainbow/Rain	This option displays multiple colors. It is suitable for scenes without noticeable temperature difference
	Ironbow,	The display makes the measuring area appear like heated iron.
	Red Hot:	The maximum value is colored red in this view. The background is darkened
	Fusion	The hot part is yellow and the cold part purple.

4.4.3 Thermal/Optical Configuration

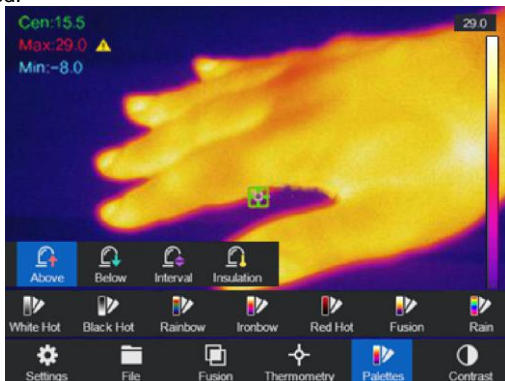
The Thermal/Optical Settings menu displays the various types of image displays.



	Thermal	In thermal mode, the device displays the thermal view.
	Fusion	In combined mode, the unit displays the combined view of the heat channel and optical channel. You can click the live view and press > and < to adjust the merge level. Or you can adjust it in: Settings> Picture Settings> Merging Level.
	PIP Mode	In PIP mode (Picture in Picture), the device displays the heat view in the optical view. In live view you can press > and < to adjust the PIP share. Or you can adjust it in: Settings> Image Settings> PIP Share.
	Optical	In optical mode, the optical image is displayed without thermal image.

4.5 Alarm configuration

Open the image palette settings to set the alarm thresholds. To adjust the values, select between upper, lower, interval and isolation alarm. After selecting the alarm, the values can be adjusted.



	Above Alarm	Set the alarm temperature and the unit alerts you if the temperature is higher than the control temperature
	Below Alarm	Set the alarm temperature and the unit alerts you when the temperature is below the control temperature
	Interval Alarm	Set the alarm temperature range (for example 90 ° C - 150 ° C). If the temperature is within the range (for example 100 ° C), the device alerts you
	Insulation Alarm	Set the alarm temperature range (eg 90 ° C - 120 ° C). If the target temperature is out of range (eg 70 ° C or 125 ° C), the device alerts you

Note: Open Local Settings> Picture Settings> Audible Warning. Tap the knob to activate the audible alert. The device will sound when an alarm is triggered.

4.6 General configurations

Other adjustment options, such as Setting the digital zoom, activating the LED lamp and using the laser are also included in the functions of the thermal camera.


4.6.1 Digital zoom

To set the digital zoom, press the lower arrow key. A window opens in which the zoom setting can be changed. You can choose between simple zoom (normal picture), double zoom and quadruple zoom.

4.6.2 LED lamp

In the menu of the device setting, it is possible to permanently switch on the LED in the menu "Light Supplement". The LED can also be turned on in the measurement screen by pressing the top arrow key.

4.6.3 Setting the laser

The laser has no influence on the thermal image, this is only intended for optimal targeting of the device to be measured. To activate / deactivate the laser, press the button in the lower left corner ()

Warning:

The laser radiation emitted from the device can cause eye injuries, burning of skin or inflammable substances. Before enabling the dLight Supplement function, make sure no human or inflammable substances are in front of the laser lens.



4.6.4 Client Software

1. Connect your device to the wireless network
2. Download the Guarding Expert client software from the PeakTech homepage and install it on your phone.
3. Start the app
4. Add the portable thermal camera to the online devices
5. Open the thermal camera hotspot function and open a hotspot (see chapter 4.2.2)
6. Connect your phone to the camera's Wi-Fi hotspot
7. Now you can control the camera with your smartphone via the app

5. System Settings

In the System Preferences interface, you can adjust the screen brightness, color video blanking sync (CVBS) output, device initialization parameters, and view device information.

5.1 Display settings

In the Device Settings in the Display Brightness menu, it is possible to adjust the screen brightness in three different levels (Low, Medium and High).

In the Display Settings submenu of the Picture Settings menu, the battery display, time display and parameter display can be selected or deselected. This means that when these screens are deselected, they will not appear in the measurement screen or in the pictures / videos.

5.2 Settings for the duration of the automatic shutdown

In the submenu automatic switch-off the switch-off time of the device is defined.

5.3 Device initialization

Initialize the device and restore the default settings (Restore All Parameters).

5.4 Device information

The device information displays the model, version number, serial number, used and unused memory.

6. Emission factor

The emission factor of an object strongly influences the measurement result and can be adjusted from 0.01 to 1.00. Many common measurement objects (such as wood, water, skin, and textiles) have a matt surface and high infrared radiation, so the default emission factor of this device is set to 0.95. For semi-matt objects, the emission is lower at about 0.85 and at half-glossy objects even lower, at about 0.6. Shiny objects have the lowest infrared radiation and therefore indicate a wrong reading with the wrong emission factor setting. Usually, the infrared radiation at glossy surfaces is about 0.3.

Deviating emission factors can be changed before each measurement in the menu and can be taken from the following table:

Material	Emissivity
Human Skin	0,98
PCB	0,91
Cement/ Concrete	0,95
Ceramics	0,92
Rubber	0,95
Paint	0,93
Wood	0,85
Asphalt	0,96
Brick	0,95
Sand	0,90
Soil	0,92
Cotton	0,98
Cardboard	0,90
White Paper	0,90
Water	0,96

7. Specifications

Thermal	Image sensor	Uncooled Focal Plane Arrays
	Max. Resolution	25Hz: 384 × 288
	Pixel Pitch	17μm
	Waveband	8μm to 14μm
	NETD	< 40mk (@ 25 °C,F#=1.0)
	Field of View	37.5° × 28.5 °
	Focal length	10 mm (Manual focus)
	I FOV (mrad)	1.7mrad
	Aperture	F 1.0
Optical	Max. Resolution	1920 × 1080
	Picture Resolution	Display: 384*288; Capture: 1920 × 1080
	Video Resolution	Display: 384*288; Record:1920 × 1080
Image Display	Display	640 × 480 resolution 3.5" LCD touch display
	Palettes	Black hot, White hot, Red hot, Rainbow, Ironbow, Fusion, Rain
	Digital Zoom	Thermal: 1x, 2x, 4x
	Thermal / Optical	Thermal/Optical/Fusion image/Picture in picture
	Picture in Picture	Support Thermal View in Optical View
	Fusion	Support (Thermal View and Optical View Combined)
	Record Video	Support on-board video recording
	Thermometry Range	-20 °C to 550 °C (-4 °F to 1022 °F)
	Thermometry Accuracy	Max (±2 °C, ±2%)
	Battery	Battery Type

	Battery Operating Time	Four hours continuous running
Function	Laser Light	Support (Point to the thermography target)
	Storage	Built-in memory module (64G)
	Photo	Thermal/Optical/Fusion image
	Video	Thermal/Optical/Fusion image
	Lighting	SMD LED Flashlight
	Wi-Fi	WiFi & WiFi Hotspot
	Bluetooth	Headset for Audio Bluetooth 4.1 Range: 10 ~ 20m 2402 MHz ~ 2483MHz GFSK: -88dBm $\pi/4$ -DQPSK: -96dBm 8-DPSK: -88dBm
	Text Comment	Support
	Voice Comment	Support
	Language	English
General	Power	12 V DC/1.5A, 5V DC/2A (Charging via USB)
	Power Consumption	Approx. 5 W (Wi-Fi On), 4.2 W (Wi-Fi Off)
	Hardware Interface	micro USB
	Working Temperature	-20 °C to 50 °C (-4 °F to 122 °F)
	Protection level	IP54
	Drop Test Height	2 m (6.56 feet)
	Dimension	244 mm × 100 mm × 104 mm (9.6 " × 3.9 " × 4.1 ")
	Weight	Approx. 660 g (1.46 lb)

Notification about the Battery Regulation

The delivery of many devices includes batteries, which for example serve to operate the remote control. There also could be batteries or accumulators built into the device itself. In connection with the sale of these batteries or accumulators, we are obliged under the Battery Regulations to notify our customers of the following:

Please dispose of old batteries at a council collection point or return them to a local shop at no cost. The disposal in domestic refuse is strictly forbidden according to the Battery Regulations. You can return used batteries obtained from us at no charge at the address on the last side in this manual or by posting with sufficient stamps. Contaminated batteries shall be marked with a symbol consisting of a crossed-out refuse bin and the chemical symbol (Cd, Hg or Pb) of the heavy metal which is responsible for the classification as pollutant:



1. "Cd" means cadmium.
2. "Hg" means mercury.
3. "Pb" stands for lead.

All rights, also for translation, reprinting and copy of this manual or parts are reserved.

Reproduction of all kinds (photocopy, microfilm or other) only by written permission of the publisher.

This manual considers the latest technical knowing. Technical changings which are in the interest of progress reserved.

We herewith confirm, that the units are calibrated by the factory according to the specifications as per the technical specifications.

We recommend to calibrate the unit again, after 1 year.

© **PeakTech**® 09/2019/Ehr./Lie.

PeakTech Prüf- und Messtechnik GmbH – Gerstenstieg 4 –
DE-22926 Ahrensburg / Germany
☎ +49-(0) 4102-97398 80 📠 +49-(0) 4102-97398 99
✉ info@peaktech.de 🌐 www.peaktech.de