

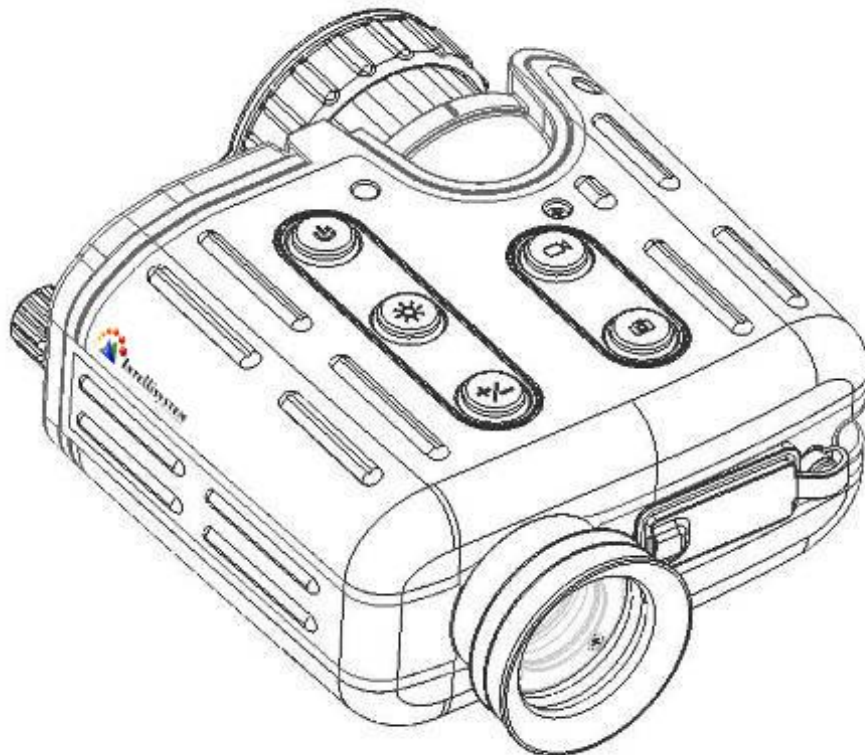
# ***ThermalTronix***

## **TT-1230S**

### **Uncool Thermal Imaging Monocular**

#### **User Manual**

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## ! Warning Cautious & Attention

! **Warning:** It represents conditions or actions which can possibly cause people to be injured or dead.

! **Cautious:** It represents conditions or actions which can possibly cause monocular damaged or data loss.

! **Attention:** It represents valuable notes for users.

**Important information** - Please read user's manual before you use it.

- Never put the lens directly towards to the strong radiation source (the Sun, direct or reflection laser beam, etc ) in any situation (power on or power off) since thermal inductor used in infrared telescope is very sensitive. Otherwise, infrared telescope will be damaged permanently.
- The original package box must be used in the transportation. Do not shake or hit the apparatus strongly in use and transportation.
- Please use the original package box to store the apparatus. The environment should be cool, dry, ventilated and no strong electromagnetic field.
- Protect the surface of the lens from being stained or damaged by oil sludge and any chemical matters. Please put on the lens cap after using.
- Please remember to backup the data into PC instantly in order to avoid losing the important data.
- Never open the case or refit the apparatus. Only authorized people from our company are allowed to do maintenance.

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# 1 Introduction

Welcome to choose our TT-1230S uncooled monocular

## Model

TT-1230S-18-NVMB with 18mm lens, FOV 30.5°x22.9° (±5%)

TT-1230S-37-NVMB with 37mm lens, FOV 14.8°x11.1° (±5%)

## Features

TT-1230S function:

2 X digital zoom

Hot white/hot black switch

TF card for photo / record

Calibrate manually

5 options for bright of screen

Mini-USB data transfer

PAL video output

1.8m anti-drop

IP67 protection

## Optional service

TT-1230S with 16GB TF card

TT-1230S with USB real-time video transfer

TT-1230S-18-NVMB also equipment with 37mm lens

TT-1230S-37-NVMB also equipment with 18mm lens

## Application

TT-1230S with uncooled FPA and will directly show you thermal image with high sensitivity. High resolution B/W image and record in TF card for analyze future and it widely used in patrol. Security. Boarder check and so on in any bad circumstance

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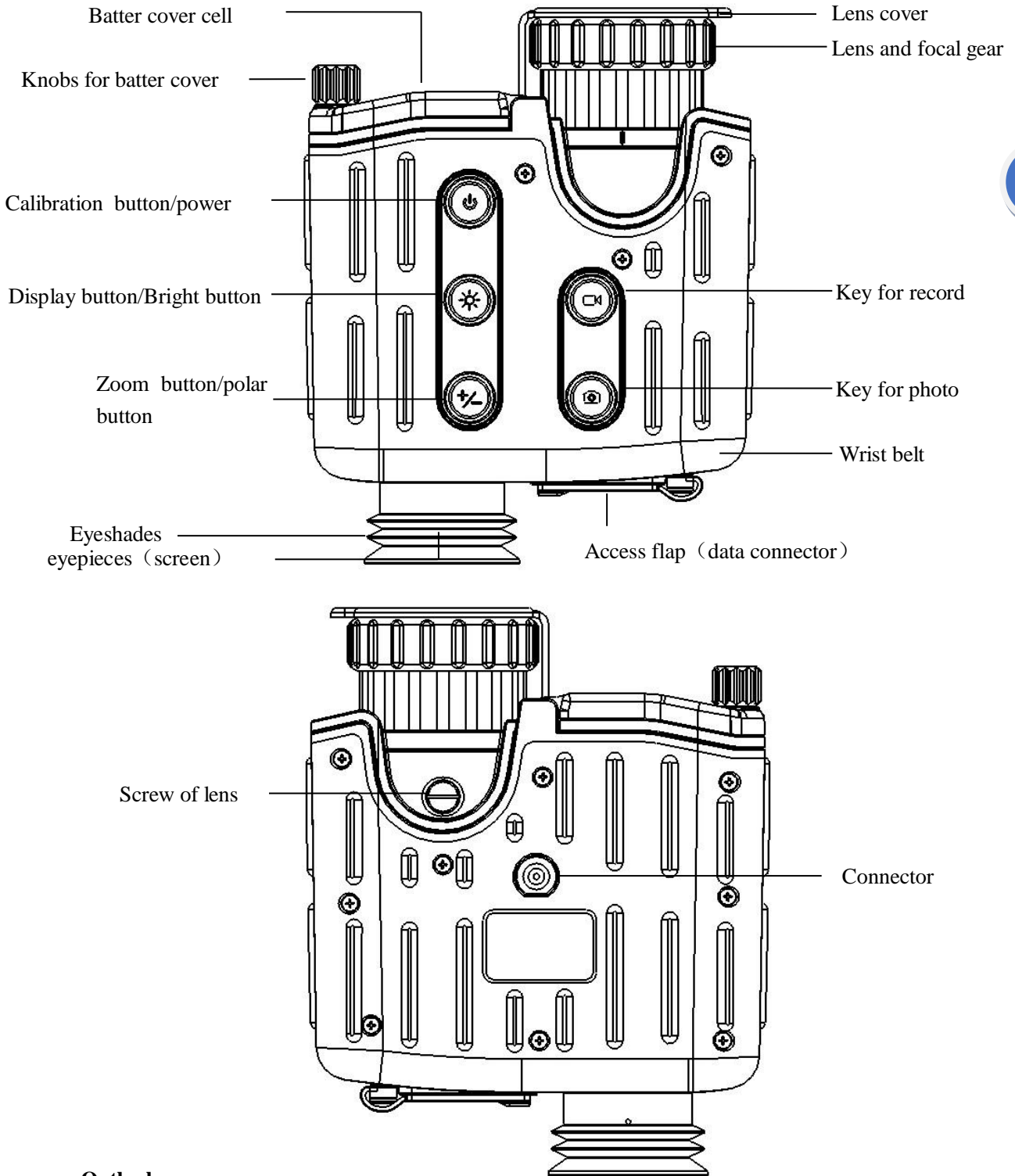
## 1.1 Packing list

- Thermal monocular
- Carry case
- Lithium battery (2)
- Charger
- Convertor cable
- Power adaptor
- Power cable
- Output video cable
- TF card (2G)
- TF reader
- Disc (User Manual Word File)

## 1.2 Optional device

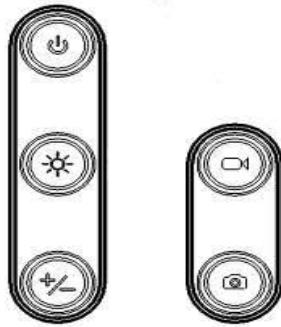
- 18mm or 37mm lens
- 16GB TF card
- USB cable (1.2meter or 2 meters)
- Cortex Carrying Bag
- Oxford Carrying Bag
- User Manual (Printed Document)
- Disc (PC Cam drive program)

## 2 Device chart








### Outlook

## 2.1 Function Button

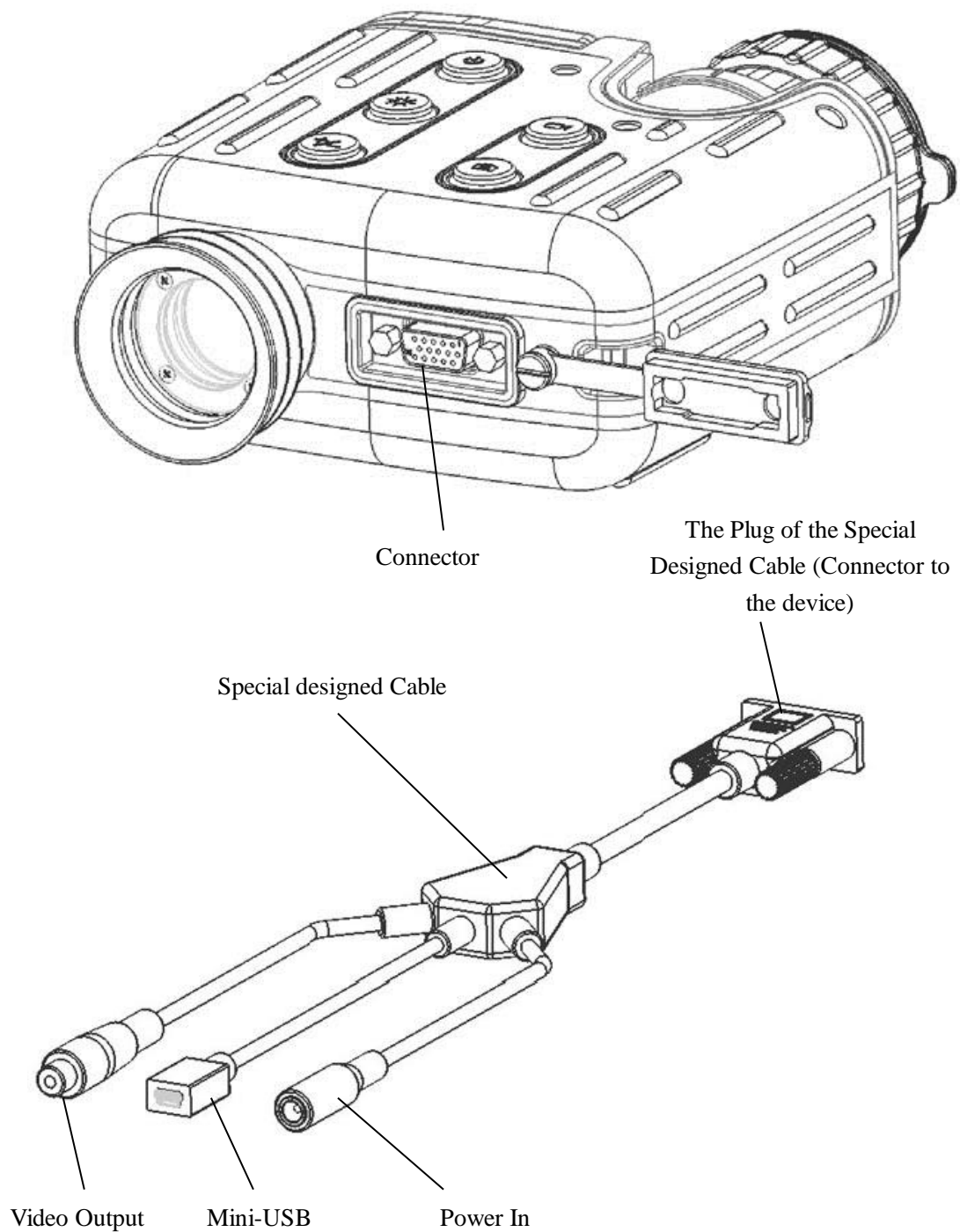


TT-1230S Function Key Schematic

-  : **Calibration/Power Button**  
Short Press for calibration; Long press button **M** ( $\geq 3s$ ) to power on or power off.  
**! Note:** Please cover the lens or facing the camera to a even target to make sure the camera can get well-distributed image
-  : **Hide-Display button/Brightness button**  
Short Press to display the status like polarity, Zoom Times, battery indicator, Logo etc.  
Short press again to call the brightness adjust menu (Total 5 levels brightness);  
Long press button **M** ( $\geq 3s$ ) to switch off/On the brightness adjustment.  
**! Note:** If there is no press within 3 seconds in image browse mode, the the status like polarity, Zoom Times, battery indicator, Logo etc. on the screen will disappear.
-  : **Zoom Button/ Polarity Button**  
Short Press to activate Zoom function, the current Zoom times will be displayed on the screen. Long press ( $\geq 3s$ ) to activate Polarity change function. .
-  : **Record Button**  
Press to record, press again to stop.
-  : **Capture Button**  
Press to capture image and saved.

## 2.2 Connectors

The connector is hidden in the rubber cover on the backside of the device. User can get Video Output, USB connector and Power in connector with plugging the special designed cable.





## 3 Getting Started

### 3.1 Inserting & Removing Battery

#### 3.1.1 Inserting Battery

- Unscrew & Open the Battery Cover
- Put the Battery into the battery Slot with the metal pins facing Down-side.
- Put the Battery cover back and screw it.

**! Caution: only standard battery can be used, or battery may be stuck, and apparatus may be damaged by incorrect voltage and so on.**

#### 3.1.2 Removing the Battery

- Unscrew & Open the Battery Cover
- The Battery will slip out with facing the Battery slot down-side.
- Take the battery out from the battery slot.

### 3.2 Useful Notes on The Battery

The standard battery is Polymer lithium battery. Even if there is still electricity left in battery, it has no effect while charging. Besides, please use the specified charger. If charge, push the battery into charger along with the battery track, and connect battery and charger. When battery and charger are connected, the light which is on the up-left of the charger will turn yellow, it means charging. When the yellow light is OFF, it means the battery is full charged.

**! Note:**

- **Please remove the battery from the apparatus without using the apparatus for a long time**
- Please charge before Long-time store
- **Take off the battery from the charger when charging is finished or is not needed.**

- Please Charge with the specified Charger.

**! Caution:**

- ***Using battery must follow:***
  - Charge the battery before using or long-time conserving.
  - Only use the specified charger.
  - Do not make positive and negative ends short connected. Do not make metal touch the battery port. If short circuit takes place, the protect circuit inside the battery will start up. Charge the battery immediately to recover the battery.
  - Keep batteries far from fire source.
  - Never expose the battery in the temperature higher than 60°C.
  - Keep batteries dry. Never disassembly or refit batteries



## Warning

- Never disassembly, refit, extrude, prick batteries.
- Do not make positive and negative ends short connected.  
Do not make metal touch the battery port.
- Keep batteries far from fire source.  
Never expose the battery in the temperature higher than 60°C.
- Keep batteries dry.
- Please keep batteries fan than children's touch
- Please handle the discard batteries according to your government law.

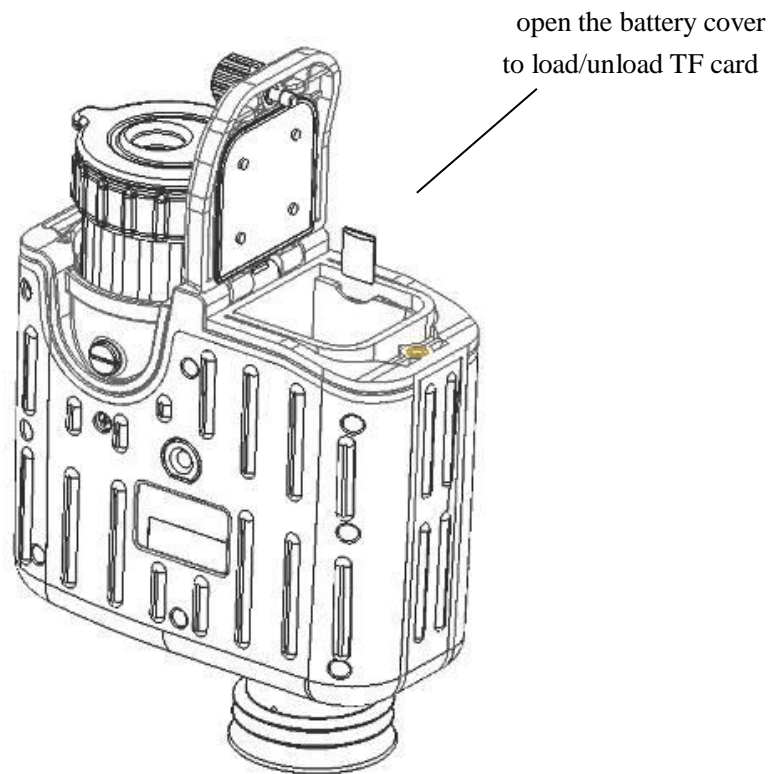
## 3.3 TF CARD LOAD AND UNLOAD

- As the TF card located in battery slot, please unscrew the battery cover and open it to load/unload TF card.

- When loading TF card, please keep the side with mark faces to battery slot and the end


with metal connect down. Insert the TF card into the seat till it is locked

- When unloading TF card, press the top of TF card slightly, and the card will eject a little automatically. Then take out the card slightly with fingers.




**! Note:** If the camera working without TF card, when press the Photo/Recording button, it will hint to “Install the TF Card”. At this time, you should power off the machine, install the TF card, and start the machine again, then can take the Photo or record the video. If the TF card is full, it will hint “TF card is full”, at this time, you should use card reader to transfer the file from the TF card to the computer, or delete the file directly from the TF card. If you wish to format the TF card by computer, please select FAT format.

### 3.4 Capture thermal image

1. Install the battery or connect the power cable. Connect the video output device or directly observe via inner OLED display.
2. Long press “” button to power on. After startup interface is finished, the apparatus

starts working and displays thermal image.

3. Remove the lens cover and aim to the target. Turn the focus wheel to adjust foci to capture the best thermal image.

4. When detecting target, if the image is not uniformly distributed, you can close the lens cover or long press “” **button** to revise the image in order to capture the optimal thermal image.

5. When watching target, you can adjust the luminance, image polar and amplify by function key.



And you can take photos and videos.



## 3.5 USB operations

### 1. USB connection

Connect the patch cord with the data interface. Then insert one end of USB cable into Mini-USB of the patch cord and connect another end of USB cable to PC.

### 2. USB operation

Turn on the camera and connect to the computer, then press  and  more than three seconds, can be observed from the eyepiece it switches to SD mode (when recording does not allow switching), in this mode, when connected to the computer as a removable disk mode, can

upload the TF card image and video into the computer; when again press  and  more than three seconds, can be observed from the eyepiece it switch to PCAM mode (recording process does not allow switching), in this mode, you must first install PCCam driver which can be found from the CD, and to download a standard USB computer universal video access software, connecting your computer under video mode, you can obtain real-time moving images of the machine by the video software, and can take the images and record video by using the computer.

USB expand belongs to upgrade option. It is not available in standard configure machines.

**! Note:** The above function is the optional update function, do not include in the standard performance.

**Note:** PCCam driver installation instructions:

1 After startup, switch to PCAM mode according to the above instructions to, and then connect to a computer USB port.

2 When computer prompt that need install drive, select install driver from CD, select the computer operating system (2k \ xp (w7) \ xp (w7) 64) corresponding to the driver to install;

3 Please note that you need to install two parts drivers, after installation, the computer will show as below



## 4 Operation guide

### 4.1 Start-up interface


Press the key  calibration/power key ( $\geq 3S$ ) to start up the machine, after 3-5 second, you could see the interface show as Figure 1, after the inspection of CPU, memory, detector and image, you will see the interface show as Figure 2.



Figure 1



Figure 2

## 4.2 Operation interface

### 4.2.1 Interface introduction

When stable image is displayed, the below interface will come out:

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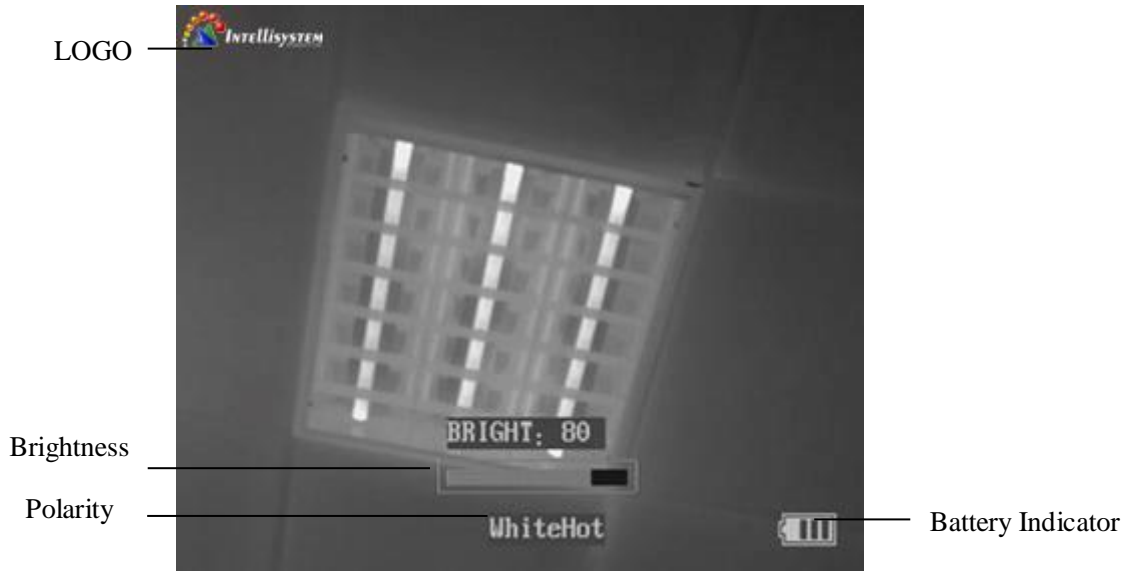







Figure 3

**Battery indicator:** Indicates the current battery situation.

 Indicates battery is full.

 Indicates battery is very low. Need to charge.

#### 4.2.2 Display and Hide the Brightness Setting Function


After the machine is started up, the LOGO, battery indicator, brightness information, polarity, the Zoom will disappear when there's no operation for 3 seconds. Press  again, all the information will appear again, at this time, press  again, you could set the brightness with five levels, namely 20, 40, 60, 80, 100 as shown in Figure 4. Keep pressing  ( $\geq 3S$ ), then the screen will be closed, and you could see nothing. If you keep pressing again, then the screen will display with the former brightness setting.

**! NOTE:** The machine will sleep if there is no any operation for 10 minutes (even it is under Video Recording situation). You could press any key to wake the machine up.



Figure 4

### 4.2.3 Zoom/Polarity

When the machine is working, press , the image will be swifited between Hot black and Hot white. Keep press this button ( $\geq 3S$ ), the image will be Zoom to 2X.

Show as Figure 5;

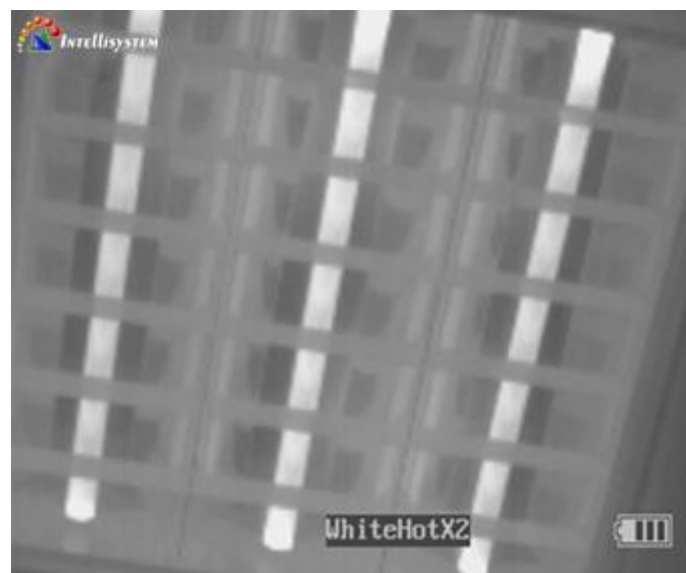


Figure 5



#### 4.2.4 Video Recording


When the machine is working, press  to record video. ON the right side of the screen, it will show the time which had recorded and how long you can record. On the down left side, you will see the information of date, show as Figure 6. When the video file size reach to 500MB, it will become another file and keep recording. Press this button, and the recording will be stopped.



Figure 6

#### 4.2.5 Photo



When the machine is working, press  to take photo and save to the memory card, and at the same time, you will see the serial number of the photo you've taken and how many photos you still can take on the right site of the interface. See as Figure 7.



Figure 7

#### 4.2.6 Restart

Keep press  ( $\geq 3S$ ) to close the machine, keep press again to start up the machine.

**! NOTE:** After the machine is closed, please wait for 10 second then to restart the machine for safety.

#### 4.2.7 Automatic Sleep

Instrument in the observation or recording mode, no key operation for 10 minutes, it will automatically close the eyepiece display and enters sleep mode, press any key except the Photo key will active the camera.

## 5 . Technical Specifications

Items	<i>ThermalTronix</i>		
	TT-1230S-18-NVMB	TT-1230S-37-NVMB	
<b>Detector characteristics</b>	Detector type	Un-cooled FPA micro-bolometer	
	Array size/format	384x288	
<b>Image characteristics</b>	Field of view/min focus distance	30.5°x22.9°	14.8°x11.1°
	Spatial resolution(IFOV)	1.38mrad	0.67mrad
	Thermal sensitivity	≤0.08°C @ 30°C	
	Frame frequency	50/60Hz	
	Focus	Manual	
	Zoom	2x	
	Spectral range	8-14µm	
<b>Image display</b>	Display	800x600 HD OLED monocular screen	
	Image polarity	White/Black hot	
<b>Image storage</b>	Storage card	2G Micro SD card	
	Storage mode	Manual	
	File format	JPEG/MPEG4	
<b>Thermal image operations</b>	Power key	On/Off switch	
	Brightness key	5 optional cycle levels	
	Zero key	Manual calibration	
	Functional key	Short press for E-zoom, long press for polarity shift	
	Storage/Record key	Capture/record	
<b>Power source</b>	Battery type	Li-Ion, rechargeable	
	Battery operating time	3 hours continuous operation	
	Battery charging mode	Special designed, random charge	
	Power saving	10-15V DC	
	External power	<3.5W	
<b>Environment</b>	Operating temperature	-20°C - +50°C	
	Storage temperature	-45°C - +70°C	
	Humidity	≤90% non-condensing	
	Encapsulation	IP67	
	Drop test	1.8M, IEC68-2-32	
	Shock-resistant	25G, IEC68-2-29	
	Anti-vibrated	2G, IEC68-2-6	
<b>Physical characteristics</b>	Weight	<900g	
	Dimension	139x64x163mm	139x64x172mm
<b>Interface</b>	Power interface	Yes	
	Video output	Yes	
	USB	Image, measurement data transfer	

## 6 Troubleshooting

Please follow the below table to diagnose and solve the problem. If problem is still existed, please contact our service department.

Problem	Cause & Solution
TT-1230S does not power on.	<ul style="list-style-type: none"> <li>● Battery not installed or installed incorrectly →Install battery or re-install battery</li> <li>● Battery is out of power. →Change battery.</li> <li>● “Power off” protection is enabled →Wait for 5 seconds and reboot.</li> </ul>
TT-1230S power off utomatically.	<ul style="list-style-type: none"> <li>● Battery is out of power. →Change battery</li> </ul>
Battery depletion is too fast	<ul style="list-style-type: none"> <li>● Environment temperature is too low</li> <li>● Rechargeable battery is not charged completely. →Recharge the battery.</li> <li>● Rechargeable battery is out of power completely and can not be recharged. →Change new battery.</li> </ul>
No thermal image	<ul style="list-style-type: none"> <li>● Lens cover is not removed. →Remove lens cover.</li> <li>● In image browsing status →Return to real-time observe status.</li> </ul>