ThermalTronix

TT-G2F-HTI

TT-T2F-HTI

Series Fire-fighting

Thermal Image Camera

User Manual

Warning & Attention

Warnings

Under the environment of darkness and smoke, firemen can make the more accurate judgement and behavior more efficiently according to the TT-2F-HTI series thermal image camera. User must read the below statement very carefully, otherwise it may lead serious injury or even death.

- Before using the TT-2F-HTI series thermal image camera, user must have professional training and fully understand the characteristics of the camera and correct operation. Before being used in emergency situation, it is recommended that do the fire fighting emergency exercise firstly. If not, it may lead serious injury or even death.

- Since TT-2F-HTI series thermal image camera is a complicated optical device, it may also happen to fail operation or losing direction in the emergency situation. Therefore, TT-2F-HTI series should not be the only navigation device under the environment of darkness and smoke, otherwise it may lead serious result.

- Under the high temperature environment, user must operate following the operating program, otherwise it may damage the device or people may get serious injured or even death.

- Nearly all electronic devices will stop working under a particular high temperature. When the surface environment temperature of TT-2F-HTI series is at 120℃, it can provide 20 minutes thermal image. If it exceeds this temperature, it will lead device damaged until image disappeared.

- It is suggested that TT-2F-HTI series is not used for glass, water or the object with smooth surface since those thermal images may make user have hallucination or confusion.

- TT-2F-HTI series are not defined as “Nature safe” class. Please do not use it under the explosive environment.

- Before entering the dangerous environment, please do the system test in order to make sure device and function work properly. After use, check whether the device needs maintenance or not so as to make sure whether the device is damaged or not or decrease the use class.

- When the device is exposed long time under the high temperature environment, it may lead device performance decreased or image lost. It must avoid over sensitization and temperature out of the designed range, otherwise it will lead heat saturation. If so, please move the device away from the high temperature environment to return normal image, otherwise the device may be damaged.

- Device life depends on the number of used times and environment condition. Different used times and extreme environment condition decide different device life.

- Under the low temperature environment, battery life may be reduced a bit.

- Under the dangerous environment, when the battery capacity indicates low capacity alarm, please escape at once. Or the device may stop working, resulting in serious result.

- The original battery is designed based on the accurate calculation by our company, so the changed battery must fit for the original battery configuration. It may damage the device system if unauthorized battery is used.

- Only authorized technician can do the maintenance job. Please do not disassemble the case or protection cover.

- Please do not connect the two terminals of the battery or expose in the dampness condition. Short connection may affect the battery life.

Without obeying the above warnings, it may lead serious injury or even death.

Content

Warning & Attention **1**

1. Introduction **1**

1.1 Standard accessories 1

2. Overview **2**

3. Getting started **3**

3.1 Inserting battery 3
3.2 Remove battery 5
3.3 Notes on safety use battery 7

4. Operation guide **8**

4.1 Interface description 8
4.2 Operation description 10
4.2.1 TT-2F-HTI operation flow chart 10
4.2.2 TT-2F-HTI operation flow chart 11

5. Technical specifications **12**

6. Troubleshooting **13**

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1. Introduction

Thank you very much for choosing the TT-2F-HTI series hand-held firefighting thermal image camera. It contains two models: TT-2F-HTI and TT-2F-HTI (Ⅱ).

TT-2F-HTI series are exclusively designed for fire fighting. It is helpful for firemen to rescue or search under the low visibility of smoke or darkness.

TT-2F-HTI series adopt advanced un-cooled FPA infrared detector and advanced real-time infrared thermal image process circuit with high definition and sensitivity which designed by Intellisystem Technologies. TT-2F-HTI series are hand-held conforming the ergonomics, where user can control it by single hand.

1.1 Standard accessories

- TT-2F-HTI series firefighting infrared thermal image camera
- Carry box
- User manual
- NI-MH Battery (2)
- Battery charger

2. Overview

Figure.2.1 Overview of TT-2F-HTI series

No.	Description	Comment
①	Power key	Long press to power on/off the camera. Short press to change the color platter.
②	Battery slot buckle	
③	Knob/battery slot	
④	Lens Germanium window	
⑤	LCD screen	

Note:

Practical device may not have the symbol (IR-TECH) on the appearance. Same as below.

3. Getting started

3.1 Inserting battery

- Pull up the buckle of battery slot

- Open the cover of the battery slot

- Push the battery into the battery slot

- Close the battery slot cover

- Push down the buckle of the battery slot

Note: only standard accessory battery is allowed to use, otherwise the battery may be stuck or wrong voltage will damage device.

3.2 Remove battery

- Pull up the buckle of battery slot

- Open the cover of the battery slot

- Remove the battery from the battery slot

- Close the battery slot cover

- Push down the buckle of the battery slot

3.3 Notes on safety use battery

- Battery should be stored among the environment temperature -20℃∽20℃. Since the battery will self discharge during storage, the battery should be charged fully before storing in order to avoid over discharge, which will impact the battery capacity. Furthermore, it is recommended that the battery should be charged in a set time, as below:
  - Environment temperature is -20℃ ~ 20℃, once every 6 months;
  - Environment temperature is 20℃ ~ 45℃, once every 3 months;
  - Environment temperature is 45℃ ~ 60℃, once every month;

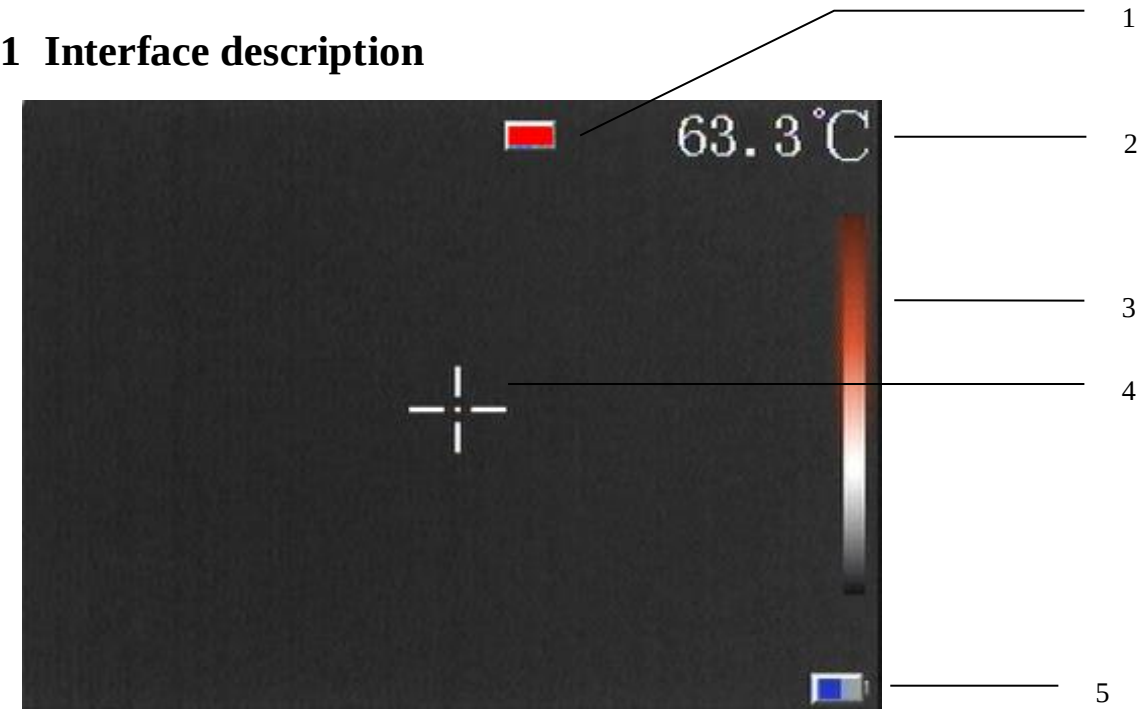
  Each time charging, the electricity should be more than 50% of battery capacity.

- The environment should be 0℃ ~40℃. If under 0℃, the battery capacity will get loss; if over 40℃, the battery temperature may get too high.

- Some important notes:
  - Never disassemble, extrudate, and stab battery;
  - Never short connect the battery
  - Never put the battery into fire or water;
  - Put it in the place where children cannot touch.

4. Operation guide

4.1 Interface description



[1] High temperature palette symbol: Displayed when system switch to high temperature palette automatically.

[2] Spot temperature measurement: display the temperature of the object by spot temperature measurement. **Note: Not supported by TT-2F-HTI.**

[3] Palette: Currently user choose pseudo colorful palette. There are four options: rainbow, black-hot, white-hot and fire-fighting.

[4] Spot temperature measurement crosshair: Display the location of the current measured spot. **Note: TT-2F-HTI cannot display the temperature value at the right top corner.**

[5] Battery status: Display the current battery capacity.

Battery status instruction:

When battery is full, it shows full of blue as below:

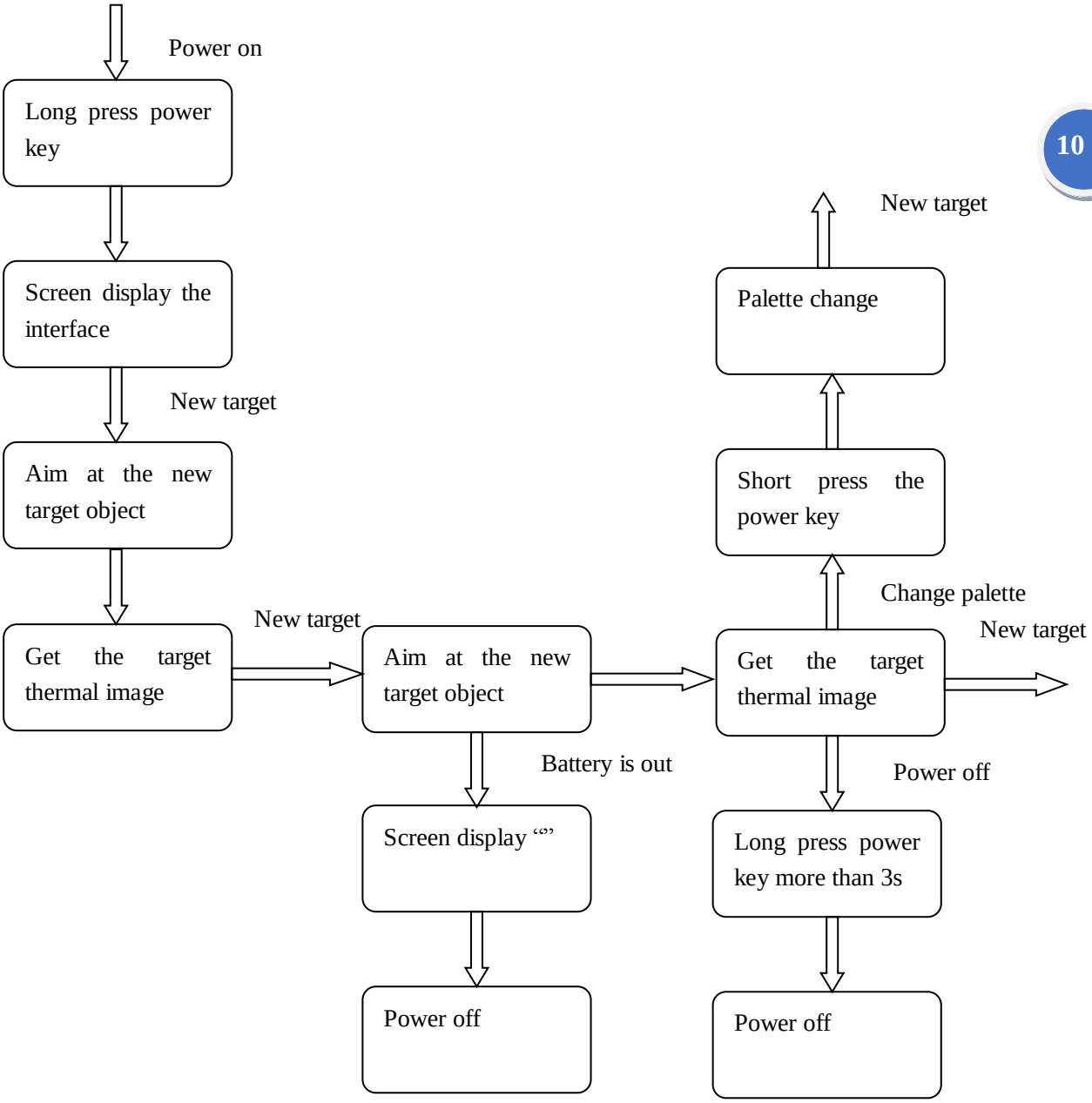
When battery is half, it shows half of blue as below:

When battery is nearly out, it shows full of red as below:

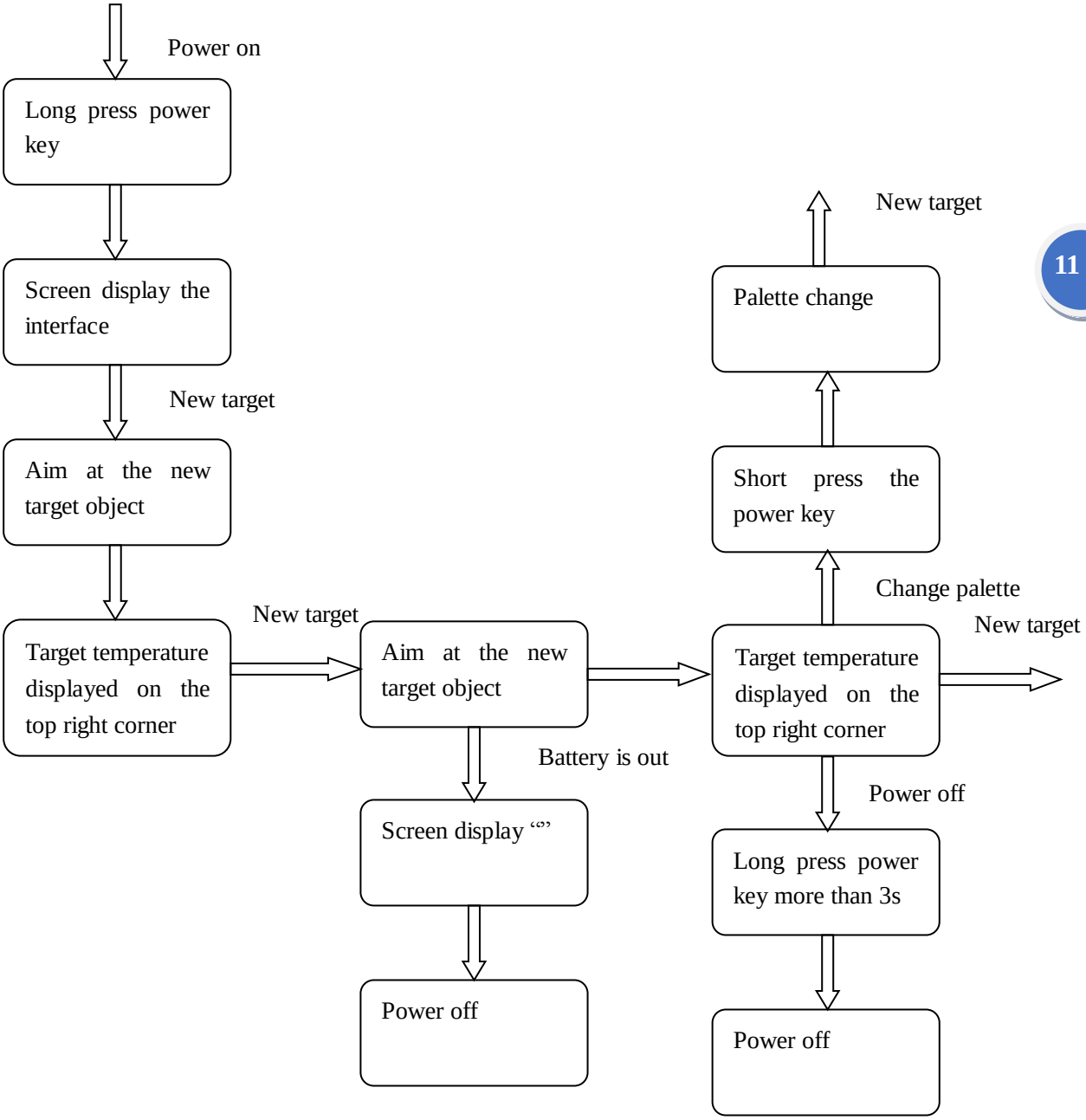
When working time of the battery is less than 20 minutes, the battery symbol will flash wholly in order to warn the operator. When working time of the battery is less than 2 minutes, it will flash “Battery exhausted” in the middle of the screen. After flashing 10 times, the system will power off with the prompt box “Starting power manage”.

4.2 Operation description

4.2.1 TT-2F-HTI operation flow chart



4.2.2 TT-2F-HTI operation flow chart



5. Technical specifications

Item		*ThermalTronix*	
		TT-T2F-HTI	**TT-G2F-HTI**
Detector performance	Type	Un-cooled FPA detector	
	Resolution	160×120	384x288
	Range of λ	8～14μm	
	Thermal sensitivity	≤0.12℃@30℃	
Image performance	Frame frequency	50Hz	
	LCD	Colorful high resolution 3.5” LCD	
Lens parameters	FOV	30°×22.5°	40°x30.5°
	Spatial resolution	3.3mrad	2.18mrad
Measurement analysis	Measurement range	-20℃～+600℃	
	Measurement calibration	Fixed emissivity	
	Measurement mode	Fixed spot measurement	
	Number of palette	black-hot, white-hot, fire-fighting, rainbow, etc.	
		6 pseudo color optional	11 speudo color optional
Safety performance	Water resistance	IP67	
	Drop height	1m	
	Flame retardant class	UL94-V0	
Power system	Battery type	Rechargeable NI-MH Battery	
	Working time	≥2 hours	
	Charging time	≤2 hours	
	Rechargeable times	≥500	
Environment parameter	Long time working temperature	-15℃～+50℃	
	Short time working temperature	+50℃～+260℃	
	Storage temperature	-40℃～+70℃	
Physical characteristics	Size	190mm×128mm×273mm	
	Weight	≤1.3Kg	
	Carry box	Rubber	

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
The camera does not power on.	● Battery not installed or installed incorrectly →Install battery or re-install battery ● Battery is out of power. →Change battery. ● "Power off" protection is enabled →Wait for 5 seconds and reboot.
The camera power off automatically.	● Battery is out of power. →Change battery ● Power off time is set in the display setting. →Set as None.
Battery depletion is too fast	● Environment temperature is too low ● Rechargeable battery is not charged completely. →Recharge the battery. ● Rechargeable battery is out of power completely and can not be recharged. →Change new battery.