



**NITEVIZOR<sup>®</sup>**  
**THERMAL-XTR**  
**TH-S SERIES**



**USER MANUAL**

## **NITEVIZOR THERMAL-XTR | TH-S SERIES**

Thank you for choosing the NITEVIZOR THERMAL-XTR TH-S Series Thermal Vision Device. Please read the user manual carefully before using your new device.

### **Important Safety Information**

1. Do not directly expose the thermal device to high intensity radiation sources such as the sun, carbon dioxide laser and electric welding machines
2. As the thermal device combines precision optical instruments and electrostatically sensitive electronic components, do not throw, drop or shake the thermal device or its accessories.
3. Do not disassemble the thermal device as this will void the warranty
4. When the thermal device is not in use or during transportation or long term storage, remove the batteries, and store the thermal device in the supplied carry case
5. Replace the battery when the battery capacity is low to avoid damage due to over discharge

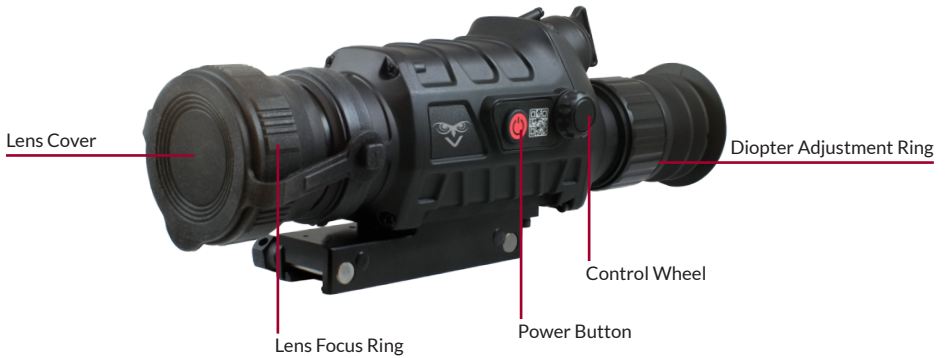
### **Important Operation Information**

1. Clean the exterior parts of the thermal device with a soft dry clean cloth. Do not use chemicals or other solvents
2. To avoid damage to the lens of the thermal device, only use a soft dry lens cleaning cloth
3. Avoid directly touching the lens of the thermal device as dirt and acid left by fingerprints may damage the lens coating over time
4. Power off the thermal device when not in use to preserve battery life
5. Ensure the battery is installed correctly
6. Before removing the battery, ensure the thermal device is fully powered off
7. Do not disassemble, throw, drop, or submerge the battery in water
8. Do not expose the thermal device or battery to heat sources such as fire
9. Immediately stop using the thermal device and power off if the battery shows signs of overheating, deformation or produces odor
10. All zeroing data will be lost if a Factory Rest is performed
11. Before performing Scene Calibration, ensure the lens cover is closed and the lens is evenly aligned

## Contents

- 1x TH-S series Thermal Device
- 1x 18650 Rechargeable Lithium Battery
- 1x Battery Charger
- 1x Video Output Cable
- 1x Carry Case

## Device Overview



## Battery Installation & Controls



### Battery Installation

The thermal device uses a single 18650 Rechargeable Lithium Battery. Insert the battery into the battery compartment with the Positive (+) end forward into the compartment. Close the battery compartment cover on the Negative (-) end of the battery.

### Button Functions

#### Power Button

- Power On and Power Off



#### Control Wheel

- Press = Enter Menu / Select Function
- Rotate: Function Scroll & Select



**Power On** To start the thermal device, hold down the Power Button until the splash screen displays in the eyepiece. The device is now ready to use.

**Standby Mode** To put the thermal device in Standby Mode hold down the Power Button. The screen will display a shutdown progress bar. Release the Power Button before the progress bar finishes. The device is now in Standby Mode, the screen is not displayed and battery consumption will be reduced.

Press any button to wake up the device from Standby Mode.

**Power Off** To power off the thermal device, hold down the Power Button. The shutdown progress bar will be displayed. Keep holding down the Power Button until the progress bar is completed. The device is now powered off.

## Image Interface & Functions



*Display of the thermal device in normal mode*



*Display of the thermal device in function mode*

### Function Menu

Press the Control Wheel to display the pop-up Function Menu on the left side of the screen.

Rotate the Control Wheel to select the desired function, then press the Control Wheel briefly to select the function.

Continue Scrolling and Pressing to select and adjust.

Select the Exit option in the top of the Function Menu to save changes and exit.

### Status Bar

The Status Bar is displayed at the bottom of the screen and displays important information including the selected Model, Palette and battery level.

### Calibration

After extensive use of the thermal device, images may display snow, jitter, stripes and other image abnormalities. In these circumstances, use the Calibration options to re-calibrate the thermal device.

In Shutter/Scene Calibration Mode, press the Power Button briefly. Once Calibration Completed is displayed, the thermal device will be calibrated.



In Auto Calibration Mode, the thermal device will automatically re-calibrate to avoid degradation of the thermal image.

## ...Image Interface & Functions



**ZOOM 1x**



**ZOOM 2x**



**ZOOM 4x**



**PIP Mode**

### ZOOM

In Normal Operation Mode, use the Control Wheel to select the ZOOM mode.

- 1x: The screen displays the original size
- 2x: The central cursor area of the image is set to 2x ZOOM
- 4x: The central cursor area of the image is set to 4x ZOOM
- PIP: The main screen displays the original 1x size and a 2x ZOOM image is displayed in the top right corner of the display

### Palette

Select the Palette option in the Function Menu to set the palette color. Available palette colors are: White Hot, Black Hot, Red Hot1, Red Hot2, Red Hot3, Green Hot and Blue Hot.

### Brightness

Select the Brightness option in the Function Menu to adjust the display brightness. Ten levels are available for optimal vision in all circumstances.

### Contrast

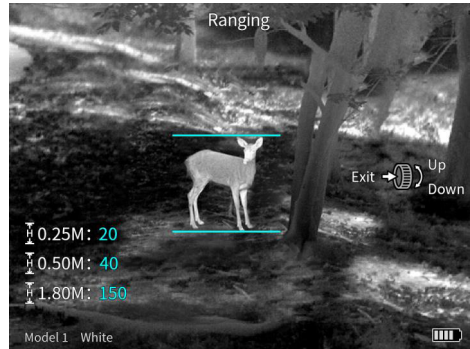
Select the Contrast option in the Function Menu to adjust display contrast levels. Ten levels are available to optimize contrast depending on the terrain and climate conditions.

## ...Image Interface & Functions

### Ranging (Rangefinder)

Select the Ranging option in the Function Menu to use the Rangefinding function. Three examples of targets are available as reference: 0.25m, 0.5m and 1.8m with real-time distance information.

1. Align the lower horizontal line with the bottom of the target image, then rotate the Control Wheel to change the width between the upper and lower horizontal lines until the upper line is aligned with the top of the target icon. When set, the distance can be calculated and displayed automatically
2. By comparing the target size with the three reference target sizes, the distance of the target can be calculated



### Zeroing

When using the thermal device for the first time, or when changing between firearms, the device must be Zeroed.

The thermal device can store 6 different Zero model calibration presets.

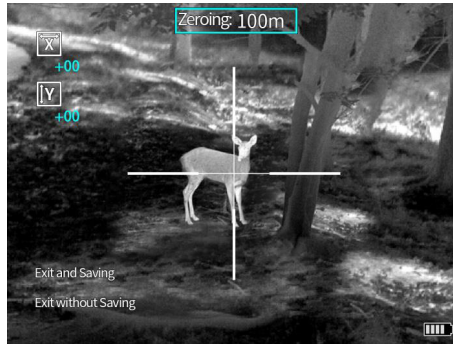
1. Select the Advanced option in the Function Menu
2. Select the Select Model option
3. Select the desired Model number then Return to the main Function Menu



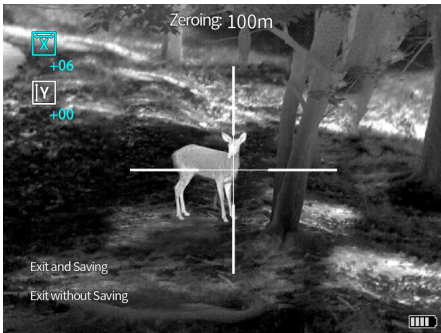
## ...Image Interface & Functions

### ...Zeroing

4. Select the Zeroing option in the Function Menu
5. Select the Zero Calibration Distance option
6. Aim to the expected point of impact with the center of the reticle and fire. Calculate the relative distance from the actual point of impact to the expected point of impact from the reticle



7. Select X or Y in the box and use the Control Wheel to adjust the center of the reticle to the actual point of impact. Fire again

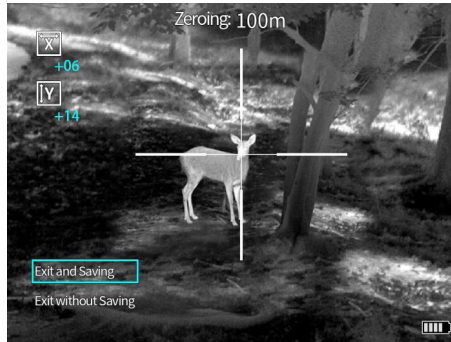




## ...Image Interface & Functions

### ...Zeroing

8. Repeat step 7 until correct Zeroing is completed



9. Exit Zeroing mode

The thermal device is now Zeroed to the selected Zero calibration preset.

### Advanced

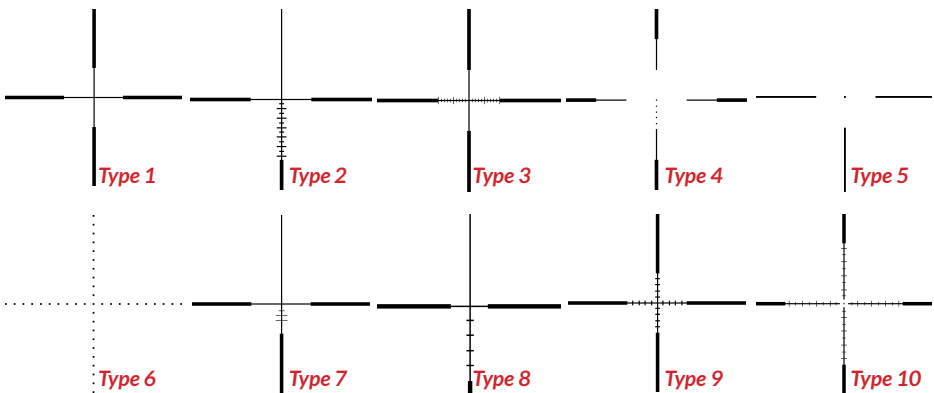
Select the Advanced option in the Function Menu to enter Advanced settings.

### Model Select

Use the Model Select option to select the desired Zero calibration preset.

### Reticle Type

The thermal device is equipped with 10 different reticles. Use the Reticle Type option to select the desired reticle type.



## **...Image Interface & Functions**

### **Reticle Color**

Use the Reticle Color option to select the desired reticle color.

### **Setting**

Use the Setting option to hide the reticle. After exiting the Setting option, the reticle will be displayed again.

### **Calibration Mode**

The thermal device can be set to between automatic calibration, scene calibration or shutter calibration to optimize the thermal image of the in the device.

Use the Calibration Mode option to select the desired mode of calibration.

- Automatic: The device automatically corrects the thermal image quality
- Scene: Calibration can be performed by briefly pressing the Power button. The lens must be covered with the lens cover
- Shutter: Calibration can be performed by briefly pressing the Power button. The shutter of the device will be closed during calibration

### **PIP**

Use the PIP option to select how the PIP window is displayed during Zoom usage. The PIP window can be displayed in the left or right corner, or in the middle of the display.

### **Hot Track**

When Hot Track is enabled, a tracking box will be displayed to highlight the area with the highest temperature in the image.

### **Screen BRI**

Use the Screen BRI option to adjust the brightness of the screen of the device.

### **Auto OFF**

Use the Auto OFF option to select between auto power off modes: Off (disable), 15min, 30min or 60min.

### **Reset**

Use the Reset option to restore the thermal device to Factory Settings. Please note that all Zero calibration presets will be lost.

## Technical Specifications

### TH-S-35

- Focal Length: 35mm F1.2
- FOV: 10.7°x8.08°
- Magnification: 2.3~9.2x
- Dimensions: 230x90x75mm
- Weight: 660g

### TH-S-50

- Focal Length: 50mm F1.2
- FOV: 7.5°x5.6°
- Magnification: 3.3~13.2x
- Dimensions: 250x90x75mm
- Weight: 720g

### TH-S Series

- Detector Type: 400x300 @17 17μm, VOx
- Spectral: 8μm ~ 14 μm
- NETD: ≤50mk
- Display: Color 0.39" OLED 1024x768
- Eyepiece: Exit pupil distance 48mm, eyepiece magnification 14x
- Video Output: PAL 50Hz
- External Video Display: Full color video external interface with menu
- Frame Rate: 50Hz
- Digital Zoom: 2x, 4x
- Color Palettes: White Hot, Black Hot, Red Hot 1, Red Hot 2, Red Hot 3, Green Hot, Blue Hot
- Picture-in-Picture: On/off with adjustable position
- Hotspot Tracking: Yes
- Compensation Modes: Auto Compensation / Shutter Compensation / Scene Compensation
- Calibration: 25m / 50m / 100m
- Stadiometric Rangefinder: 1.8m / 0.5m / 0.25m
- Firearm Type Selection: 6 Types
- Battery: Li-ion battery 18650 x 1, Non Non-rechargeable on the device
- Battery Operating Time: ≥5H 3400mah standard 18650 battery battery Observation status only only
- Video Interface: Lemo
- Operating Temperature: -40 °C to +50 °C
- Shock Resistance: 500g/1ms
- Encapsulation: IP67
- Conformity: CE, FCC, RoHs

## FCC NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cable must be used with the equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

Specifications and designs are subject to change without any notice or obligation on the part of the manufacturer.



## Disposal of Electric and Electronic Equipment

(Applicable in the EU and other European countries with separate collection systems)

This equipment contains electric and/or electronic parts and must therefore not be disposed of as normal household waste. Instead, it should be disposed at the respective collection points for recycling provided by the communities. For you, this is free of charge.

If the equipment contains exchangeable (rechargeable) batteries, these too must be removed before and, if necessary, in turn be disposed of according to the relevant regulations (see also the respective comments in this unit's instructions). Further information about the subject is available at your community administration, your local waste collection company, or in the store where you purchased this equipment.





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