



# FTO

FYRLYT THERMAL OPTICS

# 640-50

SENSOR	640 x 512
PIXEL SIZE	12um
LENS	50mm F1.0
BASE MAGNIFICATION	2.72X
DIGITAL MAGNIFICATION	8X (22X)
OCULAR OLED DISPLAY	1440x1080
MOA CLICK VALUE	.2 MOA
MOUNTING RING DIAMETER	30mm

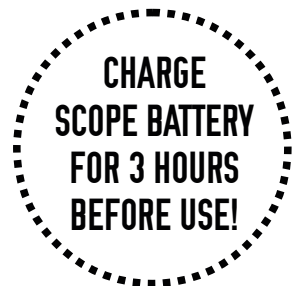
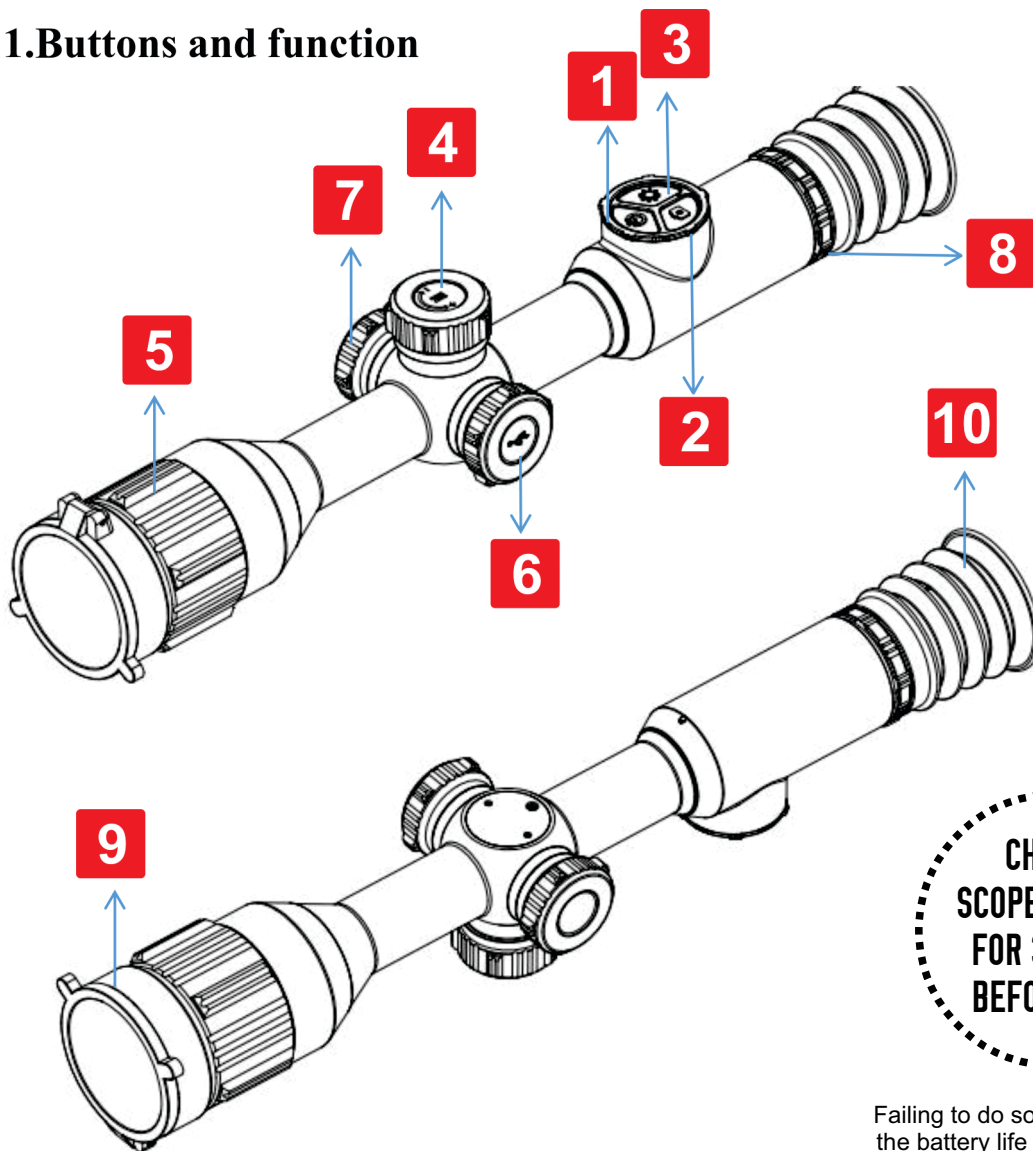
## 1: IMPORTANT! CHARGE SCOPE FOR AT LEAST 3 HRS BEFORE USE.

WATCH THE **MENU** & **SETUP** VIDEO by pointing your phone camera at the QR code. We recommend doing this at home before venturing into the field to become familiar with the scope's menu and functions before mounting to the firearm.

The videos are at [www.fyrlt.com](http://www.fyrlt.com) on the THERMAL page.



## 1. Buttons and function



Failing to do so may compromise the battery life and performance.

No.	Buttons	Function
1	Power	<ul style="list-style-type: none"> <li>■ Shortpress: standby/wake-up</li> <li style="padding-left: 20px;">Dead Spots menu: dead spot repair</li> <li>■ Longpress: power</li> </ul>
2	Photo	<ul style="list-style-type: none"> <li>■ Short press: capture picture, and exit video recording</li> <li>■ Long press: turn on the video recording</li> </ul>
3	Palette	<ul style="list-style-type: none"> <li>■ Short press: palette switching</li> <li>■ Long press: manual image uniformity correction</li> </ul>
4	Knob Operation	<ul style="list-style-type: none"> <li>■ Short press: 1X/2X/4X/8X fast zoom</li> <li style="padding-left: 20px;">In menu mode: function confirmation</li> <li>■ Long press: enter/exit user menu</li> <li>■ Rotate: E-zoom 1.0~8.0x</li> <li style="padding-left: 20px;">In menu mode: left/right switching and value addition/subtraction</li> </ul>
5	Focus Ring	Manually rotate objective to focus image
6	Interface	Type-C interface, used for charging, external power supply, data transmission, system upgrade, and analog video output
7	External Battery Compartment	Can be powered by external battery, battery type CR123A
8	Eyepiece Diopter Adjustment	Eyepiece diopter adjustment
9	Lens cap	Lens protection
10	Eye mask	Buffering and shading for better viewing and covert 'ops'

## **2.Operation**

### **Power**

- Short press: standby/wake-up, on/off eyepiece display
- Long press: on/off device

### **Photo**

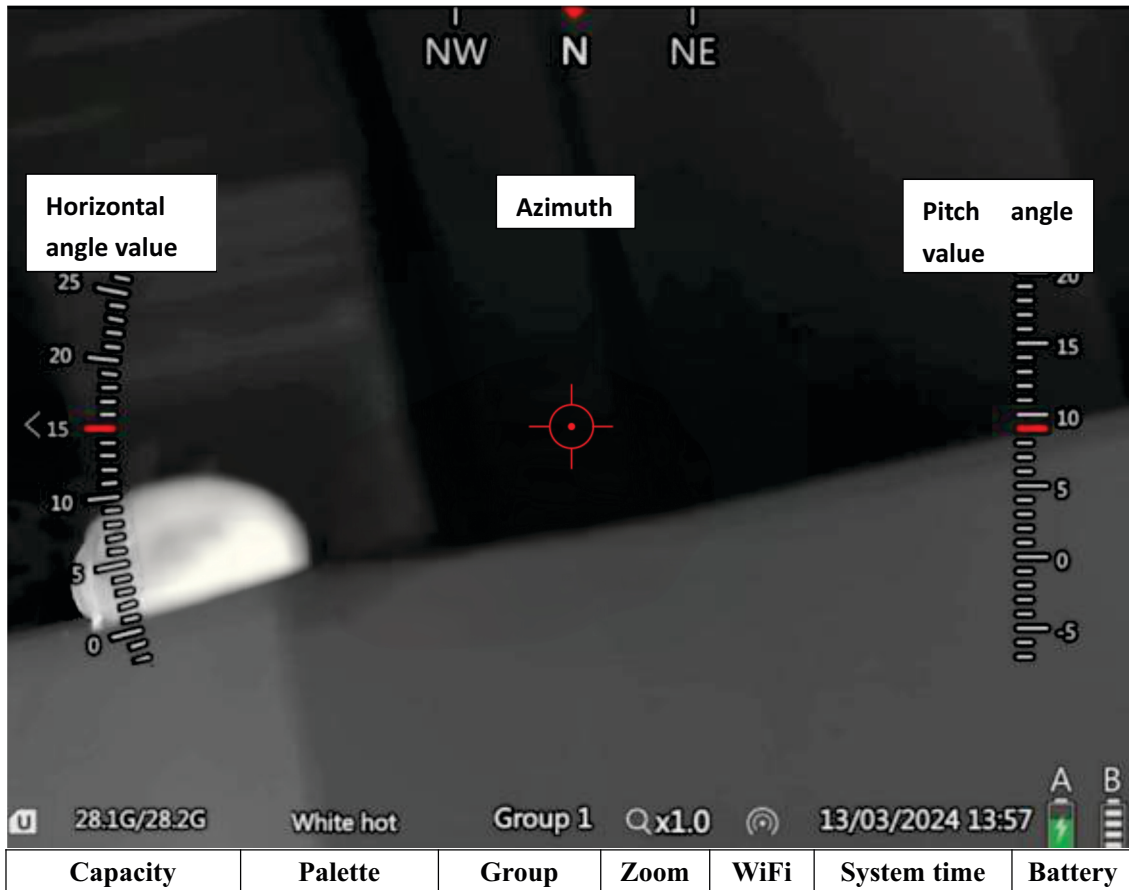
- Short press: take photos and exit the video recording
- Long press: turn on the video recording

### **Palette**

- Short press: color palette switching among White hot, Black hot, Emerald, Iron hot, Red hot and Green.
- Long press: manual image uniformity correction, can be performed manually to refresh a clear image.

### **Knob**

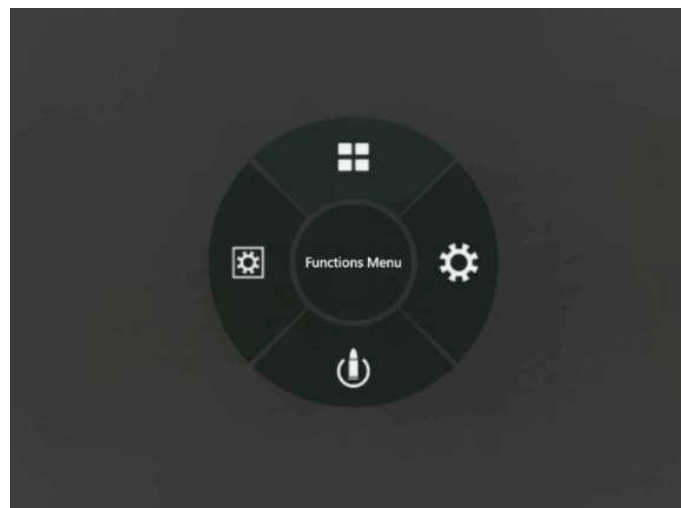
- Short press: 1X/2X/4X/8X fast zoom in image
- Long press: enter/exit user menu
- Rotate: 1.0~8.0x zoom in. Single step 0.1x zoom for fine on target image.



### 3. User menu operation

#### Knob Instruction

- Short press: function confirmation
- Long press: return
- Left/right switching and value addition/subtraction



## 4.Introduction to User Menu Functions

### 4.1 Functions menu



**WiFi: off/AP/STA**

#### **AP mode:**

Download the client program "IR-TRACKER V" via link on FYRLYT website and install program,.

Turn WIFI onto AP mode

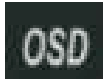
Go to Setting on phone or table and go to wifi and select FTO640-50

**PASSWORD** of "12345678"

After successful connection, open the mobile "IR-TRACKER V" software, click on the software.

"Connect" to see the image, and use the mobile client software to achieve functions such as taking photos, recording, playback, and storage of the image.

**Note: Turning on WIFI for a long time will increase the power consumption of the device, resulting in shorter standby time, please turn off this function when not in use.**



**OSD: on/off .**

Display and Hidden of Status Bar.



**RAV: on/off .**

Enable RAV function. When the impact occurs, the local recording will automatically start, and a pre-recorded video of 10 seconds before the impact will be synthesized into the recording file.



**Screen Brightness: 1/2/3/4/5**

Support 5-level eyepiece display screen brightness adjustment.



**Distance estimate**

Automatically displays the estimated distance to a specific target size object on the scale.



**Hot-spot tracking: on/off**

When turned on, the main interface will appear to automatically track the cursor to display the highest temperature point on the screen.



**Picture in Picture: off/Top/Bottom**

It can be displayed in two fixed positions, top and bottom, and the center area will be enlarged twice.



**Enhance: 0~15**

Enhance the clarity of the image by up to 15 levels, the factory default is 5<sup>th</sup> level.

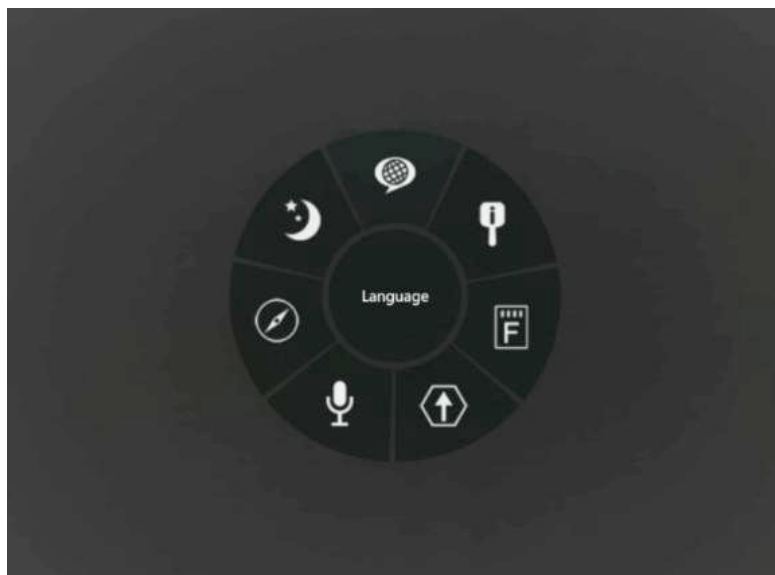


**Auto NUC: on/off**

When turned on, the device automatically zeroing for image refresh; When turned off, the device

will no longer automatically refresh images. You can manually refresh images by long pressing the button "Palette".

## 4.2 System setting



### Language: English/Russian/German

Three languages are optional.



### System information

Displays information such as device model/software version.



### Formatting

The built-in memory card can be formatted, and a prompt will appear at the top after successful formatting.

**Attention: After formatting, all files in the built-in memory will be deleted. Please operate with caution.**



### Upgrade Firmware

Version upgrades are available.

The operation of version upgrade is as follows:

**Preparation:** Download the version upgrade program file through PC at [www.fyrlyt.com/fto-firmware](http://www.fyrlyt.com/fto-firmware) and copy the ".upp" upgrade program to the root directory of the local storage space of the device.

**Device upgrade:** Click the function in the device and select upgrade. After the upgrade is completed, press and hold the button "power " to turn off the device, and then turn on the device again to restart, the upgrade will be completed.



**Save: on/off**

When turned on, the recording will save the audio.



**Compass calibration**

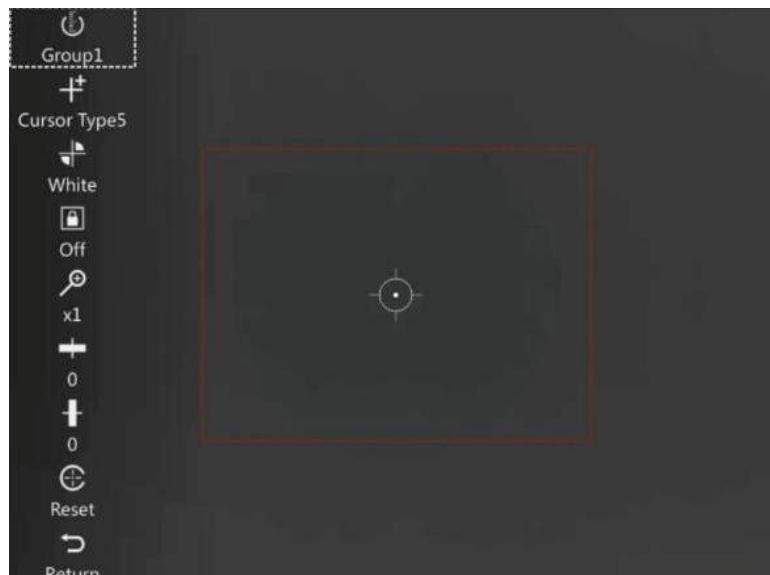
After entering the compass calibration, rotate the device according to the prompts to correct the electronic compass.



**Sleep: 0/5/30/60**

The optional automatic sleep time is 0min/5min/30min/60min. If there is no operation during this time period, the eyepiece will be automatically turned off. The device will be in low-power standby mode, and press any button to restore.

### 4.3 Zeroing (Calibration)



### Knob

- Short press: function confirmation
- Rotate: Left/right switching and value addition/subtraction





**Group: 1/2/3/4/5**

Five sets of user-defined parameters for riflescope calibration.



**Cursor Type: 0~10**

Ten cursor types are available, default "0" off.



**Color: White/Red/Green/Yellow**

Four cursor colors are available.



**Freeze: on/off**

Freeze the image.



**Zoom in: 1X/2X/4X/8X**

1x/2x/4x/8x centered on the cursors.



**Left/Right: [-360,360]**

Moves the cursor left/right on the X-axis.



**Up/Down: [-270,270]**

Moves the cursor up/down on the Y-axis.



**Reset**

Reset the cursor position to the initialized position (0,0).

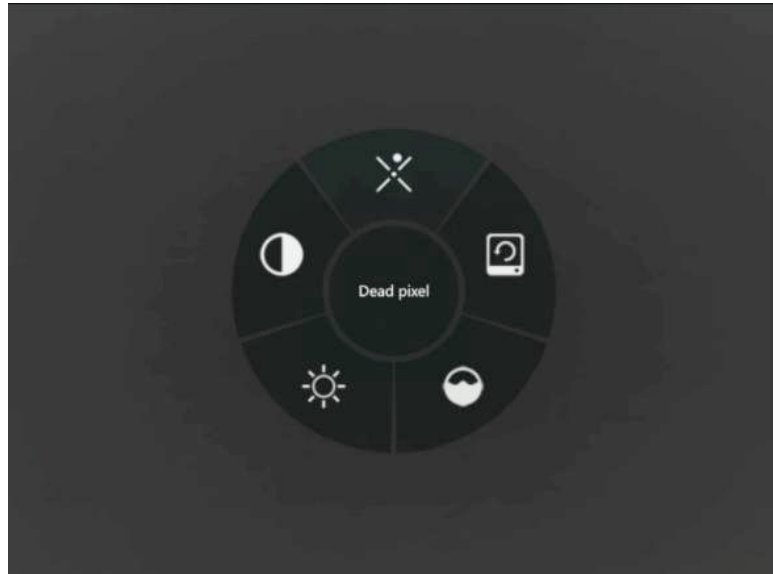


**Return**

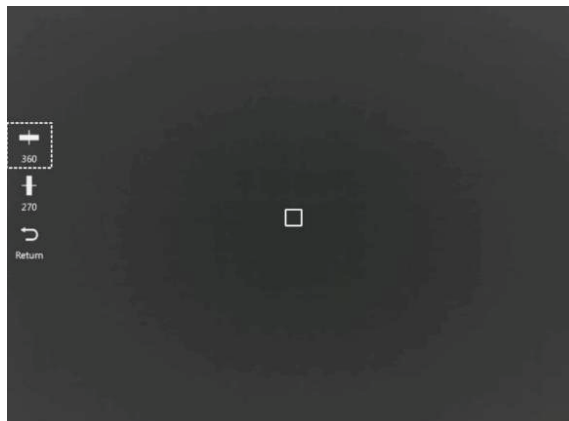
Saves the parameters and returns to the previous menu.

**Note:** The device can be calibrated by connecting to the "EASY SHOOT" client via WiFi, and the calibration data will be saved synchronously.

## 4.4 Image Setting



**Dead pixel**



### **Power**

- Short press: fixes the dead spot in the cursor frame.

### **Knob**

- Short press: function confirmation
- Rotate: left/right switching and value addition/subtraction

**Left/Right: [0,719]**

Moves the cursor left/right on the X-axis.

**Up/Down: [0,539]**

Moves the cursor up/down on the Y-axis.

**Return**

Saves the parameters and returns to the previous menu.

**Restore Factory Settings**

All parameters will be restored to the default values when turned on (except group parameters).

**Red Display Trigger: [-100,100]**

In the red hot mode, the red part displays the trigger value, which is the adjustment of the red rendering display position.

-100~100 adjustable, can be adjusted left or right by rotating the knob according to the on-site environment.

**Brightness: [0,100%]**

Infrared image brightness adjustment.

-100~100 adjustable, can be adjusted left or right by rotating the knob according to the on-site environment.

**Contrast: [0,100%]**

Infrared image contrast adjustment.

-100~100 adjustable, can be adjusted left or right by rotating the knob according to the on-site environment.

## USB Charging/Data Interface

- Open the Type-C interface cover of the device and insert a USB charging cable (voltage DC5V/2A) for charging.

- Connect to computer with USB cable for photo video recording and upgraded data file copying.

### **Real-time video output**

- Open the Type-C interface cover of the device and insert the configured cable to connect to the display or other long-distance transmission on the monitor.

### **Precautions**

- The lens must not be pointed directly at a source of strong amplitude (e.g., the sun, direct or reflected laser beams, etc.) under any circumstance (power on or off), or permanent damage to the scope will result!
- Use a lens wipe and water to gently wipe clean, do not use organic solvents or sharp hard objects to clean the infrared lens, so as not to cause the lens film off and other conditions!
- Please check the power when the device is used for the first time, and charge it for three hours after use if necessary. Please place the device at room temperature when charging by USB.
- Please do not open the casing or modify without authorisation, maintenance can only be carried out by our authorised personnel.