ERDI LASER®

Dual-Light Fusion Handheld Infrared Observation Device
Instructions For Use and Maintenance

Model:LRF1700F

OVERVIEW

The dual-light fusion handheld infrared observation device is equipped with components such as a low-light detector, infrared detector, OLED display, and high-magnification eyepiece. It possesses the combat capability to rapidly uncover and lock onto targets in adverse weather conditions such as smoke, fog, rain, and snow. With its dual-light fusion and target highlighting functions, it not only meets the requirements for long-distance target detection but also integrates target details to enhance target recognition. Coupled with video recording and photography functions, it can record and reconstruct the scene. The device supports multiple observation modes including infrared, low-light, fused black-and-white, and fused color. It is suitable for day-and-night observation and target search, offering comfort and portability. Applications include emergency search and rescue, reconnaissance, surveillance, outdoor hunting, and security protection.

FUNCTION

- Binocular observation, can be used handheld or mounted on a stand;
- Supports multiple observation modes including infrared, pseudo-color, low-light, fusion (black and white, forest, ocean, desert, snowfield), etc.;
- Both infrared and low-light modes feature continuous electronic zoom function, with a zoom range of 1.0x to 4.0x;
- Equipped with power control, under-voltage indication, and battery reverse protection functions;
- Control functions such as photo taking, video recording, playback, retrieval, and deletion;
- Adjustment functions for image brightness, contrast, enhancement, etc.;
- Adjustable screen brightness function;
- Display functions for electronic compass direction, pitch, and roll;
- Features unexpected power-off information and status backup function;
- Real-time information display including date, time, battery level, etc.;
- Equipped with light leak prevention function;
- Supports adjustable eyepiece diopter;
- Supports switching between Chinese, English, and Russian languages;
- Supports external PAL display screen connection;
- Supports USB network video output;
- Supports external power supply.

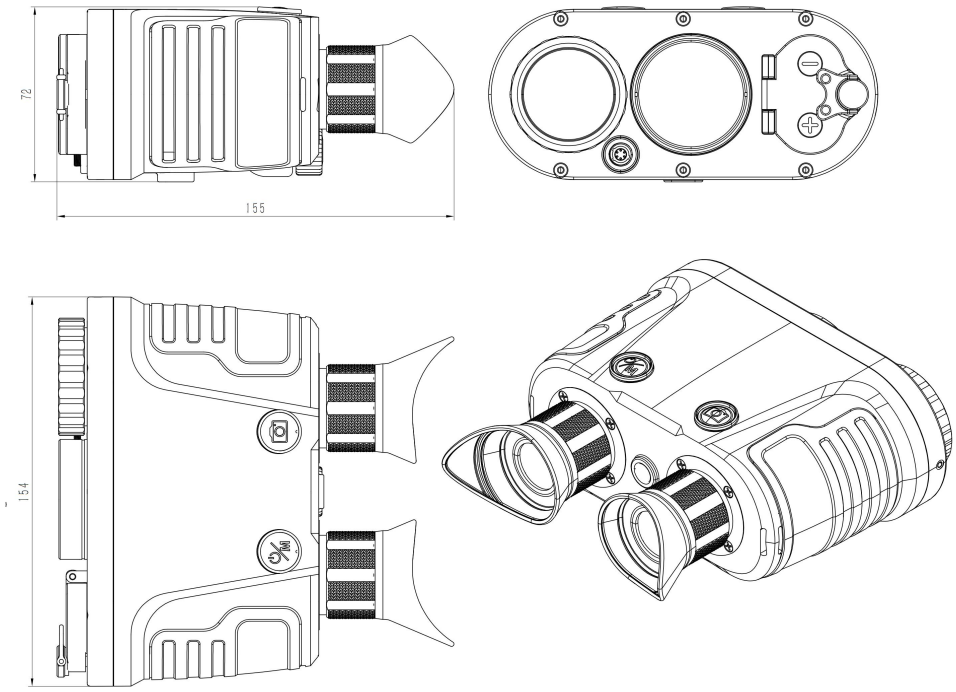
PRODUCT APPEARANCE DESCRIPTION

TECHNICAL SPECIFICATIONS

Infrared detectors and low light detectors	
Infrared: Infrared (IR)	640×512
Low Light Level (LLL)	800×600
Field of View (FOV)	12.5°× 10°
Focusing: Focusing	Manual
Detection and identification distance	
Detection Range	Personnel (1.7×0.5m): 1200m
	Vehicle (2.3m): 1700m
Recognition Range	Personnel (1.7×0.5m): 400m
	Vehicle (2.3m): 560m
File Storage	
Image Storage	JPEG File Storage
Video Storage	MP4 Video File Storage
Memory Card	32G
Image Display	
Display Screen	0.49″OLED
Electronic Zoom	Electronic magnification $1^x \sim 4^x$
Image Parameters	Brightness, contrast, and enhancement adjustable from 1-10
Interface	
Video Output: CVBS	CVBS
Data Interface: USB	USB
Serial Port: RS232	RS232
Interface	Standard, 1/4 inch
Eyepiece	
Diopter Adjustment	-5 ～ +5 Diopters
power supply	
Battery	18650 battery
Continuous Operating Time	≥4h
Environmental adaptability	
Operating Temperature	-20℃～+50℃
Storage Temperature	-40℃～+60℃

Protection Level	IP66
Weight	≤1.0kg (including 2x 18650 lithium batteries)
Dimensions	≤ 205mm×160mm×70mm

MECHANICAL DIMENSION(mm)



PRODUCT DESCRIPTION

1.operate

Detailed definitions and operations of the buttons are shown in the table below.

Button	Button Names	Operation Type	Functional Description	
			main interface	In the menu interface
	Power Button	Long Press	Power off	Power off

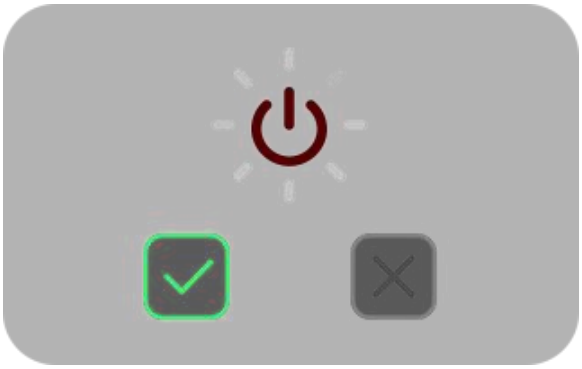
		Short Press	Enter menu	Back
	Record Button	Long Press	Start recording	Record
		Short Press	Take photo	Confirm
	Encoder	Long Press	Enter menu	Return to main interface
		Short Press	Digital zoom	/
		Rotate Left	Mode switch	Menu/Parameter selection
		Rotate Right	Mode toggle	Menu/Parameter selection

Note: The product is equipped with a light leakage prevention feature. The device screen will only illuminate when it is close to the eyepiece.

2. Turn the machine on and off

To turn on the Dual-mode Handheld Infrared Observer, press and hold the "" button for 5 seconds while the device is off. You will see the startup screen through the eyepiece, as shown in Figure 3(a), and then it will enter the main interface. To turn off the device, press and hold the "" button until the screen displays the shutdown option, as shown in Figure 3(b). Select option and confirm to power off the device.

Startup screen



Shutdown prompt

3. Main interface

The main interface is shown in the figure below. There are status bars at the top and on both sides of the screen. The meanings of the icons in the status bars are provided in the table below.

Main interface

The Meaning of Status Bar Icons for Dual-Light Fusion Handheld Infrared Observer

No.	Name	No.	Name	No.	Name
1	Time	4	Electronic Zoom	7	Compass Pitch
2	Observation Mode	5	Battery Level	8	Crosshair Cursor
3	Compass Direction	6	Compass Roll	9	Recording Time

4.Diopter Adjustment

The diopter adjustment ring on the eyepiece can compensate for the viewing and aiming needs of individuals with myopia up to 500° or hyperopia up to 500°. Rotate clockwise to adjust for nearsighted individuals, and counterclockwise for farsighted individuals.

5.Battery Installation

Rotate the battery cover counterclockwise to open it; install the battery in the direction indicated by the battery icon; cover the battery compartment and tighten it by rotating clockwise.

FUNCTIONAL OPERATION

1.Photo/Video Capture

In the main interface, press the "" button briefly to take a photo. A photo prompt will appear at the top of the screen when taking a photo. Press and hold the "" button to start recording a video. The recording time will be displayed in the top left corner of the screen during recording. Press and hold the "" button to stop recording. The recorded videos and photos will be saved in the built-in storage space.

2.Observation Mode Switching

In the main interface, rotate the encoder to the left or right to cycle through the observation modes. Specific observation modes are listed in the table below.

No.	Observation Mode	Mode Description	No.	Observation Mode	Description of Modes
1	TV-C	Low-light Television Mode	6		Fusion Black and White Mode
2	IR WH	Infrared White Hot Mode	7		Fusion Forest Mode
3	IR BH	Infrared Black Hot Mode	8		Fusion Ocean Mode
4	IR IRH	Infrared Pseudo-color Iron Red Mode	9		Fusion Desert Mode
5	IR GH	Infrared Pseudo-color Green Mode	10		Fusion Snow Mode

3.Main Menu

On the main interface, briefly press the power button  to enter the main menu, as shown in the figure. In the main menu, the cursor's position indicates the current selection.

Under the main menu and submenus, various operations can be performed using buttons and encoders. Unless otherwise specified for special operations, please follow the operations outlined in the table below.

Button Instructions for the Dual-light Fusion Observer

No.	Button Operations	Implemented Functions	Remarks
1	Return Button	Return to Previous Level/Exit Menu	Power Button Repurposed as Back Button
2	Confirm Button	Open or Select Current Option/Execute Current Option	Photo Button Repurposed as Confirm Button
3	Rotary Encoder	Move Cursor/Switch Option Content	

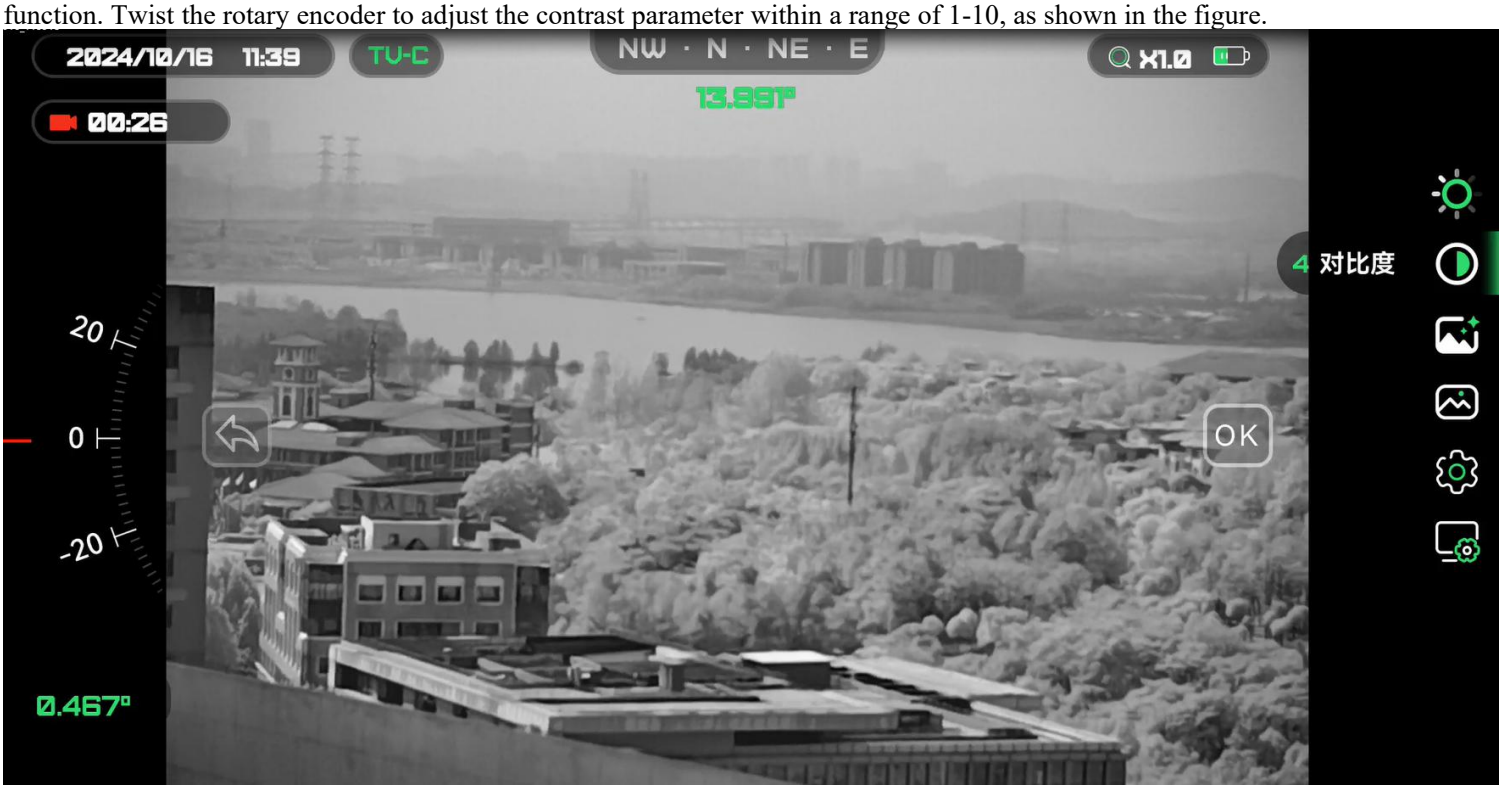
3.1 Brightness

In the main menu, use the cursor to select option "". Press the confirmation button briefly to choose the brightness adjustment function. Rotate the encoder to adjust the brightness parameter within a range of 1-10, as shown in the figure.

Brightness Adjustment

3.2 Contrast

In the main menu, use the cursor to select option "", then briefly press the confirm button to choose the contrast adjustment function. Twist the rotary encoder to adjust the contrast parameter within a range of 1-10, as shown in the figure.



3.3 Image Enhancement

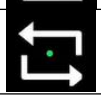
In the main menu, use the cursor to select option "", then briefly press the confirmation button to access the enhancement adjustment function. Turning the rotary encoder allows you to adjust the image enhancement parameters. Except for the automatic selection in the low-light mode, all other modes have adjustable settings ranging from 1 to 10, as shown in the diagram below.

3.4 File browsing

In the main menu, use the cursor to select option "1", and briefly press the confirm button to access the file browsing function. Upon entering, you will see a 3x3 grid interface where you can rotate the encoder to select the corresponding file for playback or deletion.

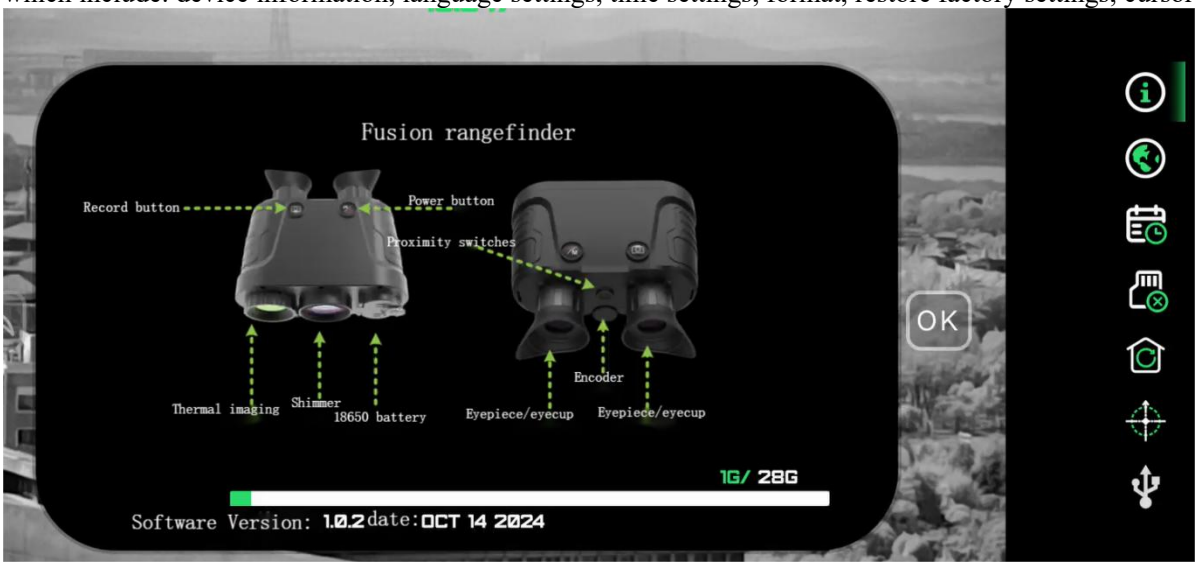
3.5 Advanced Settings

In the main menu, use the cursor to select option "  " and briefly press the confirm button to access the advanced settings function. Upon entering, you will see the advanced settings submenu options. Rotate the encoder to select and adjust the corresponding functions, which include in sequence: electronic image stabilization on/off, position settings, screen brightness settings, and video output selection.

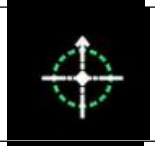
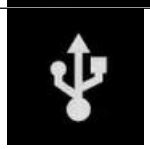
No.	Type	Icon Descriptions	Parameter Adjustment
1		Electronic Image Stabilization	On/Off
2		Position Setting	Magnetic Field Calibration and Acceleration Calibration for Electronic Compass; Rotate the Device According to the Display Interface for Compass Calibration
3		Screen Brightness Adjustment	Screen Brightness Adjustable from 1-10
4		Video Output Selection	Select OLED or PAL Video Display

3.6 System Settings

In the main menu, use the cursor to select option "  " and briefly press the confirm button to access the system settings function. Upon entering, you will see the system settings submenu options. Rotate the encoder to select and adjust the corresponding functions, which include: device information, language settings, time settings, format, restore factory settings, cursor on/off, and USB settings.



Enter each setting and information interface to set parameters and view information.

No.	Type	Icon Descriptions	Parameter Adjustment
1		Equipment Information	Equipment Status Information, including parameters such as time and battery level
2		Language Settings	Language Switching: Chinese, English, Russian
3		Time Settings	Adjustment of Year, Month, Day, Hour, and Minute
4		Format	Formatting of Video Recording and Photo Files
5		Factory Settings	Restore Factory Settings
6		Cursor Switch	On/Off Selection
7		USB Mode	● USB Mode Selection: USB Storage Mode and Network Mode ● USB Storage Mode: Use the device as a USB flash drive to export photos and videos from the device. ● USB Network Mode: The device can function as a network camera. After connecting to a computer via USB, real-time video can be viewed through VLC.

SIMPLE TROUBLESHOOTING

Phenomenon	Detailed Analysis	Measures
Unable to power on	Low Battery	Replace the battery or fully charge it before use.
	Power Button Pressed Too Briefly	Press and hold the power button for more than 3 seconds, and release it after the startup screen appears in the eyepiece.
Blurry image	Dirty Objective or Eyepiece Lens	Use professional tools for cleaning.
	Parameters	Adjust image brightness, contrast, and enhancement.
Unclear status information	Not Adjusted to Corresponding Diopter	Adjust the diopter adjustment knob.
Image too dark	Low Screen Brightness	Adjust the screen brightness.