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InfiRay Technologies Co., Ltd.

Xclip ——Thermal Imaging Attachment User Manual

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Contents

1. Description

Xclip is a multifunctional thermal imager device equipped with two kinds of eyepiece that can be used either as a monocular or a front attachment as the infrared expansion device of white light. Different from the night vision device based on image enhancement, Xclip doesn't need external light source and isn't influenced by strong light exposure. It can be used in the night or bad weather conditions such as fog, rain, smog and detect the objective through barriers such as branch, top grass, thick bush and so on. Xclip has a wide range application including night hunting, observation and terrain orientation, search and rescue operations.

Figure 1-1 Xclip thermal imaging attachment

2. Components and Controls

Figure 2.1 Function introduction

2.1 Components

No.	Name	Function description
①	Lens Cap	Protecting the lens and using for external correction
②	Objective Lens	——
③	Lens Focus Ring	It is used to adjust the focal length of objective lens to make the image to be the clearest when the image is indistinct.
④	Battery Compartment Cover	Using two batteries which are CR123, CR123A or 16340 to supply power.
⑤	Monocular Eyepiece Locking Ring	Fixing the monocular eyepiece on device body.
⑥	Monocular Eyepiece Diopter Adjustment Ring	Adjusting the diopter of monocular eyepiece to suit different eyesight.
⑦	Eye Shade	——
⑧	Front Attachment Eyepiece	Selecting front eyepiece as the infrared expansion attachment of white light sight
⑨	Front Lens Clamping Ring for Adapter Ring	Used to lock the adapter ring between the white light sight and the attachment
⑩	Front Lens Locking Ring	Locking the front eyepiece to device body.
⑪	Type-C Interface	Used for data communication and external power supply
⑫	Power button	Power on/Power off/Standby/Up/Left
⑬	Menu(M) Button	Entering menu/Parameter switch
⑭	Correction(C) Button	Shutter correction/Background correction /Down/Right

2.2 Controls

Operation in normal display mode			Operation in menu mode/calibration interface		
	Short Press	Long Press		Short Press	Long Press
Power (12) Button	Standby/ Awaken	Power on / Power off	**Power (12)** Button	Adjust parameter and scroll up options	——
M (13) Button	Open the shortcut menu	Open advanced menu	**M (13)** Button	Function switch/Parameter selection★	Save and exit menu
C (14) Button	Shutter correction	Background correction	**C (14)** Button	Adjust parameter/Scrolling down options	——
M (13) Button + **C (14)** Button	——	Enter image calibration interface	**Power (12)** Button	Up/Left shift	Up/Left quick shift
			M (13) Button	X/Y shift	Save and exit
			C (14) Button	Down/Right shift	Down/Right quick shift
★Under the shortcut menu, short press to switch functions; Under the advanced menu, short press to switch the parameter options.					

3. Menu/Status Bar Icons

	Screen Lightness Setup，four levels 
	Image Mode: B(Black hot)、W（White hot）、R（Red hot）、C（Pseudo Color）
	E-zoom (Only for Monocular: ×1，×2，×4)
	Ultraclear Mode
	Bluetooth Option
	Bluetooth on
	Video Out Option
	Video Out On
	Battery Type Selection
	Blind Pixel Correction Option
	Factory Reset
	Battery Capacity Indicator
	Type-C Power Supply
	Orientation Shift

4. Specifications

4.1 Configuration Parameters

Model	Xclip CL42
Detector Parameters	
Detector Type	VOx Uncooled
Resolution	384*288
Pixel Size	17um
NETD	≤50mk
Frame Rate	50Hz
Optics Parameters	
Objective Lens	42mm
Field of View	8.9°×6.7°
Magnification	Attachment: 1×; Monocular: 2.9×-11.6×
Detection Range (Target size：1.7m×1.2m)	Detection：2100m（2 pixels） Recognition：700m（6 pixels）
Display	
Type	OLED
Resolution	1024×768
Electrical Parameters	
Battery	CR123×2
Power Consumption	＜1500mW
Max. Battery Life	4hr
External Interface	
USB Interface	Type-C
Video Output	PAL (RCA Port)
External Power	Type-C
Functions	

Electric Compass	√
Accelerometer	√
Remote Control	Bluetooth
Replaceable Parts	M18 Monocular Eyepiece
Physic Parameters	
IP Rating	IP67
Weight (without batteries)	＜420g
Dimension	154mm×61mm×58mm
Adapter Ring	M52×0.75

4.2 Monocular Eyepiece Parameters

Monocular Eyepiece Parameters	
Eyepiece Model	M18
Magnification	2.9×-11.6×
Eye Relief	20mm
Diopter Adjustment	-5D～+5D
Weight	70g

5. System Function

- Quick conversion between attachment and monocular;
- Quick mounting and removal of attachment
- Detection range above 1.5km;
- 1024×768 high resolution OLED display;
- Bluetooth remote control;
- Four image modes – white hot, black hot, red hot, pseudo color;
- Monocular's digital zoom：×1、×2、×4;
- Type-C interface power supply and data transmission;

- Build-in Bluetooth, compass, leaser, motion sensor;
- IP67 protection level；
- Compact size；
- Light weight and high impact resistance;

6. Operation System

6.1 Power on / Power off

In shutdown mode, long press **Power (12)** button for 3s to start up the device. And, device is started.

And then Long press **Power (12)** button for about 5s to shut down the device.

6.2 Standby Mode

Enter/exit the standby mode with short pressing the **Power (12)** button for power saving.

6.3 Status bar

The status bar is located at the bottom of the screen, which shows information such as image mode, screen lightness level, Bluetooth activated, E-zoom, video out activated, battery status.

6.4 Shortcut Menu

In the normal display mode, short press **M (13)** button to switch the order of "no menu - screen brightness - image mode - electronic zoom - exit shortcut menu", and by pressing **Power (12)** button and the **C (14)** key to adjust the parameters of each function. Shortcut menu interface is as shown in figure 6-1.

- **Screen lightness：** 1~4 lightness level;
- **Image mode:** W (White hot), B (Black hot), R (Red hot), C (pseudo color);
- **E-zoom:** ×1、×2、×4, only monocular.

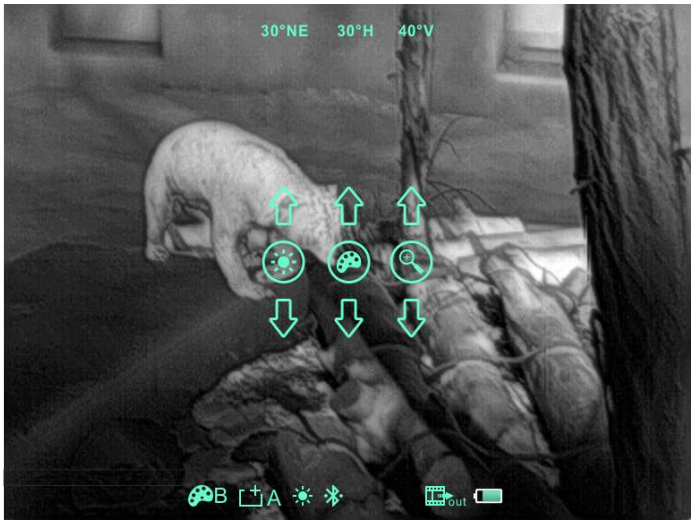


Figure 6-1 Shortcut Menu

6.5 Advanced Menu

Long press the **M (13)** button for 3s to enter the advanced menu interface, as shown in figure 6-2. From top to bottom the six function options are Ultraclear mode, Bluetooth, video out, buttery type, blind pixel correction, factory reset, referring to table 6-1 for details.

Operations:

- Under the advanced menu, short press **M (13)** button to adjust the parameters of present option or enter the secondary menu.
- **Power (12)** button is used to shift “up” or “left”, **C (14)** button is used to shift “down” or “right”;
- Long pressing **M (13)** button for 3s to exit advanced menu interface.

Figure 6-2 Advanced menu interface

Table 6-1 Xclip advanced menu function description

Icon	Name	Function	Description	Status
	Ultraclear Mode	ON/OFF	In this mode, the image contrast is enhanced, which is suitable for cloudy, rainy, foggy and other harsh weather conditions	The icon displays on the status bar.
	Bluetooth	ON/OFF	When Bluetooth is on, it can be operated with the bluetooth remote control or mobile phone APP (please search for connection by mobile phone within 1 minute, otherwise, the bluetooth will be automatically turned off).	The icon displays on the status bar.
	Video Output	ON/OFF	Transfer the analog video in pal through the Type-C data cable.	The icon displays on the status bar.

	Battery Type	3V/3.7V	3.7v is selected for charging type batteries, and 3V is for normal dry batteries.	——
	Blind pixel correction	Calibrate the blind pixels on the image	Short press M button to enter blind pixel correction interface. After selecting the blind pixel, press Power(12) button and C button at same time to correct the blind pixels.	Blind pixel calibration interface （shown in figure 5-3）
	Factory reset	Restore factory state	Y: Confirm，N：Cancel Then long press M button to save and exit.	——

Figure 6-3 Blind pixel correction interface

6.6 Image Calibration (Only for Attachment)

When Xclip is installed on the white light sighting tool as an infrared extension component, if the cross division of the white light sighting is not in the center of the infrared image, the image calibration function can be used to shift the infrared image

to ensure the position consistency between the white light image and the infrared image.

Operation:

Step 1: In normal display mode, press the **M (13)** button and **C (14)** button for 3s at the same time to enter the image calibration interface, as shown in figure 6-4.

Step 2: Pressing **M (13)** button to switch the orientation of X-axis (left-right) and Y-axis (up-down);

Step 3： Short press **Power (12)** button or **C (14)** button to change the position of screen and long pressing to start quick shift.

Step 4: After completing calibration, long press **M (13)** button to save and exit the calibration interface.

Figure 6-4 Image calibration interface

7. Preventative Maintenance

7.1 Battery Replacement

- The battery power icon is displayed on the upper right side of the interface and there are four levels of power;
- When the battery icon on the image interface turns red, please change the battery in time so as not to affect the use;

- It is necessary to power off before replacing the batteries;
- Unscrew the **battery compartment cover (4)** according to the schematic diagram on the battery compartment cover
- When installing the battery, please place the battery according to the battery polarity indicator icon in the battery compartment, as shown in figure 7-1.

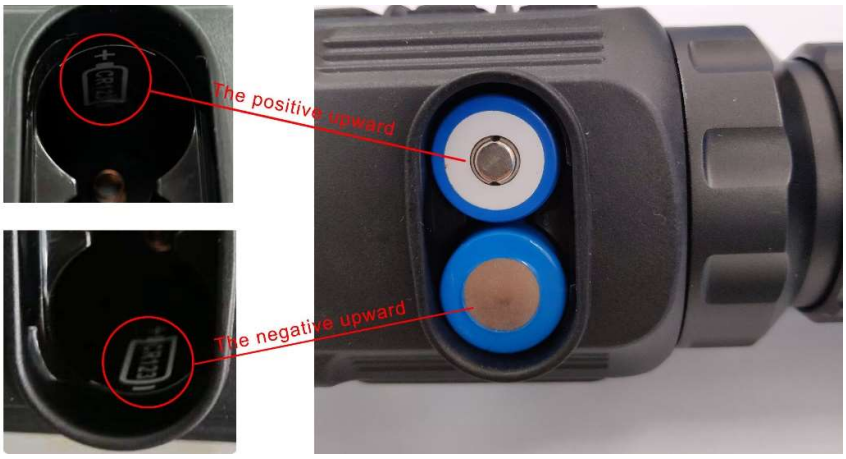


Figure 7-1 Schematic diagram of battery installation

7.2Product Cleaning and Maintenance

- It is prohibited to clean the product body with the cleaning product which is corroded or scratched to optical glass.
- The product body can be scrubbed with soft cloth dipping certain amount of alcohol.
- For optical glass devices such as eyepiece lens and objective lens, dust should be blown first, and then use charcoal pen or fat-free cotton dipping non-methylated alcohol to wipe slightly.

7.3 Safety Regulation

▶ Please use batteries regularly. Do not throw the batteries away or put them into fire after use;

▶ Please use standard charger to prevent the product from damages;

▶ No short circuit;

▶ It is prohibited to expose the product in the high temperature environment more than 60℃;

▶ It is prohibited to put the product into fire.

8. General Trouble Shooting

Table 8.1 Xclip general trouble shooting

Trouble description	Probable reason	Trouble shooting
Image blurring	The focal length of the objective lens does not meet;	Adjust the focal length of objective lens until the image becomes clear.
	No image correction for a long time.	Perform image correction.
Blurred vision	Eye relief doesn't match;	Adjust the Eye relief until the image becomes clear.
No analog video output	Analog video doesn't open;	Open analog video output.
	Data cable doesn't support data transmission.	Replace data cable.
Fail to start up	Wrong battery installation or low power.	Check the battery installation and battery power.
	Insufficient external supply voltage.	Check the voltage of external power supply.
The front eyepiece is stuck during installation.	Eye relief mounting limit block isn't placed parallel to the guide slot and the position is dislocation.	Loosen the eyepiece, push it back to square, and then rotate the mounting.

Reticle wiggle and cannot aim at the target.	The white light sight parameter is not the correction distance of 100 yards.	Replace the white light sight with a 100-yard sight.

※ ★Please contact with our company relevant personnel as soon as possible if there are some abnormalities that cannot be ruled out. Private demolition is strictly prohibited.

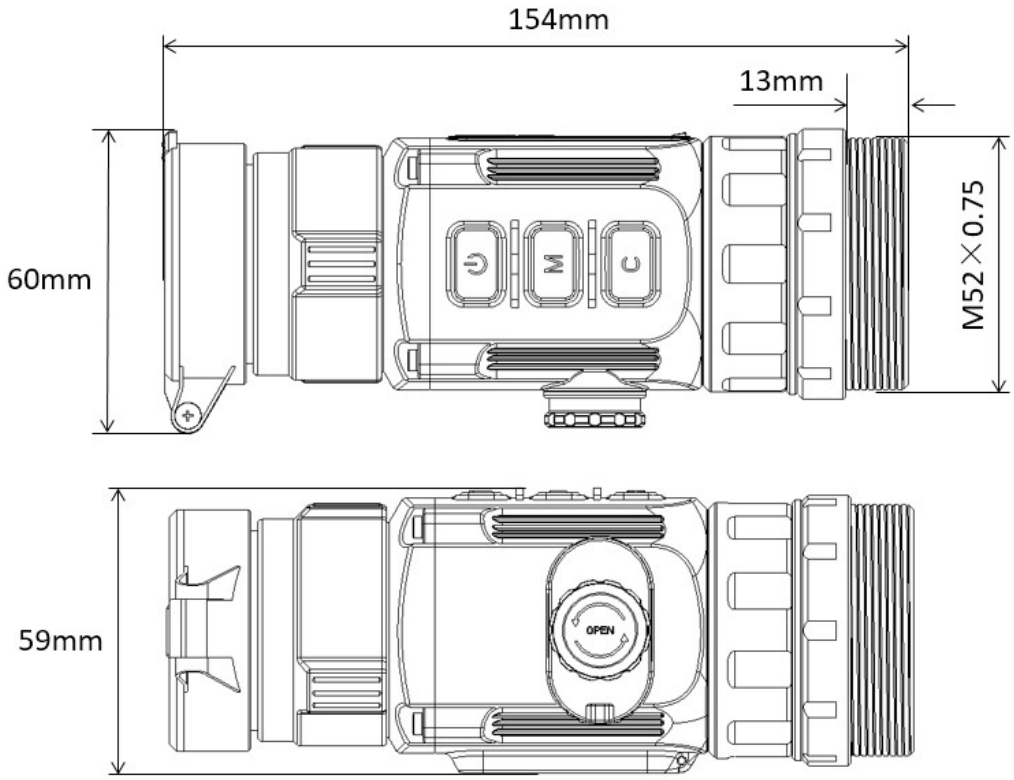
9. Appendix

9.1 User Interface Description

- Using custom interface and data cable which supports USB power supply, serial port and PAL video;
- Supporting USB or battery power and under-voltage or reverse connection protection.

9.2 Product Dimensions

9.2.1 Boundary Dimension



9.2.2 Bottom Mounting Hole Size