Sytong

MM Series

USER MANUAL

Thermal Imaging Camera

MM06-50LRF

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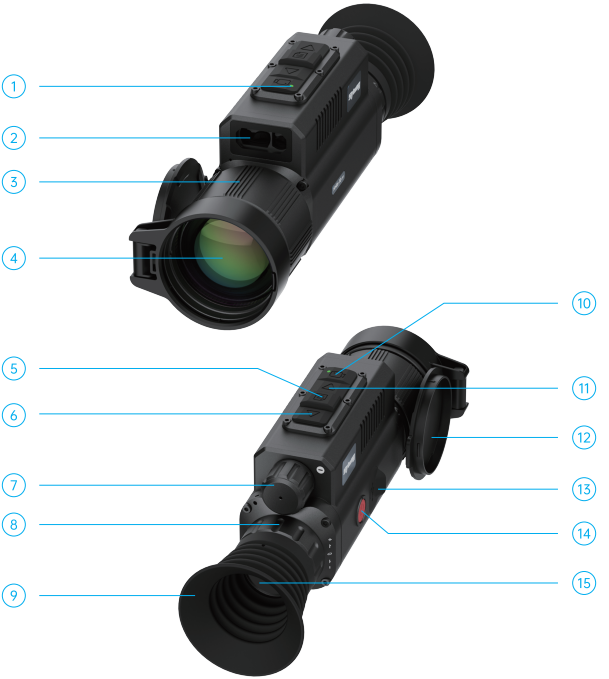
1. Product Overview

1. The MM06-50LRF is an infrared thermal imaging telescope designed for observation and ranging under nighttime and adverse weather conditions.

2. The device detects thermal radiation from target objects. The thermal imaging module captures the image signal, processes it, and transmits it to an OLED display. Users can view a magnified, clear image through the eyepiece. Additionally, real-time image observation, monitoring, and related settings/operations are available via a dedicated smartphone app.

3. A high-resolution thermal imaging module paired with a large-aperture infrared lens to deliver high-quality thermal images.
Adjustable eyepiece focus, enabling sharpness optimization for observed objects at distances ranging from 5 meters to infinity.

2. Product Components



1. Device Indicator	2. Rangefinder Module	3. Objective Lens Focus Ring
4. Objective Lens	5. Menu Button	6. Down Navigation Button
7. Battery Compartment Cover	8. Eyepiece Diopter Adjustment Ring	9. Eyeshade
10. Photo/Video Recording Button	11. Up Navigation Button	12. Objective Lens Cap
13. Data Compartment Cover	14. Power Button	15. Eyepiece

3. Package Contents

- MM06-50LRF Thermal Imaging Device
- 18650 Battery
- Carrying Case
- Type-C Data Cable
- User Manual
- 5V/2A Adapter
- Mount (with screws, hex nuts, and wrench)

4. Operation Instructions

4.1. Warnings

(1) Do not point the thermal imaging camera directly at the sun, CO_2lasers, welding machines, or other high-intensity radiation sources.
(2) The interval between two power cycles should be at least 20 seconds.
(3) Handle the device with care during operation. Avoid dropping, striking, or subjecting it to vibrations, as these actions may damage optical/electronic components or cause structural deformation.
(4) Do not disassemble the thermal imaging camera. In case of malfunction, contact the manufacturer immediately. Unauthorized disassembly will void the warranty.
(5) When not in use or during transportation, remove the battery and store the thermal imaging camera in a protective carrying case.
(6) Replace the battery promptly when the battery level is low to prevent deep discharge, which may damage the battery.
(7) Using the device outside the specified operating conditions may cause damage to the thermal imaging camera.

4.2. Usage Instructions

(1) Open the packaging and take out the thermal imaging telescope. Install the battery, then press and hold the power button for 3 seconds to turn it on.
(2) Look through the eyepiece at the internal display and manually adjust the eyepiece diopter adjustment ring until the symbols and numbers on the screen are clearly visible.
(3) Point the thermal imaging lens at the target object and adjust the focus ring of the thermal imaging module until the observed object appears sharp and clear.

4.3. Maintenance Notes

(1) The optical components (thermal imaging lens, eyepiece, and laser rangefinder lens) should only be cleaned when dirt affects image quality. Gently clean with a lens cloth lightly moistened with alcohol. Avoid excessive rubbing to prevent damage to the anti-reflective coating on the lens surface.
(2) Turn off the thermal imaging telescope immediately after use or when it remains idle for an extended period after startup. This helps prolong the device's operational lifespan.
(3) Do not point the thermal imaging telescope directly at the sun or other intense natural light sources during operation. Excessive infrared radiation may cause sensor interference, resulting in blurred or distorted images.

5. Button Functions

Power Button:

(1) Press and hold for 3 seconds to power on; press and hold for 3 seconds to power off.
(2) During operation: Press and hold for 1-3 seconds to enter sleep mode (sleep icon appears). Short-press the power button to wake from sleep.
(3) Short-press to toggle aperture shutter in observation interface.

Photo/Video Button:

(1) Short-press to capture image.
(2) Press and hold >1.5s to start recording; press and hold >1.5s during recording to stop.

Up Navigation Button:

(1) Short- press to select up, when there is no menu, it switches the display mode.
(2) Press and hold: Toggle Picture-in-Picture (PIP) on/off.

Menu Button:

(1) Short-press: Open menu; use Up/Down keys to navigate; short-press to enter submenus.
(2) Press and hold during menu operation: Return to previous menu level.
(3) During ranging: Short-press to lock/unlock ranging values.

Down Navigation Button:

(1) Short-press: Navigate downward; cycles through magnification levels (1x, 2x, 4x, 8x) when no menu is open.
(2) Press and hold: Toggle ranging function on/off.

6. Menu Functions

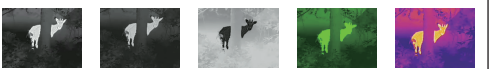
Icon	Main Menu	Function Description
	Mode Selection	Mode options include 5 items: "White Hot, Highlight, Black Hot, Low Light, Pseudocolor". Default is White Hot.  White Hot Highlight Black Hot Low Light Pseudocolor
	WiFi	1. Turn on WiFi in the device menu, then enable WLAN in mobile phone settings. Locate the device WiFi name "APPshow-XX-XXXXX", enter password "12345678" to connect the device. 2. After connecting the device to the mobile phone via WiFi, the real-time captured images can be observed.
	Picture-in-Picture	Turn on/off via menu option.
	Reticle Type	Options: OFF, and 10 reticle types selectable.
	Reticle Color	Options: Black, White, Gray, Red, Green.
	Zeroing Storage	Used to save user-configured ballistic zeroing parameters.
	Reticle Zero Adjustment	Short press MENU button to freeze the image. Short press PHOTO button to move to X/Y axis values. Use UP/DOWN keys to adjust reticle position until it aligns with the point of impact. Short press PHOTO button to move to other options. After setup is completed, move to SAVE option. Short press MENU button to save and exit; long press MENU button to exit without saving. The set distance will be saved in Zero Storage menu using the distance as the zero point name.
	Gyroscope	Press MENU key to enter subpage. Press "UP" or "DOWN" to select ON/OFF. Short press MENU key to confirm selection.
	Rangefinder Unit	Ranging unit selection has two options: Meter/Yard.
	Screen Brightness	Click MENU key to enter menu. Brightness has 10 options. Selecting any option will cause corresponding changes to the screen display. Select appropriate level based on usage habits.
	Brightness	Click MENU key to enter menu. Contrast has 10 options. Selecting any option will cause corresponding changes to imaging brightness.
	Contrast	Click MENU key to enter menu. Contrast has 10 options. Selecting any option will cause corresponding changes to the imaging display. Higher values result in stronger imaging contrast.

	Image Detail Enhancement	Click MENU key to enter Image Detail Enhancement option. Higher numbers provide more details.
	Auto Ballistic	ON, OFF, Settings. Selecting ON enables Auto Ballistic. Selecting OFF disables Auto Ballistic. Selecting Settings allows ballistic parameter adjustment.
	Advanced settings	▶ Video Output Turn ON/OFF CVBS video output function. ▶ Date/Time Select "Date/Time" menu, short press MENU key to enter sub-options. Short press MENU key to move between options. Short-press UP/DOWN keys to adjust values. After adjustment is completed, long press MENU key to save and exit. ▶ Auto Power Off Move cursor to "Auto Power Off Settings" and short press MENU key to open submenu. Select "3 minutes, 5 minutes, OFF" in submenu. After powering on, select 3 minutes or 5 minutes auto power off.(Default:off) ▶ Recording Audio Move cursor to "Recording Audio" and press MENU key to open submenu. Select "ON" or "OFF" in submenu to enable/disable voice audio recording during video capture. ▶ Format Move cursor to "Format Memory Card" menu, short-press MENU key to enter submenu. Toggle selection via LEFT/RIGHT navigation keys. Short-press MENU key again to confirm option. Select confirmation carefully — deleted data cannot be recovered. ▶ Factory Reset Factory reset procedure: Under Advanced Menu, use LEFT/RIGHT navigation keys to select "Factory Reset" option. Short-press MENU key to proceed. Toggle selection via LEFT/RIGHT navigation keys. Short-press MENU key again to confirm option. After confirmation, device will restore factory default settings. Operate with caution. ▶ Dead Pixel Repair Move cursor to "Dead Pixel Repair" menu, short-press MENU key to enter submenu. Toggle between "Auto Repair" and "Manual Repair" modes via UP/DOWN navigation keys. To repair, cover the lens cap and follow prompts for dead pixel repair operation. (1) Select "Auto Repair", short-press MENU key to repair successfully. (2) Select "Manual Repair", move cursor via UP/DOWN navigation keys, toggle options with POWER key, short-press MENU key to save.

	Advanced settings	▶ Image Calibration Enter Image Calibration menu. To perform image calibration, select CONFIRM, then cover the lens cap. Short-press MENU key to calibrate background image uniformity. Calibration results are saved automatically upon completion. ▶ Language Setting Short-press the menu button to enter the "Language Setting" sub-menu. Use the up/down navigation keys to make a selection. After operation is completed, short-press the menu button to save and return to the previous level menu option settings. Long-press the menu button to exit without saving. The factory default language setting is English. ▶ Version Info Move cursor to "Version", press MENU key to view device software version information.

7. Device Connection

Download the dedicated app to connect the device to your mobile device via WiFi.

Android/iOS: Scan to download

Google Play

XVision

Search "XVision" on Google Play to Download.

Download and install the app

Turn on the device and enable WiFi.

Open the App

Select WiFi "xx." and connect

(Default WiFi password:12345678)

8. Technical Specifications

74.55mm

241.15mm

MM06-50LRF

Sensor:	
Type	Uncooled Vanadium Oxide (VOx)
Resolution	640x512
Frame Rate	50 Hz
Pixel Size	12μm
NETD	⩽18mk
Optics:	
Objective Lens	50mm/F1.0
Base Magnification	2.8X
Digital Zoom	1x / 2 x/ 4 x/ 8x
Exit Pupil Distance	50 mm
Diopter Adjustment	+5/-5 D
Focusing Distance	5m - ∞
Field of View	8.8°X6.6°
Detection Range	2500m (Target Size: 1.7m x 0.5m)

Display:	
Color Modes	White Hot, Highlight, Black Hot, Low Light, Pseudocolor
Type/Resolution	0.39 inch / OLED / 1024X768
Power:	
3D Gyroscope	Yes
Power Supply	3-4.2 V
Battery	18650 Li-ion, 3500mAh
External Power	5V (USB)
Runtime	5 hours
Shock Resistance	10000 J
Waterproof Rating	IP67
Operating Temperature	-20°C~+50°C
Size	241.15x74.55x83.85mm
Weight	680g ±5g
Recorder:	
Video/Photo Resolution	1024x768
Video/Photo Format	.mp4 / .jpg
Storage Card	Built-in 32GB Memory Card
Wireless Channel:	
Frequency	2.4GHz
Standard	802.11 b/g
WiFi Range	15m
Rangefinder:	
Wavelength	905nm

Maximum Range	1000m
Accuracy	+ /-1m

9. Maintenance and Care

(1) The lens of thermal imaging camera is a critical optical component. During installation and use, avoid contact with oil, chemicals, or other contaminants that may damage the lens surface. Always cover the lens with the lens cap after use.
(2) When not in use or during transportation, remove the battery and store the thermal imaging camera in its protective case.
(3) For long-term storage or periods of inactivity, keep the thermal imaging camera in a cool, dry environment.
(4) Do not clean the housing of the thermal imaging monocular with chemical solvents or thinners. Use a clean, soft, and dry flannel cloth instead.
(5) If the device is not used for an extended period, power it on and perform a calibration check at least once every six months.

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