Sytong

MM Series

Product User Manual

Thermal Imaging Camera

MM06-50LRF

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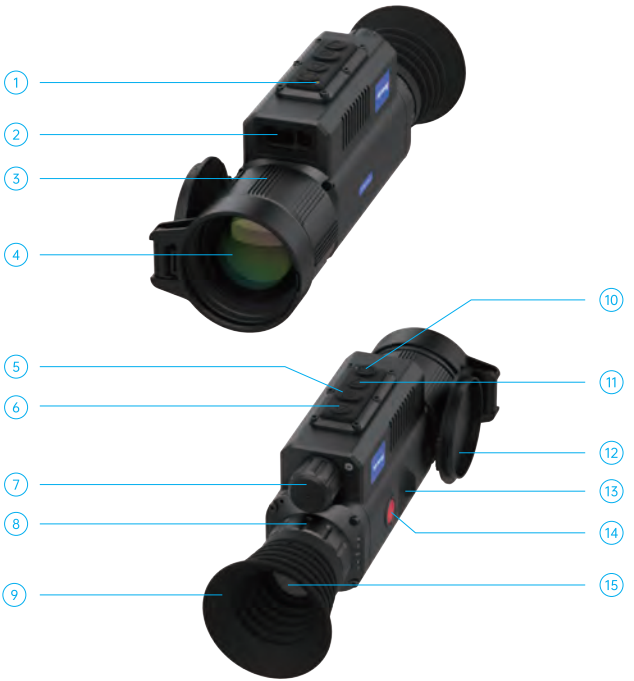
1. Product Overview

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. Usage Instructions

(1) The optical components (thermal imaging lens, eyepiece, and laser rangefinder lens) should only be cleaned when dirt affects image quality. Use a lens cloth lightly dampened with a small amount of alcohol to gently wipe the dirty areas. 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/off.
(2) Press and hold for 1-3 seconds to enter sleep mode. Short press to wake from sleep mode.
(3) Short press to refresh in observation mode.

Photo/Video Button

(1) Short press to take a photo.
(2) Press and hold for 1.5 seconds to start/stop video recording.

Up Navigation Button:

(1) Short press to navigate up or switch display modes.
(2) Press and hold to enable/disable picture-in-picture.

Menu Button:

(1) Short press to access the menu. Use navigation buttons to move through options.
(2) Press and hold to return to the previous menu level.
(3) Short press to lock/unlock rangefinder values when LRF is on.

Down Navigation Button:

(1) Short press to navigate down or switch magnification (1x, 2x, 4x, 8x).
(2) Press and hold to enable/disable rangefinder.

6. Menu Functions

Icon	Main Menu	Description
	Operation Modes	White Hot, High Contrast, Black Hot, Low Light, Fusion. Default: White Hot.  White Hot High Contrast Black Hot Low Light Fusion
	Video Output	Enable/Disable CVBS video output.
	WiFi	Turn on the WiFi function in the device menu, then enable WiFi on your smartphone and open the dedicated app. Locate the device's WiFi MAC address (e.g., "*--**") and connect by entering the password "12345678". Once the device and smartphone are connected via WiFi, you can observe real-time images captured by the device.
	Picture-in-Picture	On/Off.
	Reticle Type	Options: OFF, 10 types available.
	Reticle Color	Options: Black, White, Gray, Red, Green.
	Reticle Profiles	Save user-defined ballistic zeroing parameters.
	Reticle Zeroing Adjustment	Short press the menu button to freeze the image. Briefly press the REC button to move to the X and Y axis values, and use the up and down buttons to adjust the reticle position until it aligns with the impact point. Short press the REC button to move to other options. Once the settings are complete, navigate to the save option and briefly press the menu button to save and exit. Press and hold the menu button to exit without saving. The set distance will be saved as the zeroing point name in the zeroing storage menu.
	Gyroscope	On/Off.
	Rangefinder Unit	Meters/Yards.
	Rangefinder Settings	Continuous, Set timeout (5, 10, 20 minutes).
	OLED Brightness	Adjust brightness (10 levels).
	Image Brightness	Press the menu button to access the contrast menu, which offers 10 options. Selecting any option will adjust the imaging brightness accordingly.

	Contrast Ratio	Adjust contrast (10 levels).
	Image Detail Boost	Press the menu button to access the image detail Boost option. The higher the value, the more details are enhanced.
	Date/Time	Select the "Date/Time" menu, briefly press the menu button to enter sub-options, use the menu button to navigate, and the up/down buttons to adjust values. Press and hold the menu button to save and exit after adjustments.
	Language Settings	Press the menu button to access the language settings menu. Use the up/down buttons to select the desired language, then briefly press the menu button to confirm.
	Record Audio	Select "Record Audio" and press the menu button to open the sub-menu. Select "On" or "Off" to enable or disable audio recording during video capture.
	Format	Enter the format sub-menu, briefly press the menu button to select "Confirm" or "Cancel". Please proceed with caution! Data cannot be recovered after deletion!
	Auto Power Off	Options: 3 minutes, 5 minutes, Off (default). After powering on, you can choose 3 or 5 minutes for auto power-off.
	Default Settings	Select "Default Settings" and press the menu button to open the sub-menu. Select "Confirm" or "Cancel" to restore default settings. Please proceed with caution as this will reset all settings to factory defaults.
	Pixel Fix	Turn on the device and confirm bad pixel correction in the function settings. If correction is needed, cover the lens cap and follow the prompts to repair bad pixels. Save after correction. Use the navigation buttons to move the cursor, the power button to switch options, and briefly press the menu button to save.
	Image Calibration	Enter the image calibration menu. If calibration is required, select "Confirm", cover the lens cap, and briefly press the menu button to calibrate background image uniformity. Calibration is automatically saved upon completion.
	Auto Ballistic Calculator	Options: On, Off, Settings. Selecting "On" enables Auto Ballistic Calculator, while "Off" disables it. "Settings" allows adjustment of ballistic parameters.
	Version	Select "Version" and short press the menu button to view the softwareversion.

7. APP Connection

Download the dedicated app on Android/iOS.

Download APP by Scanning the QR code according to the mobile phone system.

Search "XVision" on Google Play to Download.

Download the APP

Enable WiFi on both the device and the phone.

Enter APP

Connect to the device's WiFi network (default password: 12345678)

8. Technical Specifications

74.55mm

82.6mm

248.7mm

MM06-50LRF

Sensor:	
Type	Uncooled Vanadium Oxide (VOx)
Resolution	640x512
Frame Rate	50 Hz
Pixel Size	12μm
NETD	⩽18mk
Optics:	
Eye Relief	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, High Contrast, Black Hot, Low Light, Fusion
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	248.7x74.55x82.6mm
Weight	729.6g
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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