

Medusa Series

USER MANUAL

Thermal Imaging Telescope



M5-650L

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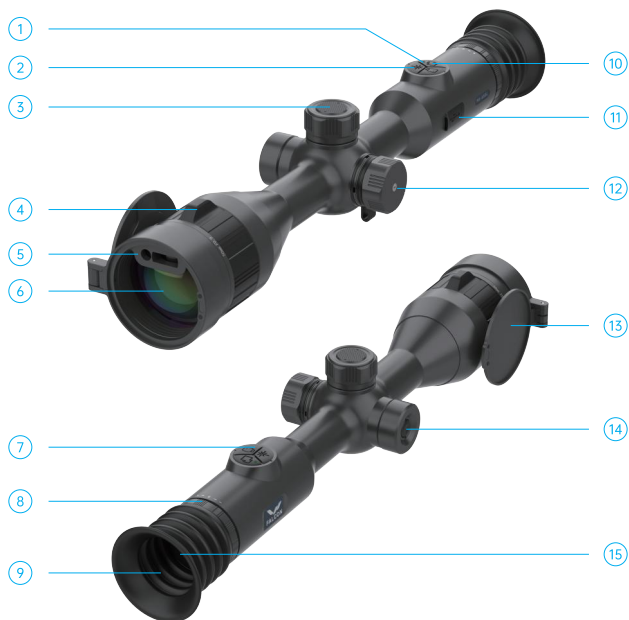
1. Product Overview

1. M5-650L is an infrared thermal imaging telescope designed for observation and rangefinding at night and under adverse weather conditions.

2. The product identifies the thermal radiation of target objects. The image signals, captured by the thermal imaging module, are processed and transmitted to an OLED display. Users obtain clear and visible images through eyepiece magnification. Simultaneously, users can conduct real-time image observation and monitoring via a mobile app, as well as perform related settings and operations.

3. The thermal imaging system utilizes a high-pixel thermal imaging module paired with a large-aperture thermal lens to output high-quality thermal images. Additionally, the eyepiece lens can be adjusted for focus, allowing for clarity adjustment of observed objects at distances ranging from 5m to infinity.

2. Product Components



1. Device Indicator Light	2. Laser Rangefinder Button	3. Rotary Encoder
4. Objective Lens Focus Ring	5. Rangefinding Module	6. Objective Lens
7. Photo/Record Button(REC)	8. Eyepiece Focus Ring	9. Eyecup
10. Picture-in-Picture Button	11. Data Port Cover	12. Battery Compartment Cover
13. Lens Cap	14. Power Switch	15. Eyepiece

3. Package Contents

- ▶ M5-650L Thermal Imaging Telescope
- ▶ 18650 Battery
- ▶ Carrying Case
- ▶ Type-C Data Cable
- ▶ User Manual
- ▶ 5V/2A Adapter
- ▶ Mount (with screws, hex nuts, and wrenches)

4. Operation Instructions

4.1. Warning

- (1) Do not point the thermal imaging telescope directly at the sun, CO₂ lasers, 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 telescope. 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 telescope 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 telescope.

4.2. Cautions

- (1) When cleaning the non-optical surfaces of the thermal imaging telescope, do not use chemical solvents or thinners. Use a clean, soft, and dry lint-free cloth to wipe the outer shell.
- (2) The infrared lens of the thermal imaging telescope is coated with an anti-reflective coating. It should only be cleaned when visibly dirty, as frequent wiping may cause wear to the lens coating. Please avoid touching the lens surface; acidic substances from fingerprints can damage the coating and the lens surface. Only use a specialized lens cloth to clean the lens.
- (3) Please turn off the device promptly after finishing observation or if the target is not being observed for a long time after startup, in order to extend the effective service life of the thermal imaging telescope.

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) In the preview interface, double-click the Power Button to perform shutter calibration.



Photo / Video Button

- (1) Long-press to record video; short press to take a photo.



Rangefinding Button

- (1) When the rangefinder is inactive: Short-press to turn it on.
- (2) When the rangefinder is active: Short-press to lock the distance; long-press to turn it off.



Picture-in-Picture (PiP) Key

- (1) Short-press to turn Picture-in-Picture on/off.



Rotary Encoder

- (1) Short-press the rotary encoder to switch modes, long-press to enter the menu, or double-click to enable Picture-in-Picture (PiP) mode.
- (2) Zoom in; or move down within the menu interface.
- (3) Zoom out; or move up within the menu interface.

6. Menu Functions

Icon	Main Menu	Function Description
	Color Temperature	Short-press the rotary encoder to access the color temperature menu. You can choose between "Cool" and "Warm" options, which will adjust the image tone accordingly.
	Screen Brightness	Short-press the rotary encoder to access 10 brightness levels. The screen will update in real-time as you select a level that suits your preference.
	Contrast	Short-press the rotary encoder to access 10 contrast levels. Higher values result in stronger image contrast.
	Image Detail Boost	Short-press the rotary encoder to enter the detail enhancement settings. Higher values provide more image detail.
	Advanced Settings	Function Description
	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.
	PIP (Picture-in-Picture)	Short-press the rotary encoder to enter the sub-menu, rotate to toggle ON/OFF, and short-press to confirm and return to the main menu.
	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 Zeroing	▶ After entering the crosshair zeroing calibration interface, briefly press the record button to cycle through different function options. Use the Rotary Encoder to adjust the function values. ▶ Image Freeze: Briefly press the Rotary Encoder to toggle image freeze. ▶ Briefly press the record button to move to the X and Y axis values. Use the Rotary Encoder to adjust the crosshair position until it aligns with the point of impact. Briefly press the record button to move to other options. After completing settings, move to the save option. Briefly press the Rotary Encoder to save and exit, press and hold the rotary encoder to cancel saving. ▶ The set distance is used as the zeroing point distance in Smart Ballistics and saved to the zeroing memory.

	Auto Ballistic	Select On to enable automatic ballistics, Off to disable it, or Settings to adjust ballistic parameters.
	Gyroscope	Short-press the rotary encoder to enter the sub-menu, then rotate it to toggle the gyroscope ON or OFF.
	Distance Unit Selection	Distance units: Select between meters or yards.
	Date/Time	Select the "Date/Time" menu. Short-press the rotary encoder to enter sub-options, then short-press again to navigate through them. Rotate the encoder to adjust the values. Once finished, long-press the encoder to save and exit.
	Language	Short-press the rotary encoder to enter the Language settings. Rotate the encoder to select your preferred language, then short-press to confirm.
	Video Audio / Recording Audio	Highlight "Video Audio" and press the rotary encoder to open the sub-menu. Select "On" or "Off" to enable or disable audio recording with your videos.
	Dead Pixel Repair	With the cursor highlighting the "Dead Pixel Repair" menu, short-press the rotary encoder to enter the sub-menu. Rotate the rotary encoder to switch between "Auto Repair" and "Manual Repair" modes. To perform the repair, ensure the lens cover is closed and follow the on-screen prompts. (1) Select "Auto Repair": Short-press the rotary encoder to complete the repair successfully. (2) Select "Manual Repair": Use the Power button to move the cursor, and short-press the rotary encoder to complete the repair and save.
	Image Calibration	Enter Image Calibration menu. To perform image calibration, select CONFIRM, then cover the lens cap. Short-press the rotary encoder to calibrate background image uniformity. Calibration results are saved automatically upon completion.
	Format	Move cursor to "Format Memory Card" menu, Short-press the rotary encoder to enter submenu. Rotate the rotary encoder to switch selections. Short-press the rotary encoder again to confirm option. Select confirmation carefully — deleted data cannot be recovered.
	Custom Pseudo-color Modes	"White Hot, Black Hot, High Light, Low Light, Fusion, Select the modes to be included in the switching cycle according to your preference.
	Auto Power Off	Move cursor to "Auto Power Off Settings" and short-press the rotary encoder 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)

	Default Settings / Factory Reset	Under the Advanced Menu, rotate the rotary encoder to 'Factory Reset.' Turn to select your choice and short-press to confirm. This will restore the device to factory defaults; use with caution.
	Version Info	Move cursor to "Version", Short-press the rotary encoder to view device software version information.

7. Device Connection

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

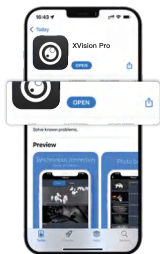


Android/iOS: Scan to download

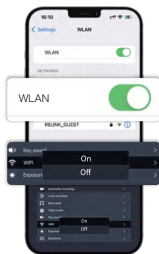


XVision

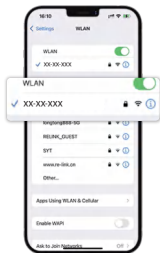
Search "XVision" on Google Play to Download.



Download and install the app



Turn on the device and enable WiFi



Select WiFi "xx." and connect
(Default WiFi password: **12345678**)



Open the App

8. Technical Specifications



M5-650L

Sensor:	
Type	Uncooled Vanadium Oxide (VOx)
Resolution	640x512
Frame Rate	50 Hz
Pixel Size	12μm
NETD	≤18mk
Optics:	
Objective Lens	50mm/F0.9
Base Magnification	2.8X
Digital Zoom	1x / 2 x/ 4 x/ 8x
Exit Pupil Distance	50 mm
Diopter Adjustment	+4/-3 D
Focusing Distance	5m - ∞
Field of View	8.8°X6.6°
Detection Range (Target Size: 1.7m x 0.5m)	2500m

Display:	
Color Modes	White Hot, Black Hot, High Light, Low Light, Fusion
Type/Resolution	0.49 inch / OLED / 1920×1080
Power:	
3D Gyroscope	Yes
Power Supply	3-4.2 V
Battery	Built-in & External 18650 Lithium Battery / 3500mAh
External Power	5V (USB)
Runtime	Up to 8 hours
Shock Resistance	1000 G
Waterproof Rating	IP67
Operating Temperature	-20°C~+50°C
Size	380×88×84mm
Weight	962g ±5g
Recorder:	
Video/Photo Resolution	1920×1080
Video/Photo Format	.mp4 / .jpg
Storage Card	Built-in 32GB Memory Card
Wireless Channel:	
Frequency	2.4GHz
Standard	802.11 b/g/n
WiFi Range	15m
Rangefinder:	
Wavelength	905nm

Maximum Range	1000m
Accuracy	+/-1m

9. Maintenance and Care

- (1) Power Management: Turn off the device after observation or when it will not be used for an extended period to maximize the battery life of the thermal imaging telescope.
- (2) Lens Care: The lens is a critical optical component. Avoid contact with oil, grease, or chemicals that may stain or damage the surface. Always replace the lens cap after use.
- (3) Storage & Transport: When the device is not in use or during transportation, remove the battery and store the thermal imaging telescope in its original packaging.
- (4) Environmental Conditions: For long-term storage or when not in operation, keep the device in a cool, dry, and shaded environment.
- (5) Cleaning the Housing: Do not use chemical solvents or thinners to clean the device casing. Use a clean, soft, and dry lint-free cloth instead.
- (6) Lens Cleaning: Clean the lens only when visibly dirty. Avoid touching the lens surface, as skin oils and acids can damage the coating. Use only a specialized lens cleaning cloth.
- (7) Long-term Maintenance: If the device is not used for a long time, power it on and perform a calibration check every six months.

FCC Caution:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirements. The device can be used in portable exposure conditions without restriction.



Thermal Imaging & Night Vision
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