

# LM Series USER MANUAL

Thermal Imaging Device



LM02-19/25

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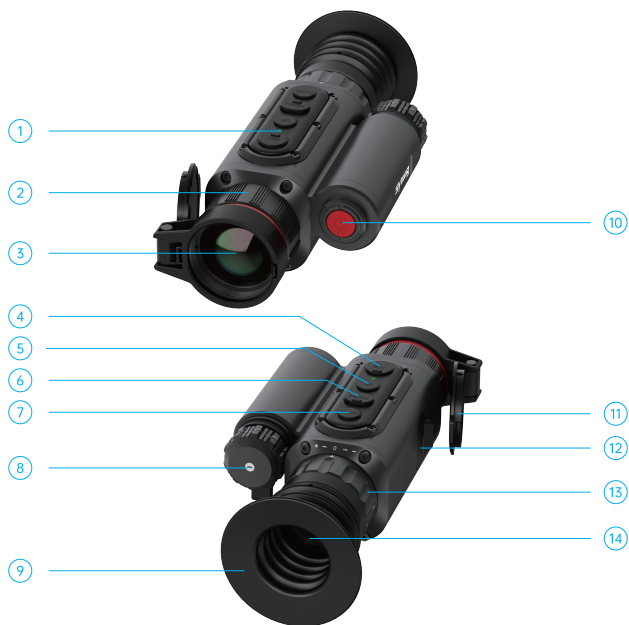




## 1. Product Overview

1. The LM02-19/25 is an infrared thermal imaging device designed for observation and ranging in nighttime and adverse weather conditions.
2. The infrared optical system captures the infrared radiation emitted by the target. The spectral filter reflects the distribution of the target's infrared radiation energy onto the photosensitive elements of the infrared detector array on the focal plane. The detector converts the infrared radiation into electrical signals, which are then amplified and processed by the readout circuit.
3. The core component digitizes the detector's output signals and performs initial infrared image correction, bad pixel elimination, brightness and contrast control, Fusion rendering, and overlay of interfaces and crosshairs. The processed signals are sent to the OLED display. The operator observes the infrared thermal imaging of the target through the 12X eyepiece.

## 2.Product Components



|                                       |                              |                            |
|---------------------------------------|------------------------------|----------------------------|
| 1. Device Indicator                   | 2. Objective Lens Focus Ring | 3. Objective Lens          |
| 4. Photo/Video Recording Button (REC) | 5. Up Navigation Button      | 6. MENU Button             |
| 7. Down Navigation Button             | 8. Battery Compartment Cover | 9. Eyepiece Eyecup         |
| 10. Power Button                      | 11. Lens Cap                 | 12. Data Compartment Cover |
| 13. Eyepiece Focus Ring               | 14. Eyepiece Lens            |                            |

### 3. Package Contents

- ▶ LM02-19/25 Thermal Imaging Device
- ▶ 18650 Battery
- ▶ Handbag
- ▶ 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 Device directly at high-intensity radiation sources such as the sun, CO<sup>2</sup> lasers, or welding machines.
- (2) The interval between power cycles should be at least 20 seconds.
- (3) The thermal imaging Device combines precision optical instruments and electrostatic-sensitive electronic components. Avoid dropping, striking, or vibrating the device to prevent structural deformation or misalignment.
- (4) Do not disassemble the thermal imaging Device. Contact the manufacturer for any malfunctions to avoid voiding the warranty.
- (5) Remove the battery when not in use or during transportation, and store the device in a protective case.
- (6) Replace the battery promptly when it is low to avoid damage from over-discharge.
- (7) Using the device outside the specified environmental conditions may cause damage.

## 4.2. Notes

- (1) Clean non-optical surfaces with a clean, soft, dry cloth. Avoid chemical solvents or thinners.
- (2) The infrared lens is coated with an anti-reflective film. Clean only when visibly dirty, using a dedicated lens cloth. Avoid touching the lens surface, as fingerprints can damage the coating.
- (3) Power off the device when not in use to extend its operational life.

## 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 (NUC).



### Photo/Video Button:

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



### Up Navigation Button:

- (1) Short-press to navigate up, when out of MENU short-press to switch palettes.
- (2) Press and hold to enable/disable picture-in-picture.



### MENU Button:

- (1) Short-press to access the MENU. Press the UP and DOWN buttons to choose the MENU options, and short-press the MENU button to enter the secondary MENU.
- (2) When in the MENU interface, hold the MENU button to return to the previous MENU.



### Down Navigation Button:

- (1) Short-press to navigate down, when out of MENU, short-press to switch magnification (1x, 2x, 4x, 8x).
- (2) Long-press to turn off/ turn on the crosshair display.

## 6. MENU Functions

| Icon                                                                                | Main MENU                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Palettes Option            | <p>The device provides 5 color palettes for option, White Hot, Low Light, Black Hot, Red Hot, and Pseudocolor. The default is "White Hot".</p> <p>When in the MENU operation interface, press the navigation UP/DOWN buttons briefly to switch palettes, and press the MENU button briefly to confirm and exit.</p> <div>      </div> <div> <span>White Hot</span> <span>Low Light</span> <span>Black Hot</span> <span>Red Hot</span> <span>Pseudocolor</span> </div> |
|    | WiFi                       | <p>1. Open the WiFi function in the machine MENU, open the mobile phone WiFi and the applicable software APP, find the MAC address name of the mobile phone WiFi "V3XXXXXXX", enter the password "12345678" to connect the device.</p> <p>2. After connecting the device and phone via WiFi, real-time video will appear on the phone's screen.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|    | Picture-in-Picture         | Press the MENU button to enter the subpage, press "UP" or "DOWN" to select on or off, and press the MENU button briefly to confirm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|    | Reticle Type               | The device offers 10 different reticle styles, including an option to turn them off. By default, it displays Number 1 reticle.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|    | Reticle Color              | <p>The reticle color options include five choices: "Black, White, Gray, Red, and Green," with the default color set to "Black."</p> <p>To select the reticle color, briefly press the navigation button to access the "Reticle Color" option. Press the MENU button, and a list will appear on the right: "Black - White - Gray - Red - Green." Use the up and down navigation buttons to switch between selections, and press the MENU button briefly to confirm and return to the previous MENU. Upon initial startup, the default reticle color is set to white.</p>                                                                                                                                                                                                                                                                                                                    |
|  | Reticle Profiles           | Used to save the ballistic zero point parameters set by the user. Press the MENU button enter the sub-page, and press "up" or "down" to select the stored user ballistic zero point setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|  | Reticle Zeroing Adjustment | <p>Press the MENU button briefly to freeze the image. Press the photo button briefly to move to the X and Y axis values. Use the up and down buttons to adjust the crosshair position until it aligns with the impact point. Press the photo button briefly to move to other options. Once settings are complete, navigate to the save option and press the MENU button briefly to save and exit. Long press the MENU button to discard changes. The set distance will be saved in the zero storage MENU as the zero point name.</p>                                                                                                                                                                                                                                                                                                                                                       |

|                                                                                     |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Gyro               | Press the MENU button to enter the sub menu. Use the "Up" or "Down" buttons to select either "On" or "Off," and briefly press the MENU button to confirm your selection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|    | OLED Brightness    | Press the UP/DOWN buttons to select "OLED Brightness," then press the MENU button. A submenu appears on the right. Use the UP/DOWN buttons to adjust the brightness level. Press the MENU button to confirm and return.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|    | Image Brightness   | The brightness adjustment allows you to increase or decrease the brightness of the image. There are 10 brightness levels available, ranging from dim to bright. The default brightness setting upon initial startup is "5." Users can select an appropriate brightness level based on personal viewing preferences and current environmental conditions. Press briefly the UP and Down navigation buttons to select the "Brightness" option. Then, press the MENU button, and a secondary MENU will appear on the right. Press the UP/DOWN buttons briefly to select the desired level. Then, press the MENU button to confirm and return to the previous menu.                                               |
|    | Contrast Ratio     | The contrast Ratio adjustment allows you to increase or decrease the contrast ratio of the image, making the target more distinct. Contrast levels range from 1 to 10, progressing from weak to strong. The default contrast ratio setting upon initial startup is "5." Users can select an appropriate contrast level based on personal viewing preferences and current environmental conditions. Press briefly the up and down navigation buttons to select the "Contrast Ratio" option. Then, press the MENU button, and a secondary MENU will appear on the right. Press the UP/DOWN buttons briefly to select the desired level. Then, press the MENU button to confirm and return to the previous menu. |
|    | Image Detail Boost | Press the MENU button to access the "Image Detail Boost" option. The higher the numerical value, the more details are enhanced.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|    | Date/Time          | Select the 'Date/Time' MENU, then briefly press the MENU button to enter sub-options. Use short presses of the MENU button to navigate between options, and use the up/down Buttons to adjust values. Once adjustments are complete, briefly press the MENU button again to save and exit.                                                                                                                                                                                                                                                                                                                                                                                                                    |
|  | Language           | The The device has English and other languages set up, and users can make settings according to their needs. The default multi-language setting when leaving the factory is English. Press the navigation UP and DOWN buttons buttons briefly to select the "Multi-language" option, then press the MENU buttons briefly. A secondary MENU will appear on the right side. Press the navigation up and down buttons briefly to select the appropriate language, confirm and return to the previous MENU level. Press and hold the MENU button to exit without saving.                                                                                                                                          |

|                                                                                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Audio Recording  | Select "Record Audio" with the cursor, then press the MENU button to open a submenu. Choose "Open" or "Close" to enable or disable audio recording with voice input.                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Format           | Access the formatting submenu, briefly press the MENU button to select "Confirm" or "Cancel". Proceed with caution: Data cannot be recovered once deleted!                                                                                                                                                                                                                                                                                                                                                                                               |
|  | Auto Power Off   | After selecting "Default Settings," press the MENU button to access the sub menu. In the sub menu, choose from "3 minutes," "5 minutes," or "Off." The default setting is "Off." After powering on, you can select automatic Power Off after 3 or 5 minutes.                                                                                                                                                                                                                                                                                             |
|  | Default Settings | After selecting 'Default Settings' with the cursor, press the MENU button to open the sub menu. On the sub menu, choose 'Confirm' or 'Cancel' to restore default settings. If confirmed, the system will revert to factory default settings—please proceed with caution.                                                                                                                                                                                                                                                                                 |
|  | Pixel Fix        | To repair defective pixels, press briefly the MENU button to enter the menu mode and navigate to the "Dead Pixel Repair" option. Follow the on-screen instructions: First, press the MENU button briefly to activate the function, which will prompt "Please aim at an evenly lit surface and press MENU!". Press the MENU button again to start the calibration process. The system will automatically repair the defective pixels and display "Calibration successful!" upon completion. Afterward, it will automatically return to the previous menu. |
|  | Image adjustment | To correct the image, press the MENU button briefly to enter the menu mode, then navigate to "Image Correction" and activate it. Follow the on-screen prompts: First, the system will display "Please cover the device lens cap and press MENU to start calibration!". Press the MENU button briefly again to begin the process. The system will automatically calibrate and display "Calibration successful!" upon completion. It will then return to the previous menu automatically.                                                                  |
|  | Version          | Press the navigation buttons briefly to select the "Version Information" option, then press the MENU button to confirm. This will display the software version information of the device.                                                                                                                                                                                                                                                                                                                                                                |



## 7. APP Connection

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

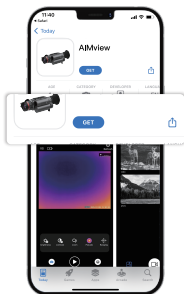


Android/iOS: Scan to download

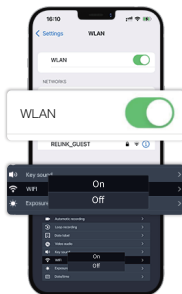


AIMview

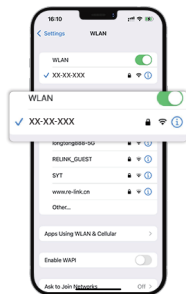
Search "AIMview" on Google Play to Download.



Download and install the app



Turn on the device and enable WiFi.



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

## 8. Technical Specifications



### LM02-19/25

| Sensor:             |                                       |
|---------------------|---------------------------------------|
| Type                | Uncooled Vanadium Oxide (VOx)         |
| Resolution          | 256x192                               |
| Frame Rate          | 50 Hz                                 |
| Pixel Size          | 12μm                                  |
| NETD                | ≤30mK                                 |
| Optics:             |                                       |
| Objective Lens      | 19/25mm/F1.0                          |
| Base Magnification  | 2.7X/3.5X                             |
| Digital Zoom        | 1x / 2 x/ 4 x/ 8x                     |
| Exit Pupil Distance | 50 mm                                 |
| Diopter Adjustment  | +5/-5 D                               |
| Focus Distance      | 2m - ∞                                |
| Field of View       | 9.2°×7°/7°×5.3°                       |
| Detection Range     | 900m/1300m (Target Size: 1.7m x 0.5m) |

|                          |                                                       |
|--------------------------|-------------------------------------------------------|
| <b>Display:</b>          |                                                       |
| Color Modes              | White Hot, Low Light, Black Hot, Red Hot, Pseudocolor |
| Type/Resolution          | 0.39-inch / OLED / 1024X768                           |
| <b>Power:</b>            |                                                       |
| 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                     | 185.3x83.2x56.3mm                                     |
| Weight                   | 407g ±5g                                              |
| <b>Recorder:</b>         |                                                       |
| Video/Photo Resolution   | 1024x768                                              |
| Video/Photo Format       | .mp4 / .jpg                                           |
| Storage Card             | Built-in 32GB Memory Card                             |
| <b>Wireless Channel:</b> |                                                       |
| Frequency                | 2.4GHz                                                |
| Standard                 | 802.11 b/g                                            |
| WiFi Range               | 15m                                                   |

## 9. Maintenance and Care

- (1) Power off the device when not in use to extend its operational life.
- (2) Avoid touching the lens surface. Clean only when necessary using a dedicated lens cloth.
- (3) Remove the battery during storage or transportation.
- (4) Store the device in a cool, dry environment.
- (5) Clean the exterior with a soft, dry cloth. Avoid chemical solvents.
- (6) The thermal imaging Device lens should only be cleaned when visibly dirty. Avoid touching the lens surface, as the acidic substances left by fingerprints can damage the coating and lens surface. Use only a dedicated lens cloth for cleaning.
- (7) Perform a power-on check and calibration every six months if the device is unused for an extended period.



# **Sytong**



Sytong



Sytongnightvision



Sytong Night Vision



NSytong



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