FALCON

Medusa Series

USER MANUAL

Thermal Imaging Telescope

M1V2.0

CONTENTS

1. Product Overview

1.The M1V2.0 is an infrared thermal imaging telescope designed for observation and ranging at night and under adverse weather conditions.

2.This product detects the thermal radiation of target objects. The image signals captured by the thermal imaging module are processed and transmitted to the OLED display, allowing users to view clear, magnified images through the eyepiece. Users can also view and monitor images in real time via a mobile app, and adjust settings as needed.

3.The thermal imaging system features a high-resolution imaging module paired with a large-aperture infrared lens, delivering high-quality images. The eyepiece focus is adjustable to ensure sharp focus on objects at distances ranging from 5 meters to infinity.

2. Product Components

1.Rangefinding Module	2.Objective Lens Focus Ring	3.Objective Lens
4.Up Navigation Button	5.Menu Button	6.Down Navigation Button
7.Eyepiece Focus Ring	8.Eyepiece Eyecup	9.Battery Polarity Indicator
10.Battery Compartment Latch	11.Data Port Cover	12.Photo/Video Button
13.Status Indicator	14.Lens Cap	15.Power Switch
16.Eyepiece		

3. Package Contents

- M1V2.0 Thermal Imaging Telescope
- 18650 Battery
- Carrying Case
- Type-C Data Cable
- User Manual
- 5V2A Adapter
- Double-stud Clamp (with several screws, hex nuts, and wrenches)

4. Operation and Usage

4.1. Warnings

(1) Do not point the thermal imaging telescope directly at the Sun, CO_2 lasers, welding machines, or any other high-intensity radiation sources.
(2) Allow an interval of at least 20 seconds between turning the device off and on.
(3) Handle with care during operation. Do not drop, strike, or subject the device to excessive vibration, as this may damage optical and electronic components or deform structural parts.
(4) Do not attempt to disassemble the thermal imaging telescope. If a malfunction occurs, contact the manufacturer immediately; otherwise, the warranty will be void.
(5) During periods of non-use or transportation, remove the battery and store the telescope in its protective carrying case, remove the battery and store the telescope in its protective carrying case.
(6) Replace the battery promptly when the power level runs low to prevent over-discharge and potential battery damage.
(7) Improper use may damage the thermal imaging telescope.
Note: Only charge with a 5V 2A charger.

4.2. Usage Method

(1) Remove the thermal imaging telescope from its packaging, install the battery, then press and hold the power button for 3 seconds to power on the device.

(2) Look through the eyecup to view the internal display, and turn the eyepiece focus ring until the on-screen icons and numerals appear sharp and clearly visible.

(3) Point the telescope at the target object, and rotate the objective focus ring until the object comes into clear focus.

4.3. Notes

(1) The optical components (thermal imaging objective lens, eyepiece, and laser rangefinder lens) should only be cleaned when dirt degrades image quality. When cleaning, lightly moisten a lens cloth with alcohol and gently wipe the affected area to avoid damaging the Anti-Reflective Coating(AR Coating).

(2) Turn off the device promptly after use or if it will be idle for an extended period to maximize battery life.

(3) During operation, do not point the device directly at the sun or intense heat sources to avoid signal interference from excessive infrared radiation, which may cause image blur.

5. Button Functions

Power Button

(1) Press and hold the power button for 3 seconds to turn on the device; when powered on, press and hold the power button for 3 seconds to initiate countdown shutdown.
(2) In the preview interface, short press to enter sleep mode; any button can wake the device from sleep mode.
(3) In the preview interface, double-click to perform shutter calibration.

Photo/Video

(1) Short press to take a photo.
(2)Press and hold for at least 1.5 seconds to start recording. While recording, Press and hold again for at least 1.5 seconds to stop.

Up Navigation Button

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

Menu Button

(1) Short press to open the menu. Navigate options with the up/down buttons, then short press again to enter the submenu.
(2) Press and hold to return to the previous menu.
(3) When the rangefinder is active, short press to lock/unlock the range value.

Down Navigation Button

(1) Short press to scroll down. When no menu is active, short press to cycle through magnification levels (1x, 2x, 4x, 8x).
(2) Press and hold to toggle rangefinding on/off.

6. Menu Functions

Icon	Main Menu	Function Description
	Color Temperature	Short press the menu button to enter the menu. There are 2 options in color temperature. Selecting "Cool Color" or "Warm Color" will change the imaging screen accordingly.
	Screen Brightness	Short press the menu button to enter the menu. There are 10 options for screen brightness. The screen image will change accordingly based on your selection, allowing you to choose the appropriate level according to your usage habits.
	Contrast	Short press the menu button to enter the menu. There are 10 options for contrast. The imaging screen will change accordingly based on your selection. The higher the value, the stronger the imaging contrast.
	Image Detail Enhancement	Short press the menu button to enter the image detail enhancement option. The higher the number, the more details are displayed.
	Advanced Settings	Function Description
	WIFI	1. Turn on the WiFi in the device menu, then turn on the phone WiFi and the APP in the test software. Find the MAC address name "APPshow-XX-XXXXX" on the phone's WiFi list and enter the password "12345678" to connect the device. 2. After the device is connected to the phone via WiFi, real-time captured images can be observed.
	Picture-in-Picture	Short press the menu button to enter the submenu page, short press the menu button to select turn on or off, and short press the menu button to confirm the selection and return to the main menu.
	Reticle Type	Options: Off, and 10 types of reticles are available.
	Reticle Color	Options: Black, White, Gray, Red, Green.
	Zeroing Storage	Used to save the user's ballistic zeroing point parameters.
	Reticle Zeroing Adjustment	▶ Short press the menu button to enter the reticle zeroing calibration interface, then short press the video button to switch between different function options, and short press the up/down keys to adjust the value of the function; ▶ Image Freeze: Short press the menu button to choose whether to freeze the screen; ▶ Short press the video button to move to the X and Y axis values, and adjust the reticle position through the up/down keys until it coincides with the impact point. Short press the video button to move to other options. After setting, move to the save option and short press the menu button to save and exit, or long press the menu button to exit without saving; ▶ The set distance is used as the zeroing distance in smart ballistics and saved in the zeroing storage.

	Auto Ballistics	There are three modes for auto ballistics: Off disables the feature, On enables automatic ballistic calculation, and Settings allows you to manually adjust the ballistic parameters.
	Gyroscope	Short press the menu button to enter the subpage, and short press the menu button to turn the gyroscope on or off.
	Range Unit Selection	There are two options for range unit selection: Meter / Yard.
	Date & Time	Select the "Date/Time" menu, short press the menu button to enter the sub-options, then short press the video button to move through options, use the up/down keys to adjust the value, and short press the menu button to save and exit after adjustment is completed.
	Multi-language	Short press the menu button to enter the menu language settings, short press the up/down keys to select the appropriate language, and short press the menu button to confirm.
	Record Audio	After selecting "Record Audio" with the cursor, short press the menu button to bring up the submenu. Select "On" or "Off" in the submenu to determine whether video recording includes audio input.
	Defective Pixel Correction	Move the cursor to select the "Defective Pixel Correction" menu, short press the menu button to enter the submenu, and short press the up/down keys to switch between "Auto Correction" and "Manual Correction" modes. If correction is needed, you must close the lens cover and follow the prompts to perform the defective pixel correction operation. (1) Select "Auto Correction" and short press the menu button to correct successfully. (2) Select "Manual Correction", move the cursor through the power button, and short press the menu button to correct successfully and save.
	Image Calibration	Enter the Image Calibration menu and select Confirm. Close the lens cover and short press the menu button to perform background uniformity calibration. Settings are saved automatically upon completion.
	Format	Move the cursor to select the "Format Memory Card" menu, short press the menu button to enter the submenu, short press the up/down keys to switch selections, and short press the menu button again to confirm the option. Please choose and confirm cautiously, as data cannot be recovered after deletion.
	Custom Pseudo-Color Mode	White Heat Mode, Black Heat Mode, High Brightness Mode, Low Light Mode, Pseudocolor Mode. Choose the appropriate mode based on your needs, and consider whether to cycle through them.
	Auto Power Off	Move the cursor to select "Auto Power Off Settings" and short press the menu button to bring up the submenu. Select "3 minutes, 5 minutes, Off" in the submenu. The default is Off. After power-on, you can select 3 minutes or 5 minutes for auto power off.

	Default Value	Under the advanced menu, use the up/down keys to select the "Restore Factory Settings" option. Switch selections by short pressing the up/down keys, and short press the menu button again to confirm the option. After confirmation, it will restore to the factory default settings. Please operate with caution.
	Version Information	Move the cursor to select "Version", short press the menu button to view the device software version information.

7. Device Connection

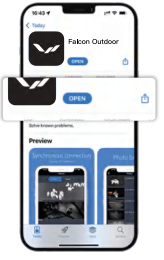
Download the exclusive APP to connect to mobile devices via WIFI.

Scan for Android/iOS download

Google Play

Falcon Outdoor

Google Play Store search "Falcon Outdoor" to download



Download and install the APP

Turn on WIFI on both the phone and the device

Open the APP

Select wifi "XX..." and connect
(WIFI default password: **12345678**)

8. Specifications

75mm

235mm

M1V2.0

Sensor	
Type	Uncooled Vanadium Oxide (VOx)
Resolution	640x512
Frame Rate	50 Hz
Pixel Size	12μm
NETD	⩽18mk
Optical Characteristics	
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
Focus Distance	5m - ∞
Field of View	8.8°X6.6°
Detection Range (Target size: 1.7mX0.5m)	2500m

Display	
Color Modes	White Heat , Black Heat , High Brightness , Low Light , Pseudocolor.
Type/Resolution	0.49 inch / OLED / 1920X1080
Power	
3D Gyroscope	Yes
Power Supply	3-4.2 V
Battery	18650 Lithium Battery / 3500mAh
External Power	5V (USB)
Runtime	5 hours
Shock Resistance	10000 J
Waterproof Rating	IP67
Operating Temperature	-20°C~+50°C
Size	224x75x91mm
Weight	650g ±5g
Recorder	
Video/Photo Resolution	1440X1080
Video/Photo Format	.mp4 / .jpg
Storage Card	Built-in 32G 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) The lens of the thermal imaging telescope is an important optical component. During installation and use, avoid contamination and damage to the lens surface from oil stains and various chemical substances. After use, please close the lens cover.

(2)If the thermal imaging telescope is not in use or is being transported, remove the battery and keep the telescope in its packaging box.

(3)When the thermal imaging telescope is stored for a long time or not operating, it should be stored in a cool and dry environment if possible.

(4)Do not use chemical solvents, thinners, etc., to scrub the casing of the thermal imaging telescope. You can wipe it with a clean, soft, and dry soft cloth.

(5)When not in use for a long time, it should be powered on to check and calibrate .once 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.

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Thermal Imaging & Night Vision

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