

FM500C01

SQUARE MINI THERMAL IMAGING SIGHT / USER MANUAL



v2 | 2026.10 | ERDI TECH LTD



256 × 192

INFRARED RESOLUTION
Thermal imaging module



13 mm F0.9

OBJECTIVE LENS
Field of view 13.5° × 10.1°



1.6" 360 × 320

DISPLAY
Touchscreen



≥ 8 h

OPERATING TIME
Two 16280 batteries



99 g

WEIGHT
Excluding batteries



1,000 g

SHOCK RESISTANCE
-20 °C to +50 °C

Five image palettes (white hot, black hot, green hot, red hot, iron) and five reticle colours. All values are reproduced from the controlled technical source.

See Section 3, Technical Specifications, for the complete parameter list.

Document Information

Item	Content
Product model	FM500C01
Product name	Square Mini Thermal Imaging Sight
Product category	Thermal imaging sight
Document purpose	Product use, acceptance and maintenance reference
Document version	v2, October 2026
Technical basis	S213D product manual (Chinese, 256 × 192, 13 mm)
Brand and service	ERDI LASER https://erdicn.com sales@erdicn.com

This document follows the current ERDI standard product manual format. For installation, model identification, battery polarity and menu displays, the actual product and the controlled software interface are the final reference.

Three levels of notice are used in this manual: WARNING indicates a hazard to people; CAUTION indicates an operation that may damage the equipment; Note indicates a recommendation that improves the result. All parameter values are reproduced from the controlled technical source, and values that are not listed are not technical commitments of this document.

Warnings and Precautions

WARNING: INTENSE RADIATION. Never point the objective lens towards the sun, a laser source, welding equipment or any other source of intense optical or infrared radiation, whether the sight is powered on or off. The lens concentrates incident radiation onto the detector and can permanently damage the thermal module and the internal electronics. Damage caused by failure to observe this warning is not covered by the warranty.

WARNING: BATTERY. Use only the battery type and the charger specified in this manual. Do not heat, crush, pierce, short-circuit or immerse batteries, and never charge a damaged cell. A battery that becomes hot, changes shape or colour, emits an odour or leaks must be removed immediately and must not be reused.

WARNING: SMALL PARTS AND CHOKING HAZARD. The sight is a precision instrument, not a toy. Keep the sight, the batteries, the screws and the other accessories out of the reach of children and pets.

Important Notices

- Read this manual before use and keep it with the product for future reference.
- Use the sight only for its intended purpose and in full compliance with the laws and regulations of the country of use.
- Keep the original packaging, the certificate of conformity and the purchase documents; they are required for a warranty claim.
- Do not disassemble, modify or repair the sight yourself. Unauthorized work voids the warranty and may cause injury or damage to the equipment.
- The optical and electronic assemblies are sealed. Do not open the housing or the objective assembly.

Precautions

- The objective lens is a precision optical component. Avoid contamination by oil, grease, chemicals and abrasives during installation, use and storage.

- Do not clean the housing with chemical solvents, thinners or abrasive cleaners; wipe it with a clean, soft, dry cloth.
- Remove the batteries when the sight is not in use, and store the sight in its protective case; for long-term storage keep it in a dry, well-ventilated place.
- Do not expose the sight to temperatures outside the specified operating and storage ranges for extended periods.
- If the sight malfunctions, becomes damaged or shows any abnormality, stop using it and contact the after-sales service described in Section 11.4.

1 Overview

1.1 Scope and How to Use This Manual

This manual covers the use, acceptance and maintenance of the FM500C01 Square Mini Thermal Imaging Sight. It describes the product and its controls, the preparation and installation sequence, the battery and power system, basic operation, the menu functions, zeroing, maintenance and troubleshooting, so that the sight can be put into service and maintained correctly.

Suggested reading order for first-time users: Section 4 (components and controls), Section 5 (preparation and installation), Section 6 (battery and power), Section 7 (basic operation) and Section 9 (zeroing). Section 5.3 gives the complete first-time sequence in a single table. Read Section 11 before attempting any troubleshooting.

1.2 System Description

The FM500C01 is a compact thermal imaging sight. It integrates a 256 × 192 thermal imaging module, a 13 mm F0.9 objective lens and a 1.6-inch 360 × 320 touchscreen, and is controlled by two buttons together with touch gestures on the main interface.

The sight is powered by two 16280 batteries and can also be supplied from an external Type-C 5 V source. It provides five image palettes and five reticle colours, adjustable image contrast, brightness and enhancement, hot spot tracking, burn-in protection, and still-photo and video capture. Zeroing is carried out directly in the zeroing screen.

The standard mounting interface is the RMR base supplied with the sight; optional Picatinny mounts and an RMRSc base are available. The mounting interface of the host equipment and the delivery documents of the mounting parts govern compatibility.

1.3 Intended Use and Limitations

The sight is intended for aiming and observation on host equipment that provides a compatible RMR mounting interface, and for use only in accordance with the laws and regulations of the country of use. It is not a toy and is not intended for use by children.

The sight does not replace safe handling practice. Confirm that the host equipment is unloaded and in a safe state before installation, zeroing, cleaning or any inspection, and do not use the sight where the applicable regulations prohibit its use.

2 Key Features

Feature	Description
Infrared imaging	256 × 192 thermal imaging module.
Optics and display	13 mm F0.9 objective lens; 1.6-inch, 360 × 320 touchscreen display; field of view 13.5° × 10.1°.

Feature	Description
Dual control	Buttons for power, shutter calibration and capture; touchscreen for the menu, reticle, palette and magnification settings.
Gesture operation	Reticle size, reticle colour, palette and magnification can be changed on the main interface without entering the menu.
Image palettes	White hot, black hot, green hot, red hot and iron; palettes can be enabled or disabled individually.
Reticle	Five reticle colours (white, black, green, blue and red); reticle size adjustable; zeroing with the direction keys.
Imaging functions	Image contrast, image / reticle / screen brightness, enhancement, hot spot tracking and burn-in protection.
Capture	Still photos and video, controlled by the photo/video button.
Power	Two 16280 batteries with an operating time of at least 8 h; Type-C 5 V external power input.
Environmental adaptability	Operating temperature -20 °C to +50 °C; shock resistance 1,000 g.

Parameter note: the values in this section and in Section 3 are reproduced from the controlled technical source. Items that are not listed are not technical commitments of this document.

3 Technical Specifications

Parameter	Specification	Parameter	Specification
Objective lens	13 mm F0.9	Field of view	13.5° × 10.1°
Display	1.6 in, 360 × 320	Detector resolution	256 × 192
Image polarity	White hot, black hot, green hot, red hot, iron	Reticle colours	White, black, green, blue, red
Battery	16280, two cells	Operating time	≥ 8 h with two batteries
External power input	Type-C, 5 V	Shock	1,000 g
Operating temperature	-20 °C to +50 °C	Storage temperature	0 °C to +55 °C
Weight	99 g (excluding batteries)	Dimensions	53 × 42 × 43 mm
Interface languages	English, Chinese, Russian	Mounting interface	RMR base (standard component)

3.1 Parameter Conditions

The values in this section apply within the operating temperature range stated above, after the sight has reached thermal equilibrium. The operating time depends on the use of video recording, the screen and reticle brightness settings, the number of shutter calibrations and the ambient temperature, so the operating time actually obtained may differ from the quoted value.

Values that are not stated in this manual are not technical commitments of this document. Test and acceptance conditions that are not described here are given in the delivery documents.

4 Components, Controls and Packing

4.1 Product and Model Identification

Confirm that the model marking on the sight body reads FM500C01, that the serial number (SN) is legible, and that it matches the delivery documents. The About menu shows the equipment information of the installed software; record it before contacting service (see 8.13).

4.2 Components and Controls

The sight is operated with two buttons and the touchscreen. The battery compartment is released with the cover lock marked LOCK / OPEN.



Figure 4-1 FM500C01 components and controls

No.	Component	Function
1	Power button	Long press to power the sight on or off; short press to run shutter calibration.
2	Battery compartment	Holds the two 16280 batteries; the cover is released with the LOCK / OPEN lock.
3	Screen	Touch display for the main interface, the menu and the zeroing screen.

4.3 Buttons and Touch Areas

No.	Button / area	Function
1	Power button	Long press: power on or power off. Short press: shutter calibration.
2	Photo / video button	Short press: take a photo. Long press: start or stop video recording.
3	Touchscreen	Long press to open the menu; swipe up for reticle size; swipe down for reticle colour; swipe left or right for the palette; double tap for magnification.

The touchscreen supports long press, swipe and tap gestures. The complete gesture list is given in 7.6, and the corresponding button states are given in 7.5.

4.4 Standard Components

No.	Name	Quantity
1	Sight	1
2	RMR base	1
3	Countersunk screws (M3 × 8 hex socket)	4
4	Hex wrench	1

No.	Name	Quantity
5	Lithium battery, flat-top 16280	2
6	Type-C data cable	1
7	Charger	1
8	Lens cloth	1
9	User manual	1
10	Certificate of conformity	1

Note: check the delivery against this list at unpacking (see 5.1). The quantities of optional components are given in 4.5.

4.5 Optional Components

Option	Name
Option 1	90° side-flip Picatinny mount
Option 2	45° Picatinny mount
Option 3	One-piece quick-detach Picatinny mount
Option 4	RMSc base

Installation note: the torque marked on the accessory documentation is 15–20 ft-lb. Adaptation ranges and installation requirements that are not listed here are governed by the labels and the delivery documents of the actual mounting parts.

4.6 Pre-Use Technical Inspection

Carry out the following inspection before every use, and complete any corrective action before the sight is put into service.

- Housing: no visible cracks, impact damage, deformation, loose parts or flaking of the surface finish.
- Objective lens: the lens surface is clean and free of cracks, oil, fingerprints, condensation or other deposits.
- Display: the screen is intact and displays correctly, without dead areas or visible damage.
- Buttons: both buttons travel normally and do not stick.
- Battery compartment: the cover locks correctly, the contacts are clean and there is no foreign matter or corrosion inside the compartment.
- Mounting: the sight sits fully against its base or mount and does not move or wobble.
- Function: the sight powers on, the image is clear and free of interference, and the reticle, palette and menu respond correctly.

Item	Inspection method	Acceptance criterion
Housing	Visual check and light shake	No visible cracks, impact damage, deformation, loose parts or flaking of the finish.
Objective lens	Visual check of the lens surface	Clean, free of cracks, oil, fingerprints, condensation or deposits.
Display	Power the sight on and observe the screen	Intact, displays correctly, no dead areas or visible damage.
Buttons	Press both buttons	Normal travel, no sticking, functions respond as described in 7.5.

Item	Inspection method	Acceptance criterion
Battery compartment	Visual check of the compartment and contacts	Cover locks correctly, contacts clean, no foreign matter or corrosion.
Mounting	Visual check and light push	Sits fully against the base or mount, no movement or wobble.
Function	Power on and operate the controls	Powers on, clear image without interference, reticle, palette and menu respond correctly.

Note: the inspection covers appearance, completeness and function only. Do not open the housing or the objective assembly during the inspection. If an item does not meet its acceptance criterion, resolve it before use or contact service (see 11.4).

5 Preparation and Installation

5.1 Unpacking Inspection

Before first use, confirm that the delivery is complete and that the sight is in normal condition. Carry out the inspection in a dry, clean environment and avoid opening the packaging in dusty or damp surroundings.

- Check every item against the standard components list in 4.4: sight, RMR base, four M3 × 8 hex-socket countersunk screws, hex wrench, two flat-top 16280 lithium batteries, Type-C data cable, charger, lens cloth, user manual and certificate of conformity.
- Inspect the housing, objective lens, screen, buttons, battery compartment and Type-C port for impact marks, cracks, deformation or looseness.
- Inspect the infrared objective lens for dirt, fingerprints or scratches. If it is soiled, wipe it gently with the lens cloth in one direction until the surface is clean.
- Confirm that the screen displays correctly and is not damaged, and that the buttons travel normally without sticking.
- If any item is missing or damaged, do not power the sight on; report it using the contact details in 11.4.

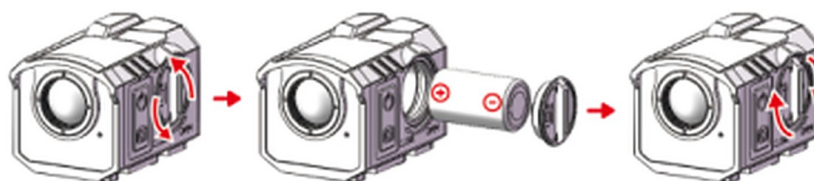


Figure 5-1 Packing components and accessories

Note: the unpacking inspection covers appearance and completeness only. Do not disassemble the housing or the objective assembly during the inspection.

5.2 Mounting and Installation

The FM500C01 is installed through the RMR base or an optional mount. Before mounting, power the sight off, remove the batteries, and confirm that the mounting face and the base contact face are clean and free of oil, burrs and foreign matter.

- Align the RMR base (or optional mount) with the mounting face and fit the four M3 × 8 hex-socket countersunk screws as shown in the accessory assembly drawing.
- Using the supplied hex wrench, tighten the screws in diagonally opposite pairs in several passes, so that the base is not deformed by one-sided loading.
- The screw torque marked on the accessory documentation is 15–20 ft-lb; do not exceed this range.
- It is recommended to apply a small amount of medium-strength threadlocker to the screws to improve stability.
- After installation, check that there is no visible gap between the base and the sight, and that the sight does not move or wobble.

- Then confirm whether the zeroing result needs to be re-adjusted (see 9.4).

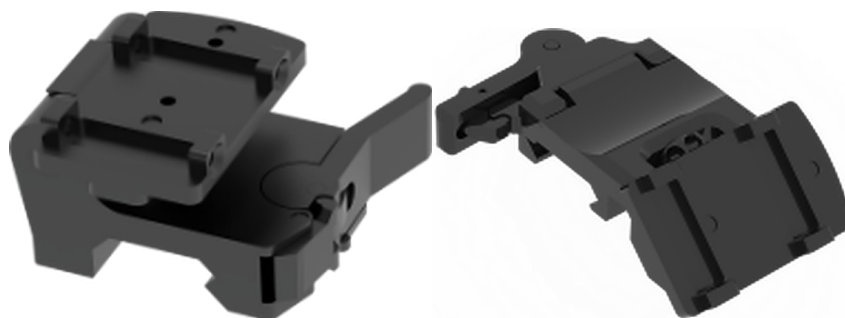


Figure 5-2 Mounting base and installation

Installation note: the torque marked on the accessory documentation is 15–20 ft-lb. Adaptation ranges and installation requirements that are not listed here are governed by the labels and the delivery documents of the actual mounting parts.

Optional components include the 90° side-flip Picatinny mount, the 45° Picatinny mount, the one-piece quick-detach Picatinny mount and the RMSc base; the adaptation range of optional parts is governed by the delivery documents.

5.3 First-Time Quick Start

For first-time use, complete the following steps in order and confirm the expected result before continuing to the next step.

Step	Action	Expected result
1	Complete the unpacking inspection (5.1).	The delivery is complete and the sight is undamaged.
2	Install and check the mounting (5.2).	The sight sits fully against the base, the screws are tight and there is no movement.
3	Install the batteries in the correct polarity and power the sight on (6.1, 7.1).	The screen lights up, the main interface appears and the battery indication is normal.
4	Read the status bar (7.4) and set the reticle size and colour (7.6).	The status bar shows the expected magnification, palette and battery state; the reticle is clearly visible.
5	Adjust the image contrast, brightness and enhancement (8.3, 8.4, 8.8).	The target outline is clear and the image is comfortable for prolonged observation.
6	Zero the sight (9.2) and set the date and time (8.10).	The reticle and the point of impact agree, and the time is correct.
7	Take a test photo and a test recording (7.7).	The capture is confirmed by the recording indication and the stored image is correct.

Note: the actual icons, menu names and interface positions are governed by the software installed on the sight.

6 Battery and Power

6.1 Battery Type and Installation

The FM500C01 is powered by two 16280 batteries. Install flat-top cells and follow the polarity markings on the battery compartment label exactly; the batteries must not be inserted in reverse. Always power the sight off before opening the battery compartment. Opening the battery compartment or removing the batteries while the sight is powered on may damage the equipment.

Step	Operation	Check
1	Confirm that the sight is powered off.	The screen is off and no recording is in progress.
2	Release the battery compartment cover with the LOCK / OPEN lock and remove it.	The cover is free and the compartment is accessible.
3	Insert the two flat-top 16280 batteries with the polarity shown on the compartment label.	Both cells sit fully in place; the polarity is not reversed.
4	Refit the cover and lock it.	The cover is locked, with no lifting and no gap.
5	Long press the power button to switch on.	The screen lights up, the main interface appears and the battery indication is normal.

Note: fit or remove the batteries only with the sight powered off. Do not force the cover or cross-thread it, and do not use damaged, leaking or deformed batteries.

6.2 Charging the Battery

The standard package includes a battery charger and a Type-C data cable. Charge the batteries with the supplied charger only, and follow the instructions supplied with the charger.

- Place the batteries in the charger according to the polarity markings printed inside the charger.
- Connect the charger to a standard USB 5 V source using the supplied Type-C cable, such as a phone charger or a USB port of a computer.
- Observe the charging indication of the charger while charging, and remove the batteries when the charger indicates that charging is complete.
- Do not leave the charger or the batteries unattended, and disconnect the charger from the power source when charging is finished.
- Charge the batteries at normal room temperature. A very cold battery must be allowed to warm up before charging, and a battery that has become hot must be allowed to cool before charging.

CAUTION: use only the supplied charger and cable. A different charger may damage the batteries or the sight, and such damage is not covered by the warranty. Do not overcharge the batteries, and never charge a damaged cell.

6.3 Battery Safety

WARNING: misuse of lithium batteries can cause leakage, fire or explosion. Observe the following requirements at all times.

- Use only 16280 batteries of the specified type. Do not mix batteries of different types, capacities or states of charge.
- Do not heat, crush, pierce, disassemble, modify, short-circuit or drop the batteries.
- Keep the batteries away from fire, water, high temperature and direct sunlight.
- Do not connect the batteries to any device that draws a current beyond the permitted level.
- Remove the batteries from the sight before long-term storage, and store them in a cool, dry place.
- A battery that becomes hot, changes shape or colour, emits an odour or leaks must be removed immediately, kept away from combustible material and replaced.
- Keep the batteries out of the reach of children and pets.
- Do not expose the batteries to temperatures outside the operating range; capacity is reduced at low temperature, which is normal and does not indicate a fault.

6.4 External Power Supply

The sight can be supplied from an external Type-C 5 V source, such as a phone charger or the USB port of a computer.

- Connect the external power source to the Type-C port of the sight with a suitable cable.
- Check the orientation of the plug and the port before inserting it; never force the connector.
- The specification of the external power supply is governed by the equipment marking; items beyond the equipment marking are not technical commitments of this document.
- Do not connect or disconnect the power cable in a damp environment, and do not leave the sight unattended for extended periods while it is supplied from an external source.
- Power the sight off before connecting or disconnecting the cable whenever practical, to avoid an unexpected interruption of operation.

6.5 Operating Time and Power Management

A pair of fully charged 16280 batteries provides at least 8 hours of normal operation. The operating time actually obtained depends mainly on the following factors:

- the ambient temperature and the operating temperature of the batteries;
- the amount of video recording and the number of photos taken;
- the screen and reticle brightness settings;
- the number of shutter calibrations performed;
- the length of time the sight remains powered on without use.

To extend the operating time: enable the automatic power-off function (8.11), reduce the screen brightness where the image remains clear (8.4), switch the sight off when it is not in use, and remove the batteries when the sight is stored.

7 Basic Operation

This section describes the operations used during normal work: power on and power off, shutter calibration, the status bar, the buttons, the main-interface gestures, photo and video capture, and the function check. The menu functions are described in Section 8.

7.1 Power On

Preconditions: the batteries are installed as described in 6.1 and the host equipment is in a safe state.

- Step 1: long press the power button.
- Step 2: release the button when the screen lights up; the main interface appears.
- Step 3: check the status bar and confirm that the battery indication, the palette and the reticle state are normal.

Expected result: the screen lights up and the main interface is displayed; the settings in use before the sight was powered off are retained.

7.2 Power Off

Preconditions: the sight is not recording, and no setting is being changed.

- Step 1: long press the power button until the sight powers off.
- Step 2: confirm that the screen is off.
- Step 3: if the sight is to be stored, remove the batteries (see 6.1) and pack the sight in its case.

Expected result: the screen goes off and the display is switched off completely. Power the sight off before removing the batteries, cleaning the housing or changing the mounting.

7.3 Shutter Calibration

Shutter calibration equalises the detector and removes the non-uniform striping that can appear after a change of ambient temperature or after prolonged continuous use. The sight performs a calibration automatically when it is powered on.

- Step 1: on the main interface, short press the power button.
- Step 2: wait until the image becomes uniform; the shutter can be heard to operate.
- Step 3: if visible striping remains, repeat the short press.

Expected result: a uniform image without visible striping. Note: a sudden change of scene or ambient temperature can make a new calibration necessary; repeat the short press until the image is uniform.

7.4 Status Bar and Display Indications

The status bar shows the current working state of the sight. After powering on, check the status bar first to confirm the power supply, the image mode and the recording state.



Figure 7-1 Main interface, status bar and reticle

Status bar item	Description
Magnification	Current display magnification.
Recording state	An indicator is shown while photo or video capture is in progress.
Auto power-off time	Current automatic power-off interval; see 8.11.
Palette	Current image palette; see 8.7.
Battery	Current battery state; replace or charge the batteries before the indication shows that the charge is exhausted.
Time	Current system time; see 8.10.

Note: the position and appearance of the status bar icons are governed by the installed software. The screen brightness can be adjusted separately (see 8.4).

7.5 Button Functions

Button	Current state	Short press	Long press
Power button	Sight off	—	Power on the sight.
Power button	Main interface	Run shutter calibration.	Power off the sight.
Photo / video button	Main interface	Take one photo.	Start or stop video recording.

Note: the functions assigned to the buttons inside the menu and inside the zeroing screen are described in Section 8 and Section 9 respectively.

7.6 Touch Gestures on the Main Interface

The reticle, the palette and the magnification can be adjusted directly on the main interface, without opening the menu.

Operation	Method	Result
Reticle size	Swipe up on the main interface	Adjusts the reticle size.
Reticle colour	Swipe down on the main interface	Switches between the white, black, green, blue and red reticles.
Palette	Swipe left or right on the main interface	Switches between the white hot, black hot, green hot, red hot and iron palettes.
Magnification	Double tap the screen	Changes the display magnification.

The five reticle colours are white, black, green, blue and red; the five image palettes are white hot, black hot, green hot, red hot and iron. At least one palette must remain enabled for the main interface to be able to switch palettes (see 8.7).

Note: these gestures apply on the main interface. Inside the menu or the zeroing screen, follow the prompts of that screen.

7.7 Photo and Video

The sight supports still photos and video recording; both are controlled with the photo/video button.

Operation	Method	Result and notes
Take a photo	Short press the photo/video button	One photo is taken.
Start recording	Long press the photo/video button	Recording starts; the recording indicator appears in the status bar.
Stop recording	Long press the photo/video button	Recording stops.

Note: while recording, the status bar shows the recording indicator (see 7.4). After recording, confirm that the indicator has disappeared before switching the sight off.

7.8 Function Check

Carry out the following checks after installation, after the sight has been stored for a long period, and whenever correct operation is in doubt.

Item	Check requirement
Power on / power off	A long press of the power button powers the sight on and powers it off again.
Image	The image is clear and stable, without visible interference or permanent stripes.
Shutter calibration	A short press of the power button removes non-uniform striping.
Reticle	The reticle is displayed clearly; its size and colour can be changed by gesture.
Palette	All enabled palettes can be selected and displayed.
Buttons	Both buttons respond as described in 7.5 and do not stick.

Item	Check requirement
Capture	A test photo and a test recording are made and the recording indicator operates.
Battery	The battery indication is normal and no abnormal heating or odour is detected.

8 Main Menu and Settings

With the sight powered on and showing the main interface, long press the screen to open the menu. The settings are described below in the order in which they are normally used. Each function is described as purpose, steps, result and note.

8.1 Entering, Navigating and Leaving the Menu

- Step 1: confirm that the sight is powered on and showing the main interface, then long press the screen to open the menu.
- Step 2: swipe left or right, or use the direction prompts, to select the item to be configured.
- Step 3: tap the item to open it, and use + / – or the slider to adjust the value as prompted.
- Step 4: return to the main interface and confirm that the setting has taken effect.
- Step 5: repeat the procedure for the next item, or long press the screen again to leave the menu.

Note: the menu item names, icons and order are governed by the installed software. Settings are stored in the sight and are retained after power off.

8.2 Menu Map

Menu item	Function	Reference
Zeroing	Move the reticle to agree with the point of impact.	9.2, 9.3
Image Contrast	Adjust the tonal range of the image.	8.3
Brightness	Adjust the image, reticle and screen brightness independently.	8.4
Hot Spot Tracking	Mark the hottest area of the image.	8.5
Burn-in Protection	Reduce the risk of burn-in from a high-intensity heat source.	8.6
Palette	Select the image palette and enable or disable palettes.	8.7
Enhance	Adjust the sharpness enhancement of the image.	8.8
Theme	Theme-related settings of the interface.	8.9
Date & Time	Set the system date and time.	8.10
Auto Power Off	Set the automatic power-off interval.	8.11
Language	Select the interface language.	8.12
About	Show the equipment information.	8.13
Reset	Restore the factory settings.	8.14

8.3 Image Contrast

Adjusts the tonal range of the image so that the target outline is clearer.

- Step 1: open “Image Contrast”.
- Step 2: tap to open the adjustment page and use + / – to adjust the contrast.
- Step 3: check the tonal range and the target outline, then return to the main interface.



Figure 8-1 Image contrast screen

Note: contrast is related to brightness (8.4) and to image enhancement (8.8); adjusting in the order contrast, brightness, enhancement is recommended.

8.4 Brightness

Brightness can be adjusted separately for the image, the reticle and the screen. The three settings do not affect each other.

Brightness item	Target	Description
Image brightness	Infrared image	Adjusts the overall image brightness.
Reticle brightness	Reticle marks	Adjusts the reticle brightness.
Screen brightness	Display	Adjusts the display brightness.

- Step 1: open “Brightness”.
- Step 2: select image brightness, reticle brightness or screen brightness.
- Step 3: adjust with + / – or the slider, then return to the main interface.

Note: use the lowest screen brightness at which the image remains clear, in order to extend the operating time (see 6.5).



Figure 8-2 Brightness screen

8.5 Hot Spot Tracking

Marks the hottest area in the image so that targets can be found quickly.

- Step 1: open “Hot Spot Tracking”.
- Step 2: tap the icon to switch the function on or off.
- Step 3: return to the main interface and check whether the marking remains on the relevant target as the scene changes.

8.6 Burn-in Protection

Reduces the risk of image damage caused by a high-intensity heat source remaining at the same position in the image. It is used together with the safety requirements in 10.1.

- Step 1: open “Burn-in Protection”.
- Step 2: tap the icon to switch the function on or off.
- Step 3: return to the main interface and confirm that the setting has taken effect.

CAUTION: even with burn-in protection enabled, never point the sight directly at the sun, lasers, welding equipment or other high-intensity heat sources.

8.7 Palette Management

The palette sets the colour mode of the image. Open “Palette” and select the palette. In the current palette, tap the upper-right button to enable or disable that mode; a disabled palette cannot be selected on the main interface.

- Step 1: open “Palette”.
- Step 2: select the required palette (white hot, black hot, green hot, red hot or iron).
- Step 3: to suppress a mode, tap the upper-right button to disable it.
- Step 4: return to the main interface and confirm that the available palettes match the observation task.



Figure 8-3 Image palettes: iron, black hot, green hot, red hot, white hot

Note: keep at least one commonly used palette enabled, otherwise the main interface cannot switch palettes. The palette in use is shown in the status bar (see 7.4).

8.8 Image Enhancement

Adjusts the sharpness enhancement of the image so that target edges and details are easier to distinguish.

- Step 1: open “Enhance” and tap the icon to enter the adjustment page.
- Step 2: use + / – to adjust the sharpness enhancement.
- Step 3: check the target edges and details, then return to the main interface.

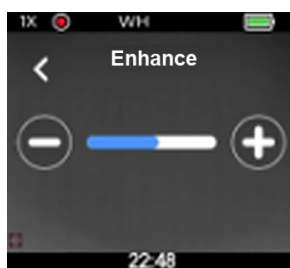


Figure 8-4 Image enhancement screen

Note: excessive enhancement makes the image appear grainy; reduce the enhancement when the target detail becomes difficult to interpret.

8.9 Theme

Used for the theme-related settings of the interface.

- Step 1: open “Theme”.
- Step 2: complete the theme settings as prompted, then return to the main interface.

8.10 Date and Time

Sets the system date and time. The date and time recorded with photos and videos follow this setting.

- Step 1: open “Date & Time”.
- Step 2: set the date and the time, confirm and return to the main interface.
- Step 3: check that the time shown in the status bar is correct.

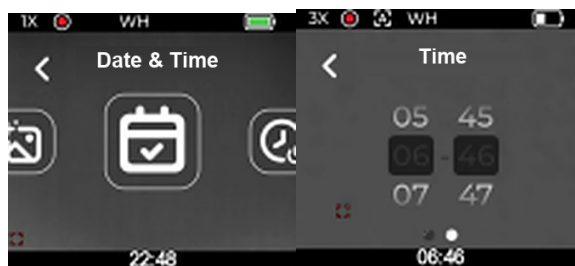


Figure 8-5 Date and time setting screens

8.11 Auto Power Off

Sets the interval after which the sight powers off automatically when it is idle, in order to save battery capacity.

- Step 1: open “Auto Power Off”.
- Step 2: set the interval, confirm and return to the main interface.
- Step 3: check the automatic power-off time shown in the status bar (see 7.4).

Note: the automatic power-off does not operate while a recording is in progress.



Figure 8-6 Auto power off screen

8.12 Language

Switches the interface language.

- Step 1: open “Language”.
- Step 2: select the required language. English, Chinese and Russian are supported; any additional language shown by the installed software can be selected in the same way.
- Step 3: confirm that the interface text switches to the selected language.



Figure 8-7 Language selection screen

8.13 About

Shows the equipment information of the installed software.

- Step 1: open “About”.
- Step 2: record the equipment information, so that it can be provided when service is requested (see 11.4).

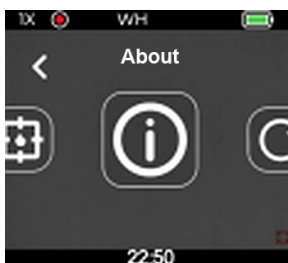


Figure 8-8 About screen

8.14 Reset

Restores the sight to its factory settings.

- Step 1: open “Reset”.
- Step 2: tap YES to restore the factory settings.
- Step 3: after the reset, reapply the settings required for the task, following Section 8 and Section 9.



Figure 8-9 Reset confirmation screen

CAUTION: restoring the factory settings clears the customised settings of the sight, including the zeroing position. Before doing so, record the information that may be needed, such as the equipment information in “About” and the date and time settings, and be prepared to zero the sight again.

9 Zeroing

9.1 Principles and Preconditions

Zeroing adjusts the reticle position so that the centre of the reticle agrees with the point of impact at the selected distance. Carry out the zeroing after the sight has been mounted and after the image parameters have been set.

- Confirm that the host equipment is unloaded and in a safe state before any adjustment.

- Use a stable support, and keep the sight and the target stationary throughout the procedure.
- Select a target at the distance appropriate to the application, in an environment that gives a clear thermal image.
- Carry out the zeroing within the operating temperature range of the sight (see Section 3).

9.2 Zeroing Procedure

Work through the following steps in order and confirm the expected result before continuing.

Step	Action	Expected result
1	Power the sight on and adjust the image settings (Section 7 and Section 8).	The image is clear and the reticle is clearly visible.
2	Open the menu, swipe to “Zeroing” and tap to enter the zeroing screen.	The zeroing screen with the direction keys is displayed.
3	Aim at the selected target and confirm that the reticle centre is on the target point.	The aiming position is stable and repeatable.
4	Observe the point of impact of the test shot on the image.	The point of impact can be identified clearly.
5	Use the direction keys to move the reticle until its centre coincides with the point of impact.	The reticle centre and the point of impact overlap.
6	Leave the zeroing screen and return to the main interface, then repeat the test shot (see 9.4).	The point of impact agrees with the reticle centre.

Note: if the point of impact does not agree with the reticle after the test shot, repeat steps 5 and 6. Keep the aiming position and the support unchanged while moving the reticle.

9.3 Zeroing Screen Operation

The zeroing screen displays the reticle and the direction keys. The upper-left arrow returns to the menu; the cross icon right of the direction keys runs a manual shutter calibration; the upper-right button freezes the image so that the screen can be examined without movement, and tapping it again releases the freeze.



Figure 9-1 Zeroing screen and direction keys

Control	Method	Result
Direction keys	Tap or press the direction key for the axis to be corrected.	The reticle moves one step in the selected direction.
Freeze	Tap the upper-right button; tap again to release.	The image is frozen for examination, then returns to the live image.
Calibration	Tap the cross icon.	A manual shutter calibration is performed.
Return	Tap the upper-left arrow.	The zeroing screen is left and the menu is displayed.



Figure 9-2 Direction keys of the zeroing screen

Note: the reticle position is stored when the zeroing screen is left. Record the position in the service log so that the setting can be restored if the sight is reset (see 8.14).

9.4 Re-Mounting and Zero Check

After any of the following events, re-check the zeroing result before the sight is used for a task that depends on the point of impact:

- the sight has been removed from, or remounted on, the host equipment;
- the base or an optional mount has been changed or re-tightened;
- the sight has been subjected to an impact, or the housing or the mounting shows damage.

Carry out the check by repeating steps 3 to 6 of 9.2. If the point of impact no longer agrees with the reticle, repeat the zeroing procedure.

10 Maintenance, Storage and Safety

This section gives the basic requirements for the use, cleaning, storage and transport of the sight. Read it before use and observe the installation and battery safety requirements in Section 5 and Section 6.

10.1 Operating Environment and Safety

- Do not use or store the sight outside the permitted operating or storage temperature range.
- Never point the sight directly at the sun, lasers, welding equipment or other high-intensity heat sources, whether the sight is powered on or off.
- Avoid exposure to dust and moisture, and do not use the sight in rain or in a condensing environment.
- Do not disassemble the sight yourself.
- If the image becomes abnormal, or if an odour, abnormal heating or a loose structure is noticed during use, stop using the sight immediately and contact service (see 11.4).
- Confirm that the host equipment is unloaded and in a safe state before cleaning, inspecting or storing the sight.

10.2 Cleaning and Routine Maintenance

- Step 1: before wiping the objective lens, remove loose dust and large particles with a clean soft brush or an air blower.
- Step 2: wipe the objective lens with the supplied lens cloth or professional lens tissue, in one direction, without pressing hard.
- Step 3: wipe the non-optical surfaces of the housing with a clean, soft, dry cloth.
- Step 4: if the sight becomes wet, dry the outer surfaces before opening the battery compartment, and power the sight on only after it is dry.

Do not use organic solvents, alkaline cleaners or abrasive fabrics on the housing or on the optical surfaces. Do not touch the optical surfaces with the fingers.

Recommended maintenance schedule, governed by the frequency of use and the storage conditions:

Interval	Maintenance action
Before each use	Complete the pre-use technical inspection (4.6); confirm that the mounting is tight and that the objective lens is clean.
After each use	Wipe the housing and the objective lens; remove the batteries if the sight will not be used immediately, and return the sight to its case.
Every 3 months when not in regular use	Fit batteries in good condition and carry out the function check (7.8).
Before long-term storage	Remove the batteries, clean the sight and store it as described in 10.4.

10.3 Prohibited Actions

- Do not disassemble or modify the sight, and do not replace parts with non-original items.
- Do not disassemble, throw or short-circuit the batteries, and do not put them into fire or water.
- Do not install or remove the batteries, and do not plug or unplug the data cable, while the sight is powered on.
- Do not use the sight outside the specified environmental conditions.
- Do not attempt to clean the inside of the housing or of the objective assembly.

10.4 Storage

- Store the sight in a dry, ventilated environment free of corrosive gases, at 0 °C to +55 °C and a relative humidity not exceeding 80%.
- Remove the batteries before long-term storage and keep them separately, away from high temperature and moisture.
- Keep the sight in its protective case, protected from impact, direct sunlight and corrosive substances.
- During storage, check the appearance and the battery state periodically; if any abnormality is found, stop using the sight immediately.

10.5 Transport

- Before transport, power the sight off, remove the batteries and pack the sight in its case.
- Protect the packaging from rain, moisture, impact, compression and dropping.
- Do not transport the sight in the same vehicle as flammable, explosive or corrosive goods.
- Transport safety requirements shall comply with the applicable transport regulations; loading and unloading shall be safe and reliable.

11 Troubleshooting and Service

If the sight behaves abnormally, work through this section in order. Carry out the checks only in a safe state: confirm that the host equipment is unloaded, that the sight is pointing in a safe direction and that the batteries are not hot, leaking or deformed. Do not open the housing.

11.1 Troubleshooting Principles

- Safety first: confirm the safe state before any check, and stop using an abnormal battery immediately (see 6.3).

- Outside before inside: check the batteries, the mounting and the objective lens first; never disassemble the sight yourself.
- Simple before complex: confirm the power supply, the charge state, the brightness settings and the mounting before investigating the zeroing.
- Check before adjusting: adjust the zeroing only when the power supply and the mounting are both correct.
- Record everything: note the symptom, the conditions in which it occurs and the actions already taken, to help the service team (see 11.4).

11.2 Troubleshooting Sequence

Step	Check	Criterion and action
1	Safe state	The host equipment is unloaded, the sight points in a safe direction and the batteries are not hot, leaking or deformed. If not, restore the safe state before continuing.
2	Batteries	Two 16280 batteries fitted in the correct polarity, sufficient charge, no foreign matter or corrosion in the compartment. If not, reinstall or replace the batteries (6.1).
3	Power and display	A long press of the power button switches the sight on and the main interface appears. If not, check the batteries and repeat 7.1.
4	Image	The image is clear and uniform after a shutter calibration. If not, run the calibration again (7.3) and clean the objective lens (10.2).
5	Controls	Both buttons and the touch gestures respond as described in 7.5 and 7.6. If not, clean and dry the screen, power the sight off and on again.
6	Mounting	The sight sits fully against the base or mount and does not move. If not, reinstall the mounting (5.2).
7	Zeroing	The point of impact agrees with the reticle. If not, re-check the zeroing (9.2) and the re-mounting check (9.4).
8	Service	All of the above are correct but the sight is still abnormal. Stop using the sight and contact service (11.4), providing the model, serial number, delivery information and a description of the problem.

11.3 Symptom and Action Reference

Symptom	Possible cause	Action
The screen does not light up when the power button is pressed.	Batteries not fitted, inserted in reverse or exhausted.	Check the polarity and the charge of the batteries; replace them if necessary (6.1) and power the sight on again (7.1).
The battery indication is low, or the sight switches off shortly after power on.	The batteries are exhausted or were not charged correctly.	Charge or replace the batteries with a pair of the same type and state of charge (6.1, 6.2).
Visible non-uniform striping in the image.	Detector drift after a temperature change or prolonged use.	Short press the power button to run a shutter calibration (7.3); repeat after the sight has reached thermal equilibrium.
The image is hazy or the contrast is poor.	Oil, fingerprints or condensation on the objective lens; unsuitable contrast or enhancement settings.	Clean the objective lens (10.2) and readjust the contrast and enhancement (8.3, 8.8).

Symptom	Possible cause	Action
The reticle does not move in the zeroing screen.	The zeroing screen is not active, or the direction key was not recognised.	Re-enter the zeroing screen (9.2) and tap the direction keys firmly; release the freeze before moving the reticle (9.3).
No photo or recording is made.	The photo/video button was not pressed for the required time, or the recording is already in progress.	Short press for a photo and long press for a recording (7.7); check the recording indicator in the status bar before pressing again (7.4).
The touchscreen does not respond.	The screen is wet, dirty or the software is in an unexpected state.	Dry and clean the screen (10.2), then power the sight off and on again (7.2, 7.1).
The point of impact no longer agrees with the reticle.	The sight was remounted, the mount loosened, or the sight was reset.	Re-check and repeat the zeroing (9.2, 9.4).
Abnormal heating, odour or damage to the housing.	Equipment fault, impact or battery abnormality.	Stop using the sight immediately, remove the batteries and contact service (11.4).

11.4 Service Contact

For technical support or after-sales service, please provide the following information. Do not return the sight without prior contact with the service team.

Information required	Description
Product model	FM500C01
Serial number	The serial number marked on the sight (see 4.1).
Purchase / delivery information	Order number or delivery document.
Problem description	A clear description of the fault, the conditions in which it occurs and the steps already tried.

Website: <https://erdicn.com> | E-mail: sales@erdicn.com

Warranty terms are as stated in the sales contract and the delivery documents. Damage caused by failure to observe this manual, by unauthorized disassembly or by the use of non-original parts is not covered by the warranty.

Appendix A Interface and Menu Quick Reference

This appendix summarises the main interface, the menu, the assembly and the maintenance operations of the FM500C01 as a quick reference for daily use. The detailed descriptions are given in Section 7, Section 8 and Section 9.

A.1 Status Bar, Buttons and Touch Gestures

Item	Description
Status bar	Shows the magnification, the recording state, the automatic power-off time, the palette, the battery state and the time (7.4).
Power button	Long press: power on or power off. Short press: shutter calibration (7.5).
Photo / video button	Short press: take a photo. Long press: start or stop recording (7.5, 7.7).
Touchscreen	Long press: open the menu. Swipe up: reticle size. Swipe down: reticle colour. Swipe left or right: palette. Double tap: magnification (7.6).

Reticle colours: white, black, green, blue and red. Palettes: white hot, black hot, green hot, red hot and iron.

A.2 Assembly, Unpacking and Battery

Step	Customer action
1	Check the sight, the RMR base, the four M3 × 8 hex-socket countersunk screws, the hex wrench, the two flat-top 16280 batteries, the Type-C data cable, the charger, the lens cloth, the user manual and the certificate against the packing list (4.4, 5.1).
2	If an optional mount is used, install it as shown in the accessory assembly drawing; the torque given in the accessory documentation is 15 –20 ft-lb (5.2).
3	On first unpacking, check the objective lens, the housing, the screen and the buttons for damage; clean the lens with the lens cloth if it is soiled (5.1, 10.2).
4	With the sight powered off, fit the flat-top 16280 batteries according to the polarity on the compartment label; never insert them in reverse (6.1).
5	If a battery becomes hot, changes shape or colour, emits an odour or leaks, stop using it immediately (6.3).

Reminder: fit or remove the batteries only with the sight powered off. Do not disassemble, throw or short-circuit the batteries.

A.3 Zeroing and Image Functions

Function	Complete operation
Zeroing	Long press the screen to open the menu, swipe to “Zeroing” and tap to enter; use the direction keys to move the reticle. The upper-right button freezes the image; tap it again to release (9.2, 9.3).
Image contrast	Open “Image Contrast”, tap to enter the adjustment page and use + / – to adjust (8.3).
Brightness	Open “Brightness” and select image, reticle or screen brightness; adjust with + / – or the slider (8.4).
Hot spot tracking	Open “Hot Spot Tracking” and tap the icon to switch it on or off (8.5).
Burn-in protection	Open “Burn-in Protection” and tap the icon to switch it on or off (8.6).

A.4 Menu Settings

Function	Complete operation
Palette	Open “Palette” and select the palette. Tap the upper-right button to enable or disable the current mode (8.7).
Enhance	Open “Enhance”, tap the icon and use + / – to adjust the sharpness enhancement (8.8).
Theme	Open “Theme” for the theme-related settings (8.9).
Date & Time	Open “Date & Time” to set the date and time (8.10).
Auto Power Off	Open “Auto Power Off” to set the automatic power-off interval (8.11).
Language	Open “Language” and select the interface language (8.12).
About	Open “About” to view the equipment information (8.13).
Reset	Open “Reset” and tap YES to restore the factory settings; the zeroing position is cleared (8.14).

Appendix B Revision History and Source Documents

B.1 Revision History

Version	Date	Change
v1	2026-10-01	First English edition in the ERDI product manual format.
v2	2026-10-18	Content expanded: warnings and precautions, pre-use technical inspection, battery and power, basic operation, menu reference, zeroing procedure, maintenance schedule, troubleshooting and quick-reference appendices.

B.2 Source Documents

Source	Use in this document
S213D product manual (Chinese, 256 × 192, 13 mm)	Product parameters and operating behaviour.
ERDI product manual template (reference.docx, v1.2)	Layout, typography and cover system.
Controlled interface screenshots (English interface)	Figures 4-1 to 9-2.

Document control: this manual is a controlled document. Report any discrepancy between this document and the Product, or between this document and the installed software, to ERDI LASER before distribution.

ERDI LASER | <https://erdicn.com> | sales@erdicn.com