MARCOOL®



WMLRF 4500

PRODUCT MANUAL

MARCOOL®

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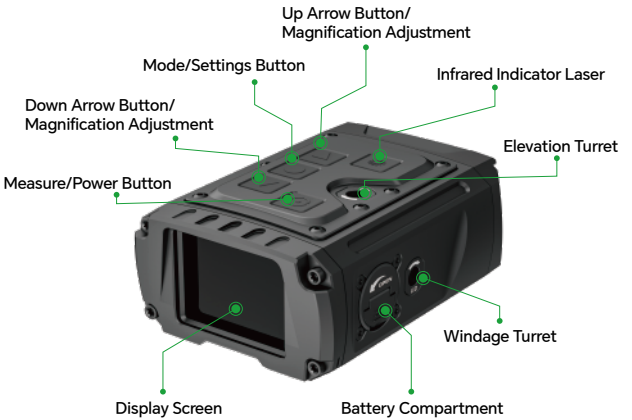
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SPECIFICATIONS



COLOR	Black
MAIN UNIT DIMENSION	108×78×49mm (L×W×H)
WEIGHT(WITHOUT BATTERY)	Main unit: 360±5g; Remote controller: 25±2g
OTAL MEASUREMENT CYCLES	6000 ± 1000 measurement cycles
BATTERY	CR123A
DISPLAY TYPE	2.0 In IPS LCD
LASER WAVELENGTH	905nm
MEASURING RANGE	10~1500mm
NIGHT AIMING LASER DISTANCE	300m
BALLISTIC DATA STORAGE	Stores 4 sets of 1000 X/Y ballistic data
RANGING ACCURACY	±1m
MEASUREMENT UNIT	Meter / Yard switchable
TEMPERATURE SENSOR	Yes
HUMIDITY SENSOR	Yes
BAROMETRIC PRESSURE SENSOR	Yes
ALTITUDE	Yes
SYSTEM	IOS ANDROID

BUTTON NAVIGATION

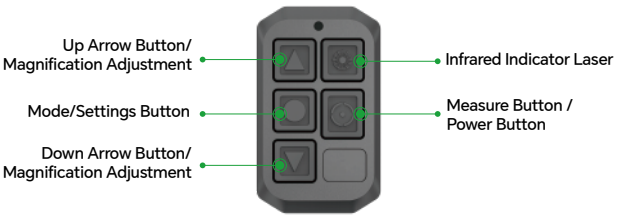




BUTTON NAVIGATION

ICON	FUNCTION	USAGE
	Infrared Indicator Laser	Click/Reuse Long Press
	Up Arrow Button/ Magnification Adjustment	Click/Reuse Long Press
	Mode Button / Settings Button	Click/Reuse Long Press
	Down Arrow Button/ Magnification Adjustment	Click
	Measure Button / Power Button	Click/Reuse Long Press

BLUETOOTH REMOTE BUTTONS



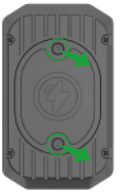
BASIC OPERATION

Battery Installation And Replacement

To insert a new battery, flip up the-finger tab on the Battery Cap and unscrew, counterclockwise, to remove.Insert a CR123A battery with the negative side (-) facing outwards. Reinstall the Battery Cap and ensure it is tightly closed.

To insert a battery into the Bluetooth Remote, utilize the multi tool to unscrew the screws, to remove. Insert two CR2032 batteries with the positive side (+) facing outwards. Reinstall the Battery Cap, turning clockwise, and utilize the multi tool to ensure it is tightly closed.

(Suggestion: Remove the battery during long periods between use. Like many other lasers there is a small pull on the battery even when the unit is off.)





Power On/Off

Power On: Click the power button for 1 seconds, and the display screen will light up.

Power Off: Press and hold the power button for 5 seconds to turn off the display screen.

MOUNTING

Once your WMLRF 4500 has been calibrated it can be mounted. Prior to mounting the laser rangefinder ensure your scope is mounted and zeroed to your desired zero distance.

1. Mount your picatinny diving board mount or picatinny accessory rail and tighten to the manufacturer's torque specifications using a torque wrench.

2. Place the WMLRF 4500 Picatinny Mount on the rail and position it so its placement does not interfere with the adjustment of the turrets.

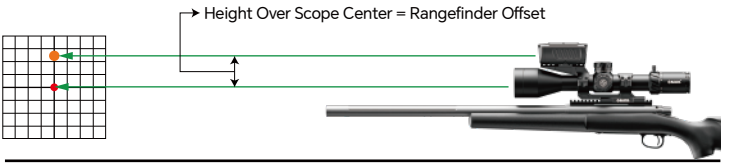
3. Using the provided 1/2" Nut Driver Tool, tighten the 1/2" Lug Nuts to 45 in-lbs. Using a torque wrench is recommended if available.

ZEROING

To ensure the accuracy of the WMLRF 4500 range and ballistic solutions it must be zeroed parallel to your scope. This allows you to aim the device with the center of your reticle at all distances. To zero,follow the steps below:

1. Before starting, your scope must be properly mounted and zeroed. Your WMLRF 4500 must be calibrated and then mounted.

2. Place the Small Reflective Target Sticker on the Alignment Target at the same measured offset that the WMLRF 4500 is mounted from the center of the riflescope. Find common mounting offsets marked on the Alignment Target. Your offset may be different, it is good to measure left/right and up/down offset to the nearest 1/4" to verify the sticker placement.



Note: The Alignment Target grid consists of 1' squares for easy measurements.

3. Start your parallel zero at 25 yards and then reconfirm at a farther distance, preferably 100 yards.

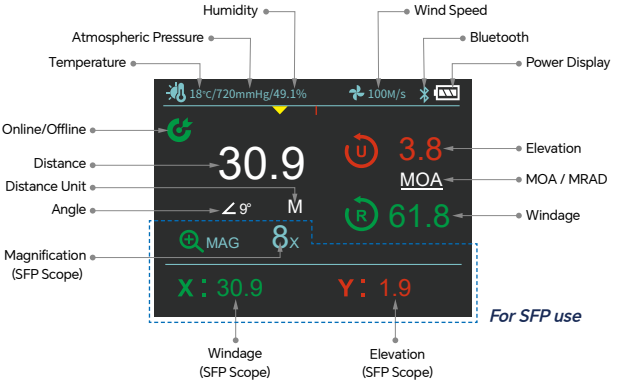
4. Align the crosshair of the scope with the crosshair of the target paper (ensure your reticle matches the grid of the target for best results).

5. Continue to adjust "L", "R", and "U", "D" using the flat head tool to align the red laser spot with the center of the circular high-reflection sticker on the target paper, refining your parallel zero as precisely as possible.

6. Your WMLRF 4500 is now zeroed parallel to your scope.

Once the WMLRF 4500 is calibrated, mounted, and zeroed, it must be set up according to your specifications to ensure accurate ballistic solutions for your shooting scenario.

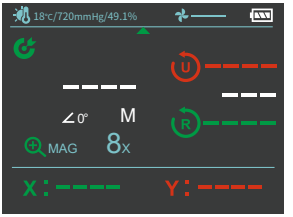
OLED DISPLAY CONTENT



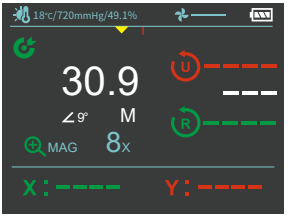
MAIN DISPLAY MODE

Default main display mode: **Only displays distance and angle.**

(When Bluetooth is connected, it automatically switches to the simplified large font mode of online mode, and the trajectory value will be displayed on the screen after measurement.)



Main Display Mode-**UNMEASURED**

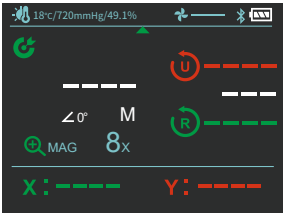


Main Display Mode-**MEASURED**

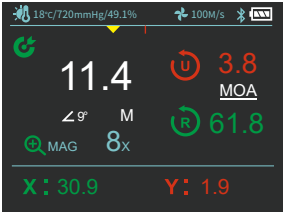
ONLINE MODE

Large Font View

After connecting to the APP via Bluetooth, the device automatically switches to the **Large Font Mode** of **Online Mode**. Press the measure button to take a measurement, and the trajectory value will be displayed on the screen.



UNMEASURED

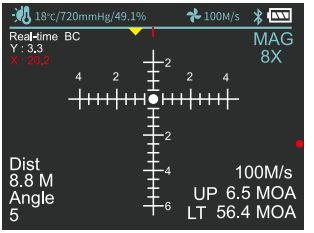


MEASURED

Reticle View

Displays reticle overlay, range data, elevation & windage corrections.

Press the mode button to toggle between Large Font View and Reticle View.



Reticle View

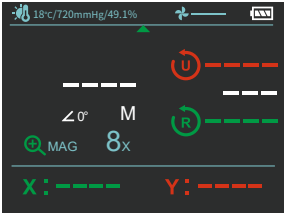
OFFLINE MODE

Basic Offline Interface (No Ballistic Data)

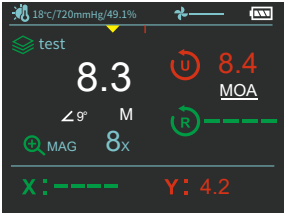
When Bluetooth disconnects under Online Mode, the device automatically enters the Basic Offline Interface (No Ballistic Data). This is only a basic offline screen; no ballistic profile is loaded and ballistic calculation cannot be performed.

Offline Ballistic Interface – Large Font View

To activate offline ballistic calculation, long-press the settings button to open the First-Level Menu, select one saved ballistic profile from the [Ballistic Data] list and confirm. The device loads ballistic parameters and switches to Offline Ballistic Interface – Large Font View.
(For detailed button operation instructions, please refer to the Function Operations on Page 10. For offline ballistic profile transmission, see the APP Tutorial on Page 19.)



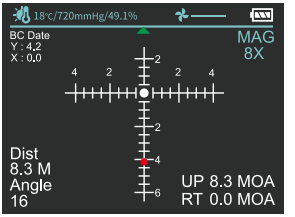
Basic Offline Interface (No Ballistic Data)



Offline Ballistic Interface – Large Font View

Offline Ballistic Interface – Reticle View

After loading the offline ballistic profile and entering the Offline Ballistic Interface, press the mode button to toggle between Offline Ballistic Interface – Large Font View and Offline Ballistic Interface – Reticle View.



Offline Ballistic Interface – Reticle View

Important Rule

If the device stays in the Offline Ballistic Interface (active offline ballistic profile), it will not automatically switch to Online Mode even after Bluetooth reconnection.
To return to Online Mode:
1. Long-press the settings button ● to open the First-Level Menu.
2. Select [Real Time Ballistic] and confirm.
3. The device switches to Online Mode – Large Font View.

Notes

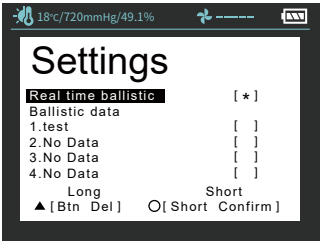
1.The device can locally store up to 4 sets of independent offline ballistic profiles. Profiles can be configured and sent to the device in advance via the OBsmart Ultra APP.

2.Limitation: Offline ballistic calculation only works for targets within 1000 meters. No ballistic correction data will be provided for ranges exceeding 1000 meters.

FUNCTION MENU

First-Level Menu

Press and hold the settings botton ● on any interface in non menu mode to display the First-Level Menu.



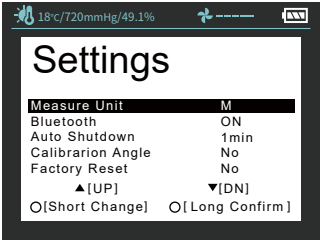
First-Level Menu

To delete a saved dataset, navigate the cursor to Data Table 1, 2, 3, or 4 (ensure the table contains data). Then, press and hold the up button ▲.
To access submenu options for a selected item, press the mode button ● .

FUNCTION MENU

Second-Level Menu

The **Second-Level Menu** can only be accessed by clicking the settings button under the **First-Level Menu**.



Second-Level Menu

In Second-Level Menu, **short-press** the mode button to cycle through the following options:

Measure Unit	Toggles the measurement unit M/Y (Note: Unit switching is disabled in Offline Mode, where the unit depends on the saved offline data)
Bluetooth	Toggles Bluetooth ON or OFF
Auto Shutdown	Cycles through auto-shutdown timer options: **1 min, 3 min, 5 min, 10 min, 15 min, 30 min, 60 min**
Calibration Angle	Switches to Angle Calibration mode (Tip: For best results, place the device on a 0° level surface before calibrating)
Factory Reset	Toggles the Factory Reset confirmation option

To confirm your selection and exit:
Press and hold the mode button . The setting will take effect immediately.

GENERAL INFORMATION FOR OBSMART ULTRA APP

Go to your device's app store and download the OBsmart Ultra App.
From the main screen of the OBsmart Ultra App, you will see these main icons:

ICON	NAME	FUNCTION
	Homepage	Return to the main interface to view current configuration and environmental parameters
	APP settings	Customize your application experience by setting language, units, etc.
	Climate	Display temperature, air pressure, and humidity
	Bullets	Set ballistic coefficient, bullet shape, muzzle velocity, and bullet weight
	Scope	Set zeroing distance, scope height, click value, and magnification
	Ballistic Table	Configure and view ballistic table
	BC Calculation	Enter the ballistic coefficient calculation page
	Equipment List	Manage bluetooth device connections

Download App Guide

Search "OBsmart Ultra" on the App Store (iOS) or Google Play (Android), or scan the QR code to download.

OBsmart Ultra
(Available on iOS & Android)

iOS

Android

Scan QR Code to Download

PAIRING THE WMLRF 4500 TO THE APP

To pair your WMLRF 4500 with your mobile device, ensure the Bluetooth on your mobile device is turned on and the App has been allowed access to your mobile device's location services.

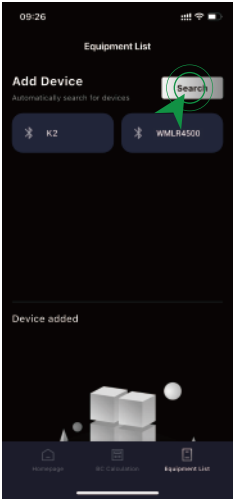
Pairing The WMLRF 4500 To The App

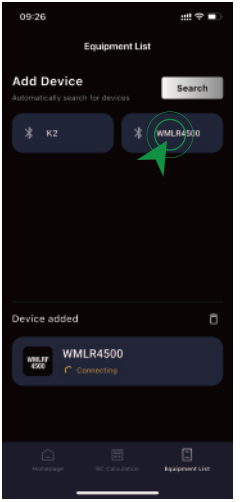
1. Power on the WMLRF 4500.

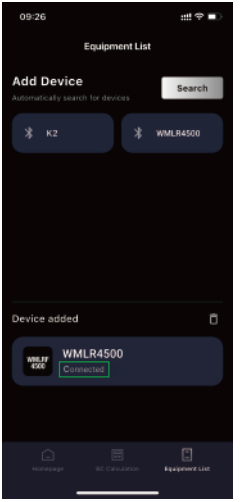
2. Go to the Equipment List page and tap "Search".

3. Select the WMLRF 4500 from the list and tap connect.

4. App and WMLRF 4500 is now connected. Represented by "connected" by WMLRF 4500 device.







APP SETTINGS SELECTION

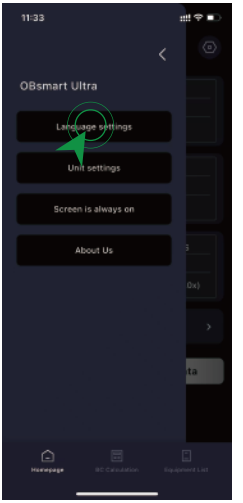
Set Up The Language Settings

1. Go to the Homepage and select Settings.

2. Tap Language settings.

3. Choose your preferred language and tap Save.





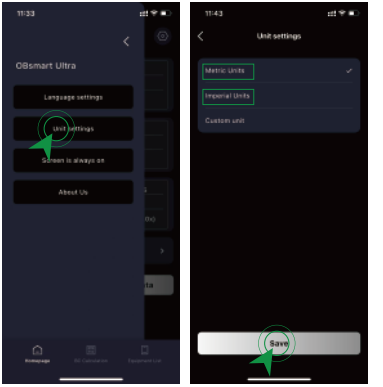


Set Up The Unit Settings

Metric Units / Imperial Units

1. Tap Unit settings.

2. Select Metric Units or Imperial Units, and tap Save.

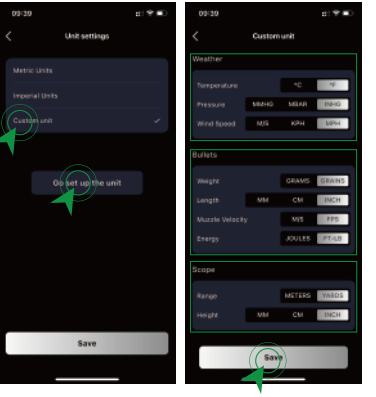


Custom unit

1. Select Custom unit, and tap Go set up the unit.

2. You can freely set each unit (e.g., Temperature, Weight, Speed, Range) according to your preference.

3. Tap Save.

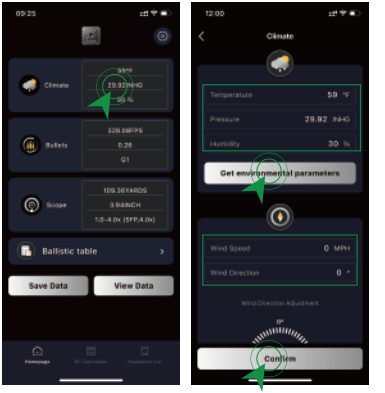


SET UP THE CLIMATE PARAMETERS

1. Tap the Climate module.

2. On the parameter page, manually adjust the values or tap Get environmental parameters to auto-fetch current data.

3. Tap Confirm to save your settings.

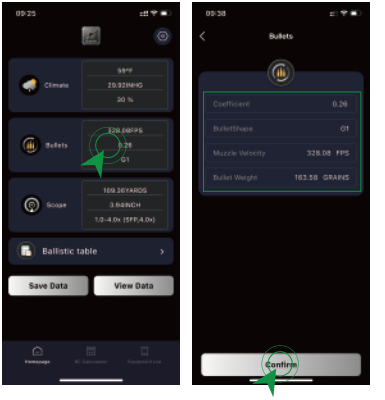


SET UP THE BULLET PARAMETERS

1. Tap the Bullets module.

2. You can enter the Ballistic Coefficient, select Bullet Shape (G1/G7, etc.), set Muzzle Velocity and Bullet Weight.

3. Tap Confirm to save your settings.

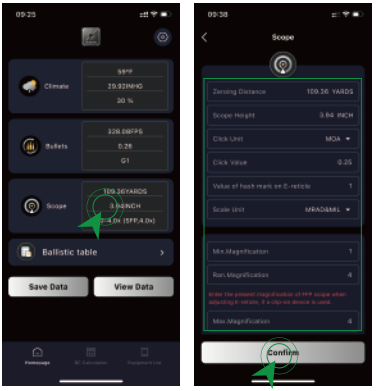


SET UP THE SCOPE PARAMETERS

1. Tap the Scope module.

2. On the parameter page, manually adjust the Zeroing Distance, Scope Height, Click Unit (MOA or MIL), Click Value, E-reticle hash mark value, Scale Unit (MRAD&MIL or MOA), and the Minimum and Maximum Magnification.

3. Tap Confirm to save your settings.

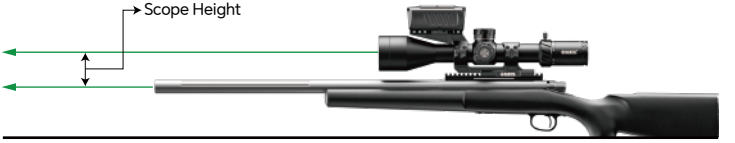


Zeroing Distance

The distance at which you have zeroed your rifle. The measurement units can be set to English (inches) or Metric (centimeters) in the Settings Menu.

Scope Height

Height from the center of the rifle bore to the center of the optic. The measurement units can be set to English (inches) or Metric (centimeters) in the Settings Menu.



Click Unit

Choose the Click Units you would like to have your drop chart displayed with MRAD, MOA. This information will be based off the angular unit of measurement your scope's turrets and reticle are laid out in.

Click Value

The adjustment amount corresponding to each click of the sight knob (in the selected click unit), check the markings on the sight knob, such as "0.1 MRAD" indicating 0.1 MRAD per click.

Value of hash mark on E-reticle

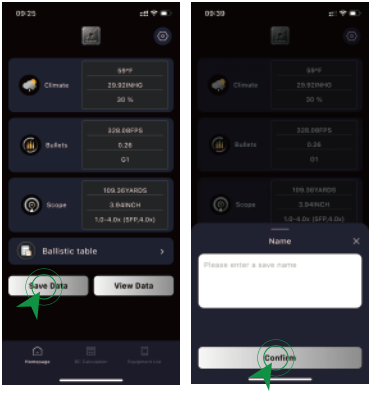
The angle interval value between adjacent scale lines on the electronic reticle (or traditional reticle) of the scope is consistent with the click unit (MRAD or MOA). By referring to the scope manual, confirm the angle value corresponding to each grid on the reticle.

SAVE CONFIGURATION PROFILE

1. Tap Save Data.

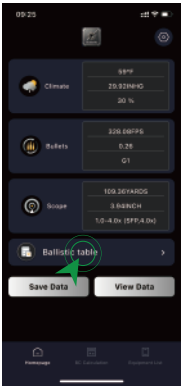
2. Enter a save name for your configuration.

3. Tap Confirm to store all current settings, including Climate, Bullets, and Scope parameters.



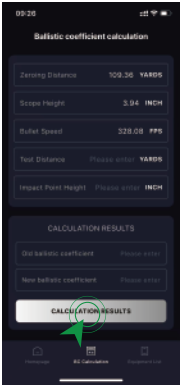
CONFIGURE AND VIEW BALLISTIC TABLE

Go to the Ballistic Table page to switch between Elevation Table and Windage Table, and Transfer Ballistic Data.
In Ballistic Table Settings, set the Start distance, Interval, and display unit (MIL, etc.). After configuration, preview the ballistic correction values for each distance.



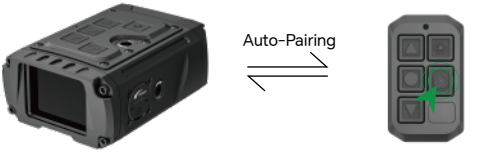
CALCULATE NEW BALLISTIC COEFFICIENT

Go to the BC Calculation page and enter Zeroing Distance, Scope Height, Muzzle Velocity, and optionally Test Distance and Impact Point Height, then enter the old Ballistic Coefficient. The system will automatically calculate a new Ballistic Coefficient for more accurate ballistic matching.



CONNECT REMOTE CONTROL

Press and hold the remote power button for 3 seconds to turn it on. The remote will automatically pair with the rangefinder. Only the first use requires pairing — after that, it will auto-connect every time you turn it on.



RANGEFINDING TIPS

Laser rangefinders work by emitting a brief pulse of light aimed at a target object. Distance is determinedby the amount of time taken for the light to emit and return to the laser's internal receiver. A laser's ability to read range can be affected by many things, mostly relating to the target object.

- Light colors will usually reflect better than dark ones.
- Snow, rain, air quality, and fog will have adverse effects on ranging ability.
- Dull or textured surfaces will not reflect as well as a hard, shiny surface.
- Ranging under cloud cover can improve laser performance compared to bright, sunny conditions.
- Solid objects, such as rocks, will reflect better than bushes.
- Flat surfaces perpendicular to the laser will reflect better than curved surfaces or surfaces angled in relation to the laser.
- Ranging over water can sometimes cause false reflections and readings.
- At longer distances, larger objects will be easier to range than smaller objects.
- Using a stable position or platform with the WMLRF 4500 will greatly increase your ability to range small targets at longer distances.

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