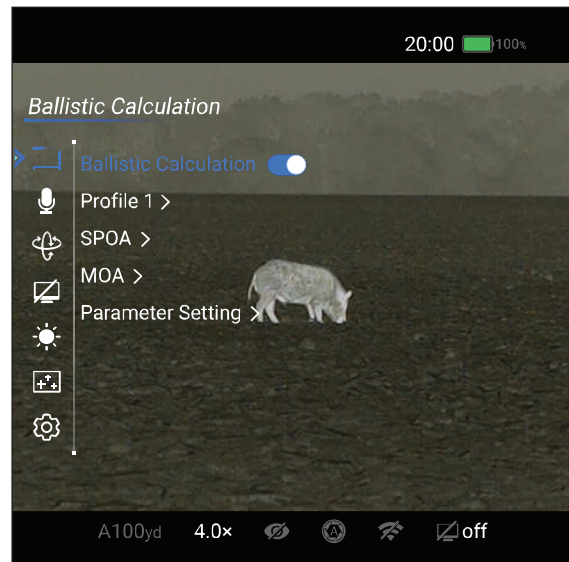# BALLISTIC MENU > BALLISTIC CALCULATION

Turn ballistic calculation on / off

1. In the ballistic submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the ballistic calculation menu item.

2. Short press the **Menu** M **Button** to turn ballistic calculation on / off.

3. Long press the **Menu** M **Button** to confirm the selection and return to the home screen.

BALLISTIC MENU > PROFILE

Select a ballistic profile

1. In the ballistic submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the profile menu item.

2. Short press the **Menu** M **Button** to enter the submenu.

3. Short press the **Up** ▲ or **Down** ▼ **Button** to move through profile options, 1–5.

4. Long press the **Menu** M to confirm the selection and return to the home screen.

NOTE: The ballistic profile name can be customized in the NOCPIX App.

BALLISTIC MENU > SPOA

Set the suggested point of aim (SPOA)
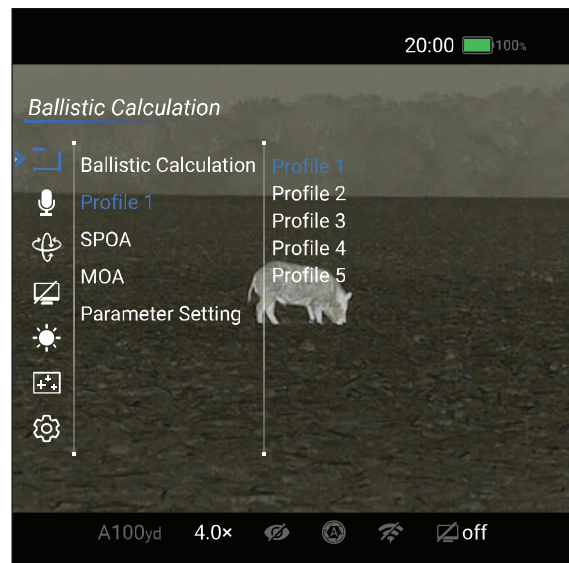
1. In the ballistic submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the SPOA menu item.

2. Short press the **Menu** **M** **Button** to enter the submenu.

3. Short press the **Up** ▲ or **Down** ▼ **Button** to move through the options, "**×**", "**+**", "*****", "**• •● • •**", and Move Reticle.

4. Long press the **Menu** **M** **Button** to confirm the selection and return to the home screen.

NOTE: When SPOA is set to Move Reticle, the ACE will automatically move the original reticle to the suggested point of aim.

BALLISTIC MENU > MOA

Set the measurement to MOA or mil

1. In the ballistic submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the MOA menu item.

2. Short press the **Menu** **M** **Button** to enter the submenu.

3. Short press the **Up** ▲ or **Down** ▼ **Button** to move through the options, MOA and mil.

4. Long press the **Menu** **M** **Button** to confirm the selection and return to the home screen.
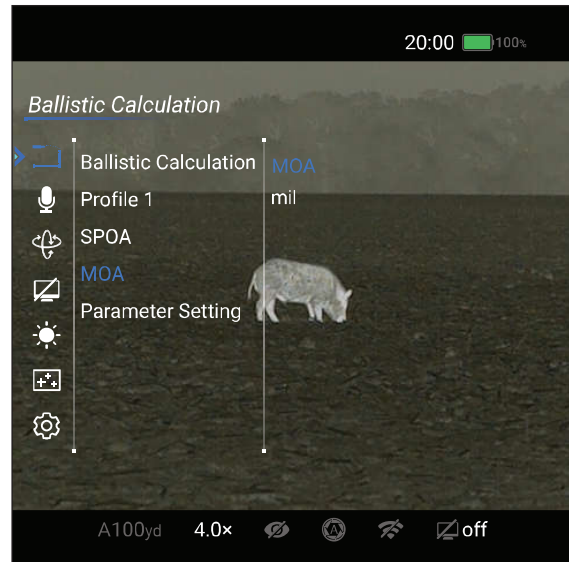
BALLISTIC MENU > PARAMETER SETTING

Set parameters for bullets, rifles, and the environment

1. In the ballistic submenu, short press the **Up ▲** or **Down ▼ Button** to select the parameter setting menu item.

2. Short press the **Menu M Button** to enter the submenu.

3. Short press the **Up ▲** or **Down ▼ Button** to move through the parameters and short press the **Menu M Button** to begin editing a parameter.

4. Short press the **Up ▲** or **Down ▼ Button** to move through the parameter options.

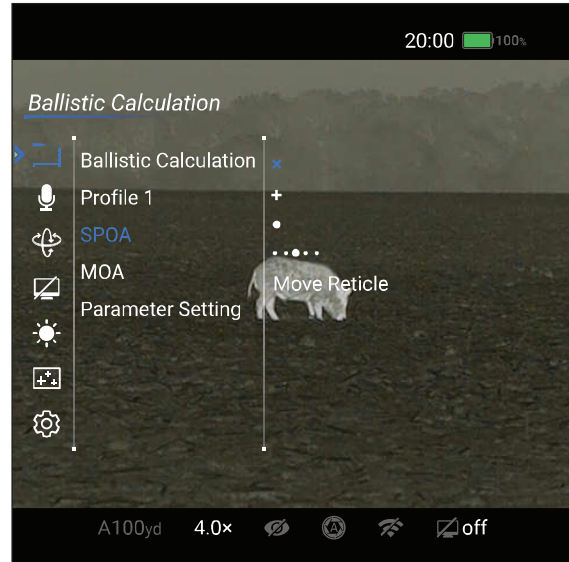5. Long press the **Menu M Button** to confirm the selection and return to the home screen.

NOTES:

- Parameters can be adjusted in the NOCPIX App.
- When SPOA is set to Move Reticle, the ACE will automatically move the original reticle to the suggested point of aim.

Microphone 🎤

Turn the microphone on / off

1. Long press the **Menu M Button** to enter the main menu.

2. Short press the **Up ▲** or **Down ▼ Button** to select the microphone 🎤 menu item.

3. Short press the **Menu M Button** to turn the microphone on / off.

4. When on, the microphone 🎤 icon appears in the lower-right corner of the screen.

5. Long press the **Menu** M **Button** to return to the home screen.

Motion Sensor ⟲

Turn the motion sensor on / off

1. Long press the **Menu** M **Button** to enter the main menu.

2. Short press the **Up** ▲ or **Down** ▼ **Button** to select the motion sensor ⟲ menu item.

3. Short press the **Menu** M **Button** to toggle the motion sensor on / off. When on, the tilt angle appears on the left side of the screen and the pitch angle appears on the right side of the screen.

4. Long press the **Menu** M **Button** to return to the home screen.

   NOTE: The tilt angle is not shown in the figure above because it is hidden by the menu.

Standby ⊡

Turn on automatic standby mode

The RICO 2 may be set to enter standby mode automatically.

1. Long press the **Menu** M **Button** to enter the main menu.
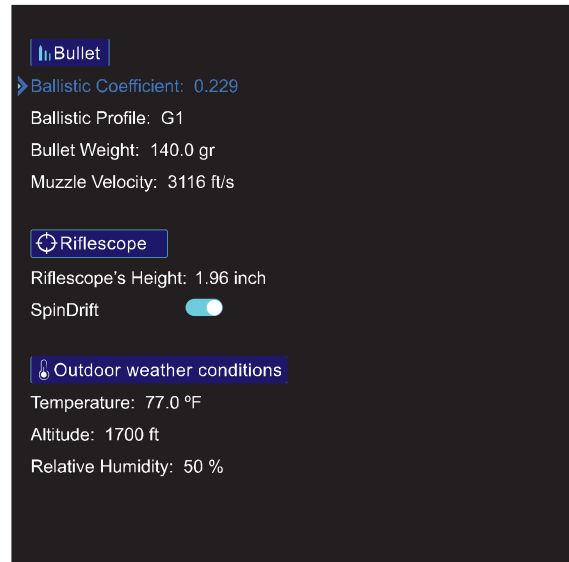
2. Short press the **Up** ▲ or **Down** ▼ **Button** to select the standby ⊡ menu item.

3. Short press the **Menu** Ⓜ **Button** to toggle auto standby on / off When turned on, the RICO 2 will automatically enter standby after about 5 seconds of inactivity.

4. Long press the **Menu** Ⓜ **Button** to confirm the selection and return to the home screen.

NOTES:

· When auto standby mode is turned on:

   · The RICO 2 will enter standby automatically when it is tilted up or down at an angle of more than 70° or left or right at an angle of more than 30°.

   · The RICO 2 will not enter standby mode while in a level firing position.

   · Press any button to exit auto standby.

· When auto standby is turned off, the rifle scope will operate until the batteries run out.

Brightness ☀

Adjust the screen brightness

1. Long press the **Menu** Ⓜ **Button** to enter the main menu.

2. Short press the **Up** ▲ or **Down** ▼ **Button** to select the brightness ☀ menu item.

3. Rotate the zoom lever **(7)** right or left to adjust the screen brightness level, from 0–100%.

4. Long press the **Menu** Ⓜ **Button** to confirm the selection and return to the home screen.
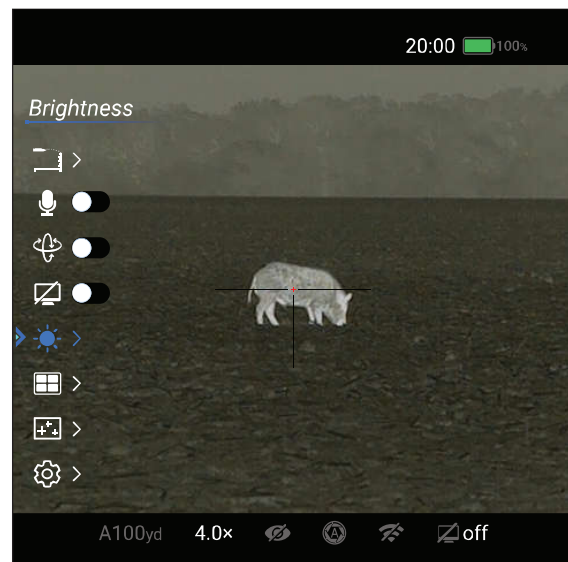
Pixel Defect Correction ⊞

Correct defective pixels

Defective pixels are pixels that do not change correctly compared to the other image pixels—they are either brighter or darker than surrounding pixels. The RICO 2 has a tool that corrects defective pixels on the sensor using its internal software.

1. Long press the **Menu** ⟦M⟧ **Button** to enter the main menu.

2. Short press the **Up** ⟦▲⟧ or **Down** ⟦▼⟧ **Button** to select the pixel defect correction ⊞ menu item. Short press the **Menu** ⟦M⟧ **Button** to enter the pixel correction interface.

3. The interface has the following features:

   1 **Pixel Cursor** ╬ : Appears in the center of the screen in place of the reticle. Move the cursor to the position of the defective pixel.

   2 **PIP Window:** Appears in the lower-left corner.

   3 **Navigation Cursor** ❯ **Icon:** Shows the cursor position in the interface.

   4 **X-Axis** ↔ **Icon:** Select to move the cursor horizontally.

   5 **Y-Axis** ↕ **Icon:** Select to move the cursor vertically.

   6 **Add** ⊕ **Icon:** Select to add a defective pixel to the "to be corrected" list.

   7 **Automatic Pixel Correction** ⊞ **Icon:** Select to automatically correct all defective pixels.
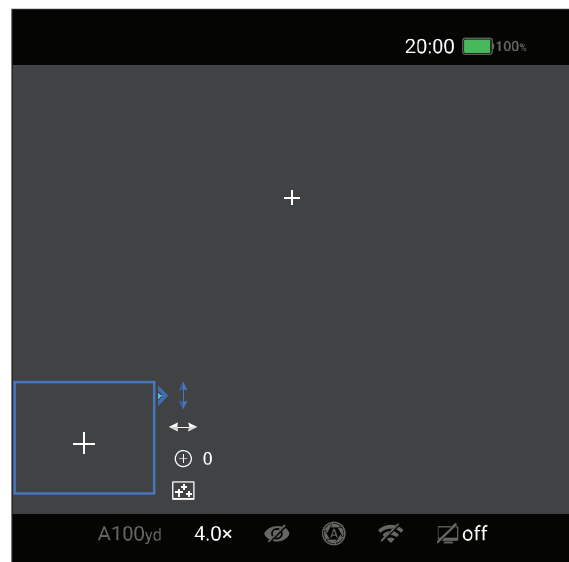
To auto-correct defective pixels:

1. Short press the **Up** ⏶ or **Down** ⏷ **Button** to move to the automatic pixel correction ⊞ icon.

2. Short press the **Menu** Ⓜ **Button** to correct all defective pixels automatically.

   NOTE: If the algorithm fails to locate all defective pixels, it may be necessary to manually correct additional pixels.
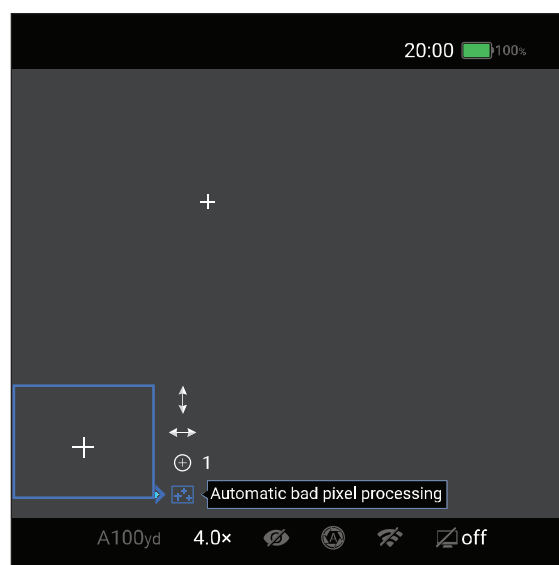
To manually select and correct defective pixels:

1. Select the axis (X or Y) along which to move the cursor:

   a. Short press the **Up** ⏶ or **Down** ⏷ **Button** to move between **X** and **Y**. The cursor position is indicated by a blue arrow ▸ icon.

   b. Short press the **Menu** Ⓜ **Button** to select X or Y. The selected axis will change from white to blue. Move the cursor along the selected axis to the location of the defective pixel:

   c. Use the **Up** ⏶ **Button** to move in the positive direction: X= Right and Y= Up.

   d. Use the **Down** ⏷ **Button** to move in the negative direction: X= Left and Y= Down.

   e. Short press the **Up** ⏶ or **Down** ⏷ **Button** to move the cursor in the corresponding direction by 1 pixel; long press to move 10 pixels.
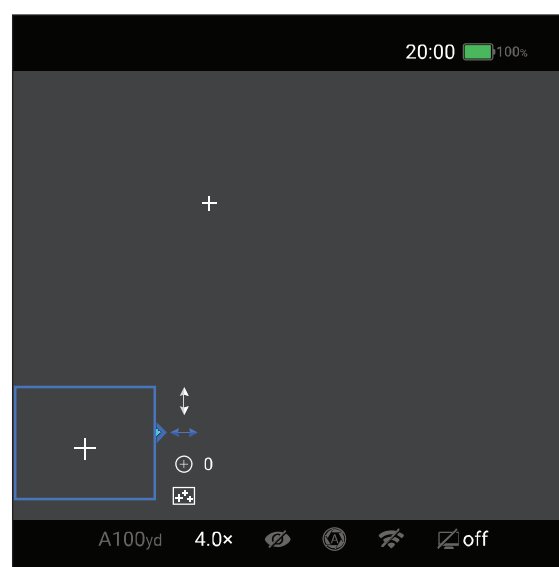
2. Short press the **Menu** $\boxed{\text{M}}$ **Button** to save the position for the selected axis and deselect it. When deselected, the axis will change from blue to white.

3. Move to and select the second axis and adjust the cursor position, as needed.

4. Add the pixel to the "to be corrected" list:

   a. With the cursor in position, short press the **Menu** $\boxed{\text{M}}$ **Button** to deselect the axis of movement.

   b. Press the **Up** $\boxed{\blacktriangle}$ or **Down** $\boxed{\blacktriangledown}$ **Button** to move to the add $\oplus$ icon.

   c. Short press the **Menu** $\boxed{\text{M}}$ **Button** to add the pixel. The number of pixels to the right of the add icon will increase to indicate that one pixel has been added to the list.

   d. If the defective pixel has been added in error, short press the **Menu** $\boxed{\text{M}}$ **Button** a second time from the same X/Y coordinates (do not move the cursor) to remove the pixel from the "to be corrected" list. The number of pixels shown to the right of the add icon will decrease to indicate the pixel has been removed.

5. Repeat steps 1–5 to add additional defective pixels as needed. Short press the **Power** $\boxed{\text{⏻}}$ **Button** to exit the interface without saving; **OR**
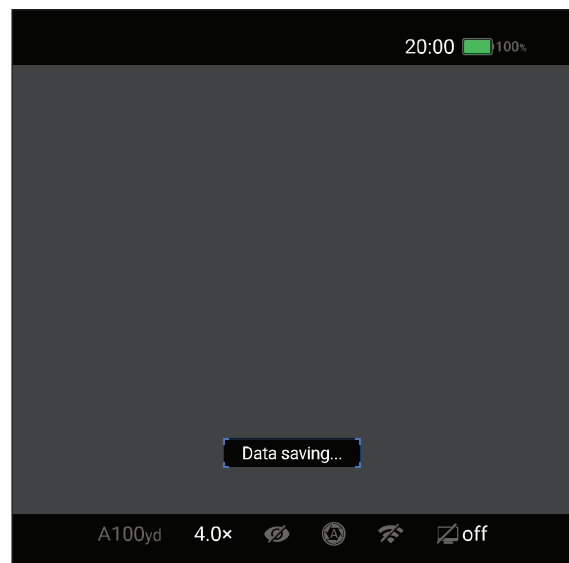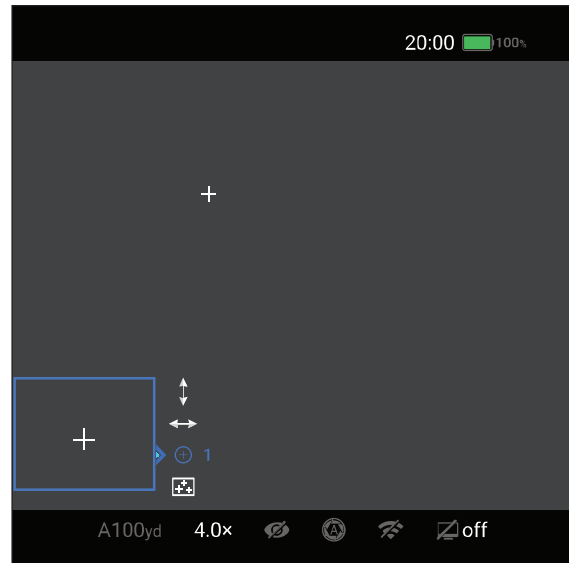
6. When all defective pixels have been added to the list, long press the **Menu** Ⓜ **Button** to confirm changes.

7. "Data saving.." will appear at the bottom of the screen and the system will exit to the home screen.

 NOTE: The PIP window and controls move to the upper-left corner when the cursor moves into the lower-left corner.

Settings Menu ⚙

Adjust the general settings

1. Long press the **Menu** Ⓜ **Button** to enter the main menu.

2. Short press the **Up** ▲ or **Down** ▼ **Button** to select the settings ⚙ menu item.

3. Short press the **Menu** Ⓜ **Button** to enter the settings submenu.

SETTINGS MENU > DATE 📅

Set the date

1. In the settings submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the date 📅 menu item.

2. Short press the **Menu** Ⓜ **Button** to edit the date. A blue arrow will appear above and below the year digit. The date is displayed in YYYY. MM.DD format.

3. Short press the **Up** ▲ or **Down** ▼ **Button** to select the correct value for each digit (year, month, and day).

4. Short press the **Menu** Ⓜ **Button** to switch between digits. The two arrows move to indicate the selected digit.

5. Long press the **Menu** Ⓜ **Button** to save the date and return to the home screen.

SETTINGS MENU > TIME 🕐

## Set the time

1. In the settings submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the time 🕐 menu item.

2. Short press the **Menu** **M** **Button** to edit the time. A blue arrow will appear above and below the hour digit. The time is displayed in HH.MM, in 24–hour format.

3. Short press the **Up** ▲ or **Down** ▼ **Button** to select the correct value for each digit (hour and minute).

4. Short press the **Menu** **M** **Button** to switch between digits. The two arrows move to indicate the selected digit.

5. Long press the **Menu** **M** **Button** to save the time and return to the home screen.

6. The time appears in the status bar.

SETTINGS MENU > UNIT 🅼⁄🆈

Set the units of measurement

1. In the settings submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the unit 🅼⁄🆈 menu item.

2. Short press the **Menu** **M** **Button** to enter the submenu.

3. Short press the **Up** ▲ or **Down** ▼ **Button** to move through unit options, meters and yards. The selected units, m (meters) or y (yards), display along with the selected zero profile and distance in the bottom status bar.
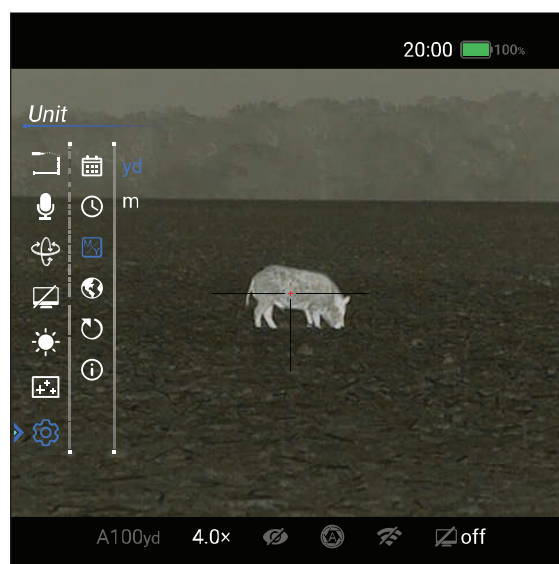
4. Long press the **Menu** ▣ **Button** to confirm the selection and return to the home screen.

SETTINGS MENU > LANGUAGES 🌍

Select the languages

1. In the settings submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the languages 🌐 menu item.

2. Short press the **Menu** ▣ **Button** to enter the submenu.

3. Short press the **Up** ▲ or **Down** ▼ **Button** to move through the language options.

4. Long press the **Menu** ▣ **Button** to confirm the selection and return to the home screen.

SETTINGS MENU > FACTORY RESET ↻

Restore factory default settings

1. In the settings submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the factory reset ↻ menu item.

2. Short press the **Menu** ▣ **Button** to enter the factory reset submenu.

3. Two options, Yes and No, appear; Yes will restore factory settings and No will cancel the operation. No is selected by default.

4. Short press the **Menu** ▣ **Button** to select **Yes** to confirm the factory reset. Factory settings will be restored and the RICO 2 will reboot automatically; **OR**

5. Short press the **Up** ▲ or **Down** ▼ **Button** to select **No** and short press the **Menu** Ⓜ **Button** to confirm cancellation of the factory reset and return to the submenu.

 FACTORY RESET NOTES:

· The screen will go dark and the factory restart will begin after a pause of about 20 seconds.

· A factory reset cannot be undone.

· The settings listed below will be reset to the factory defaults:

· Color Palette: White Hot
· Image Sharpness: 5
· Image Brightness: 5
· Image Contrast: 5
· Magnification: 3×
· Ultra-Clear mode: Off
· Wi-Fi: Off
· Calibration: Automatic
· Motion Sensor: Off
· Zeroing Profile: A

· Reticle Type: 1
· Reticle Color: Black Red
· Microphone: Off
· Standby: Off
· Screen Brightness: 50%
· Language: English
· Unit: Meters
· Wi-Fi Password: 12345678
· Wi-Fi SSID: RICO2_YYYY_XXXXXXX

SETTINGS MENU > INFO ⓘ

Show device information

1. In the settings submenu, short press the **Up** ▲ or **Down** ▼ **Button** to select the info ⓘ menu item.

2. Short press the **Menu** Ⓜ **Button** to enter the submenu.

3. The info submenu will display the following information about the RICO 2.

4. Long press the **Menu** Ⓜ **Button** to save and return to the home screen.

Info

RICO2
GUI: 3.3.1
FPGA: 1.15
UBOOT: 0.0
KERNEL: 0.1
ROOTFS: 1.12
PN: A406900-100-0011
SN: A4091-BAK1022
HW_VER: V1.0_D
FCC ID: 2BHFB-RICO2-00

20:00 100%

A100yd 4.0× off

23. Warranty

At iRayUSA we're first and foremost hunters and users of our products and we understand that failure isn't an option. We also understand that having to wait extended periods for repair isn't something that a customer should have to put up with when something does go wrong. During your published warranty period, iRayUSA will repair or replace, at its discretion, any optic that becomes defective during normal use. Additionally, if we cannot fix your optic in less than one week, we will offer to replace it with a replacement product in like or better condition. If you would rather wait for your specific optic to be repaired, we can handle that too. We know you've never seen this from a thermal manufacturer and neither have we; that's why we started iRayUSA.

Our warranty follows the product and is not tied to the original owner. The warranty period is tied to the date of sale to the dealer. This warranty only covers normal use and does not cover cosmetic damage, normal wear, intentional damage, theft, loss, any act of God, or a condition caused by use other than intended. Any product that is modified, opened, or tampered with will void any warranty coverage. Any serial number damage or alteration on the product will be considered a modification. Be sure to register your RICO 2 rifle scope at irayusa.com/register.

To return a product for repair:

1. Go to irayusa.com/warranty and click the **Request an RMA button** to request an RMA number. Returns will not be accepted without an RMA.

2. The customer is responsible for shipping the product to iRayUSA, per the instructions included with the RMA. iRayUSA will return the product at no cost.

WARRANTY NOTES:

- The one-week timeline starts from the time of receipt of the product at iRayUSA.

- iRayUSA is not liable for any damages or loss incurred when shipping to iRayUSA.

- This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Please give us a call at **800-769-7125**, visit irayusa.com/warranty, or email info@irayusa.com with any questions.

24. Basic Inspection

It is recommended to carry out a technical inspection before each use. Please check the following:

·   The rifle scope appearance: there should be no cracks in the body or visible damage.

·   The condition of the objective lens and eyepiece: there should be no cracks, greasy spots, dirt, or other deposits on the lens.

·   The internal battery pack should be fully charged.

·   The control buttons should be in working order.

25. Basic Maintenance

Always replace the objective lens cap **(1)** after use to avoid damaging or scratching the lens. Never touch the lens directly; oil from your skin can damage the lens coating and surface.

Basic maintenance should be carried out at least twice a year and includes the following steps:

·   Wipe the surface of the external metal and plastic components with a clean, dry cotton cloth. Do not use chemical, corrosive, or abrasive cleaners. Canned air may also be used to clean the external components.

·   Clean the electric contacts and battery slots on the rifle scope using a non-greasy organic solvent.

·   Check the lens and eyepiece. If necessary, remove any dirt or sand from the optics; a non-contact cleaning method is preferred.

·   Cleaning the exterior of the lens should only be done with the included microfiber lens cloth or a similar product. Only clean the lens when it is visibly soiled. Frequent wiping or cleaning can degrade the anti-reflective lens coating.

26. FCC Statement

FCC ID: 2BHFB-RICO2-00

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by IRayUSA 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 into 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.

This device was tested for typical body-supported operations and use. To comply with RF exposure requirements, a minimum separation distance of 0cm must be maintained between the user's body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

27. General Troubleshooting

The troubleshooting table below lists issues that may occur when operating the RICO 2. Carry out the recommended troubleshooting steps in the order shown in the table.

Please contact iRayUSA at 800-769-7125 or **irayusa.com/support** or an authorized vendor for assistance before attempting to perform any modifications or repairs beyond the scope of the troubleshooting procedures in this manual. Unauthorized repairs or modifications will void your warranty.

ISSUE	POSSIBLE CAUSES
The RICO 2 will not turn on.	The IBP-5 battery is very low or completely discharged.
The RICO 2 can not connect to a computer or external power supply.	External power supply has completely discharged.
	Computer is turned off.
	USB-C or magnetic charging cable is damaged.
The RICO 2 can not connect to the mobile device (smartphone or tablet).	Wi-Fi is not turned on.
	Wrong Wi-Fi password entered.
	Too many Wi-Fi signals nearby, which may cause interference.
Wi-Fi signal is lost or interrupted.	The device is out of range of a strong Wi-Fi signal, or there are obstacles (such as concrete walls) between the device and the signal.
Image is blurry, background is uneven, or vertical lines or artifacts are present.	Non-uniformity correction is required.
The image is too dark.	Screen brightness level is too low.

28. Notes

TROUBLESHOOTING STEPS
Charge the battery pack.
Check the external power supply and charge it if necessary.
Power on the computer.
Replace the cable.
Turn on the Wi-Fi in the main menu. See **Main Menu > Wi-Fi** on page 40.
On the mobile device, go to **Settings > Wi-Fi** and enter the correct password. The default password is 12345678. See **Main Menu > Wi-Fi** on page 40.
Move the RICO 2 and mobile device to an area with no or fewer Wi-Fi signals.
• Try again when the Wi-Fi signal is stable. • Move the RICO 2 closer to the Wi-Fi signal.
Perform a non-uniformity correction. See **Non-uniformity Correction** on page 22 and See **Using the Quick Menu** on page 18.
Adjust the screen brightness in the menu. See **Main Menu > Brightness** on page 47.

ISSUE	POSSIBLE CAUSES
The GUI is clear, but the image is blurry.	The lens is not focused.
	There is dust or ice on the interior or exterior optical surfaces of the lens.
	There is condensation on the interior or exterior optical surfaces of the lens.
The aiming reticle shifts after firing rounds.	The RICO 2 is not mounted securely or the mount is not secured on the RICO 2.
Observed target disappears.	Observing the target through glass.
The RICO 2 will not focus.	Image settings are not optimal for the current environmental conditions or the object being observed.
Image quality is low or the detection range is reduced.	Environmental conditions, such as snow, rain, humidity, and fog.
When the RICO 2 is used in low-temperature conditions, the image quality of the surroundings is worse than in warm-temperature conditions.	Environmental conditions.

TROUBLESHOOTING STEPS

- Adjust the focus on the target by rotating the objective focus knob **(2)**.
- Adjust the image sharpness in the quick menu. See **Using the Quick Menu** on page 18.

- Wipe the external optical surface with the included microfiber lens cloth.

- Wipe the external optical surface with the included microfiber lens cloth.
- Allow the RICO 2 to dry by leaving it in a warm, dry environment for at least 4 hours.

- Check that the RICO 2 has been securely mounted.
- Make sure you are using the same brand, type, and weight of the bullets as when the RICO 2 and weapon were initially zeroed.
- If the RICO 2 was zeroed in different environmental conditions, a slight shift of the zero is possible.

Remove any glass windows from the field of view.

- Check the external surface of the objective lens and eyepiece and, where necessary, wipe away any dust, condensation, frost, etc.
- In cold weather, you can use special anti-fogging coatings, such as those made for corrective glasses.
- Adjust the focus on the target by rotating the objective focus knob **(2)**.
- Adjust the image sharpness in the quick menu. See **Using the Quick Menu** on page 18.
- Adjust the image and device settings. See **Quick Start Guide** on page 8.
- Turn on Ultra-Clear mode. See **Main Menu > Ultra-Clear** on page 31.

Turn on Ultra-Clear mode. See **Main Menu > Ultra-Clear** on page 31.

In warm-temperature conditions, objects being observed (surroundings and background) heat up differently because of thermal conductivity, thereby generating a high-temperature contrast. Accordingly, image quality produced by the rifle scope will be higher. In low-temperature conditions, the background will cool down to roughly the same temperature, and thus the temperature contrast is substantially reduced and image detail can go down as there is less contrast in the scene. This is a normal function of a thermal imager and is no indicator of actual detector performance.

Nocpix