INFIRAY OUTDOOR
BOLT SERIES

Bolt Action Optimized Thermal Rifle Scope

InfiRay Outdoor

TABLE OF CONTENTS

1. OVERVIEW

The BOLT Series was designed for optimal use on bolt action rifles and other platforms that demand flexible mounting options and increased eye relief. The T-6061 aluminum housing of the BOLT allows mounting with standard 30mm rings like a traditional day scope. Inside of the BOLT, a 50Hz 12um detector, HD Display and manual focus lens all team up to create an image that's anything but traditional. BOLT features a dual battery design for 10+ hours of run time, and has 16 Gb of memory to keep your optic going all night, even after your hunting buddy falls asleep.

2. FEATURES

- 12μm iRay Micro II thermal sensor
- High resolution HD display
- Variable e-zoom magnification
- Dual power supply solution for extended operation
- Traditional 30mm diameter housing design
- Stadiametric rangefinder
- 1750 yard detection range
- 50Hz image refresh rate
- 16 Gb internal storage
- WIFI module for external connectivity to App
- Digital compass and gravity sensor
- Picture in Picture (PIP)
- Defective pixel correction
- Extended eye relief
- User-friendly interface

3. TECH SPECS

BOLT SERIES	BOLT 384 35mm
SENSOR	
Resolution	384x288
Pixel Size	12 μm
Framerate	50hz
Image Processing	MATRIX III
Core	iRay Micro II 384
OPTICS	
Objective Lens	35mm F1.1
Magnification	3X
Digital Zoom	4X, stepped
FOV	7.5° x 5.7°
Detection Range	1750 Yards
Display Type	LCOS
Display Resolution	1280x960
Imaging Modes	White Hot, Black Hot, Red Hot, Color, Highlight
Reticle Types	7 (2 Dynamic, 5 Static)
Reticle Colors	Black, White, Red, Green
Mounting System	30MM Rings (included)
P.I.P.	Yes
Rangefinder	Stadiametric
Eye Relief	70mm
Diopter Range	-5 - +5
ELECTRONICS	
Onboard Recording	Video and Image, no Audio
Wireless Connectivity	Image/video via App.
Data/Power Connector	USB-C
Power Supply	Built-in battery pack, 8 Hours 18500 battery (+2 Hours), 18650 battery (+3.5 Hours)
Start Up Time	> 10 Seconds, Instant from Standby
PHYSICAL	
Size	15.74"×3.34"×2.55"
Weight	32.87 Oz
ENVIRONMENTAL/WARRANTY	
Warranty	5 Years
Housing Material	T-6061 Aluminum
Ingress Protection	IP67
Operation Temp	-4°F~122°F
Max. Recoil	1000 g/s^2 (300 Win./7mm Mag)

4. ACCESSORIES:

The BOLT ships with everything you need to get out and hunt. The included items are as follows:

- BOLT Series Thermal Imaging Riflescope
- Eyeshade
- 30mm Ring Mounts for Picatinny rail
- Soft case
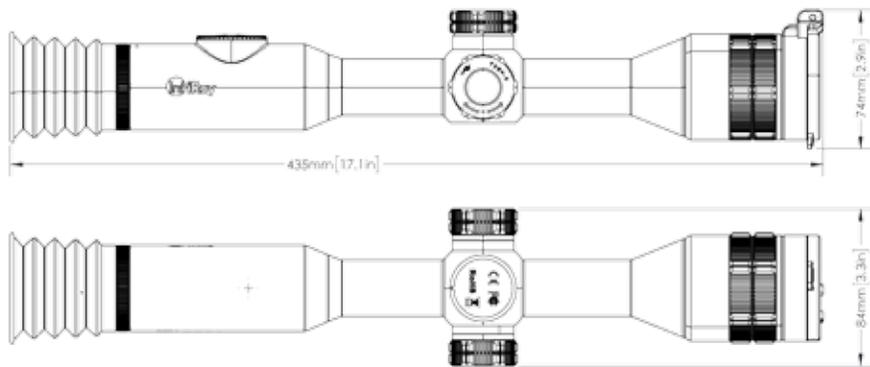- USB-C cable for data/video
- Wall adapter
- Lens cloth

Optional accessories for the BOLT series are available to customize your experience and those include:

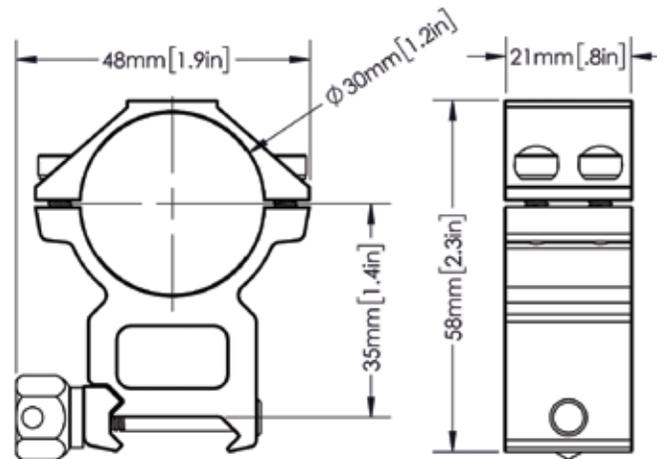| PART NUMBER	DESCRIPTION
IRAY-AC08	USB-C to Analog RCA/USB Cable 36"
IRAY-AC12	Objective Lens Cap 50mm
IRAY-AC18	BOLT Standard Scope Mount Rings
IRAY-AC30	16500 Battery for BOLT
IRAY-AC37	BOLT 18650 Battery Extender

Figure 4-1. Product Photo

Figure 4-2. Product Dimensions

Figure 4-3. IRAY-AC18**:** BOLT Standard Scope Mount Rings

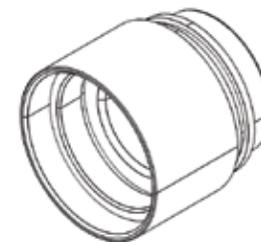**Figure 4-3.** IRAY-AC30**:** 16500 Battery for BOLT

Figure 4-4. IRAY-AC37**:** BOLT 18650 Battery Extender

5. COMPONENTS AND CONTROLS

1 Eyeshade
2 Eyepiece diopter adjustment ring
3 Photography button
4 Brightness button
5 Power button
6 Palette button
7 Controller Turret
8 USB cover
9 USB-C port
10 LED indicator light
11 Extended battery cover
12 18500/18650 battery (*optional/not included)
13 Objective lens focus ring
14 Objective lens cap
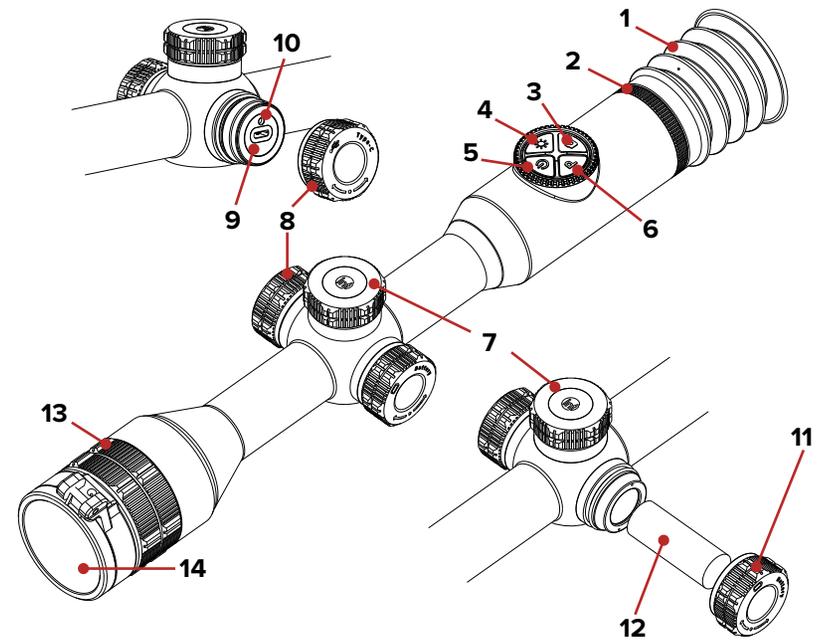
6. Description of Controls

BUTTON	STATUS/CURRENT OPERATION MODE	SHORT PRESS	LONG PRESS	ROTATION
POWER BUTTON	Switched off	——	Power on the device	——
	Home screen	Calibrate the detector	Power off / Standby the device	——
	Standby mode	Wake up the device	——	——
	Main menu	Exit menu without saving	——	——
	Defective pixel calibration	Add/Delete defective pixel	——	——
PALETTE BUTTON	Home screen	Switch the image palette	Switch PIP on/off	——
BRIGHTNESS BUTTON	Home screen	Adjust screen brightness	Switch on/off Stadiametric Rangefinder	——
PHOTOGRAPHY BUTTON	Home screen	Image capture	Start/Stop video recording	——
CONTROLLER TURRET	Home screen	Enter Shortcut Menu	Enter the Main Menu	Smooth zooming
	Shortcut menu	Adjust parameters	Home screen	Switch menu options/Change reticle location
	Main menu	Confirm	Home screen	——
	Pixel defect calibration/Zeroing	Switch X/Y axis	Save & Exit to Home Screen	——

7. BATTERY PACK

The BOLT Series has a dual power supply: an internal rechargeable li-ion battery pack and a replaceable 18500/18650 battery. The dual-battery system supports a run time of 10 hours. Please ensure the battery is fully charged before the first use.

CHARGING INTERNAL BATTERY PACK
Open the USB cover **(8)** by turning it counterclockwise and plugging the USB-C cable **(15)** to the USB-C port **(9)** on BOLT.

Connect the USB cable **(15)** to a power adapter or USB bank for charging.

When charging, there will be an icon that appears in the shape of a charging battery. While charging, the charging indicator LED **(10)** of BOLT will turn red. When this LED changes to green the battery is fully charged.

You can charge and operate BOLT at the same time.

NOTE: Only the internal battery pack will be charged while charging via USB port.
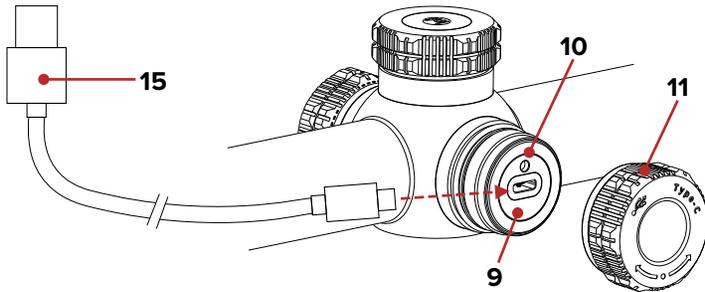

INSTALLING AN 18500 OR 18650 BATTERY
(*OPTIONAL/NOT INCLUDED)

Turn the battery cover **(11)** counterclockwise and remove it.

Install battery **(12)** into the battery compartment following the signs inside the battery compartment: Positive terminal in and negative terminal out.

If using an 18650 battery, please install the adaptor before installing the battery or attempting to install the battery cover **(11)**.

Close the battery cover **(11)** by turning it clockwise.
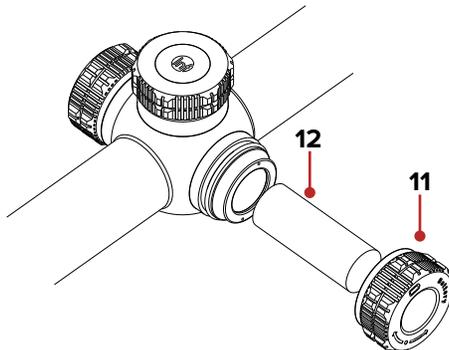
8. SAFETY PRECAUTIONS

Please charge the BOLT with only a standard USB adapter (5V/2A) as included in the package. Using any other types of adapters may lead to irreversible damage to the battery, adapter, or scope. This damage is not covered under warranty.

If your BOLT has been stored for an extended period, it should be charged before initial use.

> **WARNING**
> • Avoid storing a fully charged or discharged battery for extended periods.
>
> • Don't charge an extremely cold battery without bringing it into a warm environment.
>
> • Do not use any charger that has been modified or damaged.
>
> • Charge the BOLT at a temperature range from 30°F to 100°F, otherwise the battery life will be reduced significantly.
>
> • Let the battery warm up for 45 mins before charging. Do not leave the BOLT unattended while charging.
>
> • Avoid leaving the BOLT connected to the adapter for extended periods after it has been fully charged.
>
> • The BOLT has a short-circuit protection system. However, any situation that may cause short-circuiting should be avoided.
>
> • The recommended operation temperature range for BOLT is -4°F~122°F, Avoid operating out of this temperature range, otherwise you may experience a shortened battery life.
>
> • When operating the BOLT at subzero temperature the capacity of the battery will decrease. This is considered normal operation and should not be considered a defect.

9. SWITCHING BATTERY POWER SUPPLY

The BOLT Series has a dual power supply system with an internal li-ion battery pack and a replaceable battery.

If there is a replaceable battery in BOLT, two battery icons are displayed in the status bar (the replaceable battery is on the left, the internal battery is on the right). The battery from which the BOLT is powered is displayed in green, and the inactive battery is displayed in gray.

If there is no replaceable battery in the BOLT , only one green battery icon will be displayed in the status bar.

When both batteries are fully charged, the BOLT will select the replaceable battery as its primary power source. If the power of the replaceable battery is low, or the replaceable battery is removed, the BOLT will automatically switch to its internal battery as its primary power supply. Operation will not be interrupted during this time as the BOLT will automatically switch its power supply to the internal battery.

When charging the BOLT using the USB-C port **(9)**, it will switch to an external USB power supply and continue charging the internal battery. A charging icon will also appear inside the internal battery icon.

10. EXTERNAL POWER SUPPLY

The BOLT series will support an external power supply, such as mobile Power Bank (5V/3A).

Connect the external power supply to the USB-C port **(9)** on the BOLT. The BOLT will automatically switch to an external power supply and automatically charge the internal battery pack.

When the external power supply is turned off, the BOLT will switch to the replaceable battery first without turning off. If there is no replaceable battery or low power level in the battery, the BOLT will switch to the internal battery pack as its primary power supply.

11. OPERATION

INSTALLING THE BOLT ON THE WEAPON

To ensure accurate results, please first properly mount the BOLT series on your rifle.

The BOLT series riflescope is mounted using traditional 30mm ring mounts, such as the ring mounts included in the package. Follow the ring manufacturer's installation instructions and torque the ring caps to 20 in/lbs. A torque driver is required to control the torque

When mounting the BOLT on a rifle, adjust its position so that proper eye relief is achieved (70 mm). Failure to comply with this recommendation may result in injury to the shooter by the eyepiece when shooting.

It is recommended to install the BOLT as low as possible for a proper cheek weld, but also avoid any contact with the barrel or receiver.

After mounting, but before hunting with the BOLT, please refer to the Zeroing section in this manual for instructions on how to zero your BOLT.

WARNING!
Don't point the objective lens towards any intense energy sources, such as laser radiation or the sun. This may render the electronic components inoperative. The warranty does not cover damage caused by improper operation.

POWER ON AND IMAGE SETTINGS

Open the lens cover **(14)**.

Press the Power Button **(5)** for 2 seconds to power the BOLT on.

Rotate the diopter adjustment ring **(2)** of the eyepiece to adjust the clarity of icons on the display.

Rotate the objective lens focus ring **(13)** to focus on the object being observed.

Set image mode in the home screen with a short press the Palette Button

(6): White Hot, Black Hot, Color, Red Hot and Target Highlight.

Adjust the screen brightness on the home screen with a short press the Brightness Button **(4)** from level 1 to 5.

Short press the controller turret **(7)** to set image sharpness (for more details, refer to the Shortcut Menu section).

Select the desired calibration mode in the main menu: **Automatic (A)**, **Manual (M)** and **Background (B)**. The default mode is Automatic.

Calibrate the image with a short press of the Power Button **(5)**. Close the objective lens cover **(14)** first if using the background calibration mode.

12. ZEROING

BOLT series feature the use of the "Freeze" zeroing method. To set your zero using this method, follow these steps:

First, confirm that the rifle is empty, safe and pointed in a safe direction, with no ammunition near the weapon.

Set a suitable target at your desired zero distance.

Adjust the image according to the Powering On and Image Settings section.

Select your units of measure, either Meter or Yards, in the settings menu. Yards will default to inches of adjustment.

Select your zeroing profile (refer to Zeroing Profile in Main Menu).

Press and hold down the controller turret **(7)** to enter the Main Menu.

Rotate the controller turret **(7)** to select Zeroing. Briefly press the controller turret **(7)** to confirm the selection and enter the submenu.

Based on the distance to your target, select a zeroing distance in the zeroing submenu, or add a new distance (refer to Zeroing – Reset Zeroing Distance of the Main Menu function). (See pg 18)

After setting the zeroing distance, rotate the controller turret **(7)** to select the Zeroing option. Short press the controller turret **(7)** to enter the zeroing interface (see the Main Menu "Zeroing - Zeroing Distance - Zeroing Interface"). The X and Y coordinates of the reticle are displayed in the upper left corner of the screen.

Ensure a stable platform and natural shooting position is achieved behind the rifle.

Aim, shoot and observe the location of impact on the target.

If the impact point does not match the aiming point (the center of the reticle), keep the reticle centered on the aiming point, then press and hold down the Palette Button **(6)** and Photo Button **(3)** at the same time until a freeze symbol ❄ appears on the left of the screen, and the image is frozen.

Move the reticle by rotating the controller turret **(7)** until the reticle matches the point of impact. Rotate clockwise to move the reticle left or down and counter clockwise to move the reticle right or up.

Note: the X-axis (horizontal) is your windage and the Y-axis (vertical) is your elevation.

When moving the reticle, a white dot will appear on the screen representing the original position of the reticle.

Briefly press the controller turret **(7)** to switch the movement direction between X and Y. The location of the cursor represents the current selected option, and the icon turns blue.

When the reticle moves to the impact point, press and hold the controller turret **(7)** to save the new position of the reticle and exit to the home screen.

Take a confirmation shot – the point of impact should now match the aiming point. If not, repeat the process above.

13. CALIBRATION

Calibration is needed by all thermal imagers as it allows the detector to correct its pixels and eliminate any image defects such as vertical bars or phantom images caused by pixel drift. There are three calibration modes: Automatic **(A)**, Manual **(M)** and Background **(B)**. The user can select their desired calibration mode in the Main Menu.

A mode (Automatic). BOLT will calibrate automatically according to the internal software algorithm. There is no need to close the lens cover as BOLT's internal shutter covers the sensor. Before automatic calibration, there will be a 5 second countdown prompt behind the shutter icon on the status bar. You can cancel this calibration during countdown with a short press of the Power Button (5). In this mode, the BOLT may also be calibrated by the user with a short press of the Power Button **(5)**.

M mode (Manual). Press the Power Button **(5)** briefly to activate the shutter calibration without closing the lens cover (the internal shutter covers the sensor).

B mode (Background). Close the lens cover and press the Power Button **(5)** briefly. A prompt appears on the home screen "cover lens during calibration". Background calibration starts after 2s. If the lens is not properly covered, temporary "image burn" will remain in the image until the next calibration. This "image burn" is temporary and is not a defect or sign of permanent damage.

14. DIGITAL ZOOM

The BOLT series riflescope can quickly increase the base magnification from 3X to 12X by enlarging the image from 1 to 4 times digitally.

In the home screen, rotate the controller turret **(7)** to zoom from the base magnification.

Rotate clockwise to zoom in, counterclockwise to zoom out.

During zooming, a real-time aplification number appears on the screen, and disappears 2s after operaton. The top status bar will also update with the new magnification.

15. PHOTOGRAPHY AND VIDEO RECORDING

The BOLT series is equipped with a function for video recording and image capture which is saved on the internal 16GB memory storage.

The photo and video files are named with time and date, so it is suggested to reset the date and time in the Main Menu before using the photo and video functions (refers to Main Menu - Settings - Date/Time Setting in this manual) or to synchronize date and time via the InfiRay Outdoor application.

PHOTOGRAPHY 📷

On the home screen, a short press of the Photography Button **(3)** will take a photo. The image freezes for 0.5 sec with a camera icon appearing on the upper left corner of the screen. Photos are automatically stored in the internal storage.

VIDEO RECORDING 📹

On the home screen, a long press of the Photography Button **(3)** will start video recording.

When video recording starts, the video icon will appear and the recording timer will be displayed in the HH:MM:SS (hour: minute: second) format on the upper right of the screen.

When recording, a short press of the Photography Button **(3)** will also take a photograph.

A long press of the Photography Button **(3)** will stop and save the video recording;

All videos and photos will automatically be saved in BOLT's internal storage.

Tips:
- You can enter and navigate the menu as normal during video recording as this will not be saved in your image/video file.
- Recorded photos and videos are saved to the internal memory card of the BOLT in the format IMG_HHMMSS_XXX.jpg (for photos),VID_HHMMSS_XXX.mp4 (for videos). HHMMSS - Hour/Minute/Second; XXX - three-digit counter (for videos and photos) in the .jpg format for photos, and .mp4 format for videos.
- The counter used for the names of multimedia files can't be reset.
- If a file is deleted from the list, its number is not taken by another file.

15. PHOTOGRAPHY AND VIDEO RECORDING (CONT'D)

CAUTION:

- The maximum duration of a recorded video file is 5 minutes. After this time, the video is recorded to a new file automatically.
- The number of the recorded files is limited only by the capacity of the internal memory.
- Check the available space of the internal storage card regularly and move the footage to other storage media to free up the memory card space.
- Graphic data (status bar, icons and menu) are not displayed in the recorded video and photo files.

MEMORY ACCESS

When the BOLT is turned on and connected to a computer, it is recognized by the computer as a flash memory card, which is used to access the BOLT's memory and make copies of pictures and videos.

Turn on BOLT and connect it with the computer via USB-C cable.

Double click "my computer" on the desktop - double click to open the device named "Infiray" - double click and open the device named 'Internal Storage' to access internal memory.

Folders are sorted and named by date on the internal storage: Recorded photos and videos from that day are saved in these individual folders. Select desired files or folders to copy or delete.

16. STATUS BAR

1   2   3   4   5   6   7   8   9   10   11   12
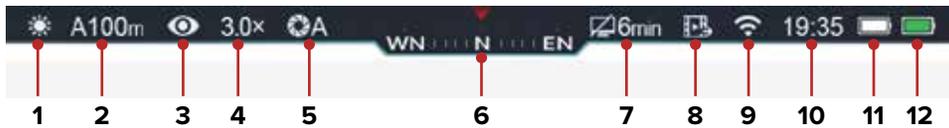
The status bar is at the top of the screen and shows information on the actual operating status of the BOLT. From left to right the icons are:

1 - Current image mode (White Hot; Black Hot; Red Hot; Target Highlighting; Color)

2 - Actual zeroing type and distance (such as A100m)

3 - Ultraclear mode (Ultraclear off; Ultraclear on)

4 - Current magnification (such as 3.0×)

5 - Calibration Mode - a countdown timer icon will appear instead of the calibration mode with 5 seconds remaining until automatic calibration. The timer will appear only after the microbolometer temperature has stabilized after approximately 10 minutes of continuous operation of the BOLT. Immediately after turning on the BOLT the shutter calibration activates automatically without displaying the timer.

6 - Compass (when it is on)

7 - Standby status and time (e.g. 2 min)

8 - Video output status (when it is on)

9 - Wi-Fi Status (Wi-Fi off, Wi-Fi on)

10 - Clock (set clock in the App "InfiRay Outdoor" or the Main Menu)

11 - Replaceable battery pack charge level

12 - Internal battery pack charge level

ICON	COLOR/STATUS	BATTERY STATUS
🔋	Green	>20%
🔋	Red	<20%, charge immediately
🔋	Lightning	External power supply is charging the built-in battery pack

17. QUICK MENU FUNCTION

The basic settings (including reticle type, reticle color, image sharpness, zeroing distance) can be changed in the quick menu.

From the home screen, press the controller turret **(7)** to enter the quick menu; Rotate the controller turret **(7)** to switch between functions, as described below. The selected options will be highlighted in the background:

Reticle type: short press the controller turret **(7)** to change the reticle type from 1 to 6.

Reticle color: short press the controller turret **(7)** to change the reticle color between white, black, red and green.

Image sharpness: short press the controller turret **(7)** to change the image sharpness value from 1 to 5.

Zeroing distance: short press the controller turret **(7)** to change default zeroing distance;

Press and hold the controller turret **(7)** to save modifications and exit the menu or wait 5 seconds to exit automatically.

18. MAIN MENU

Enter the main menu with a long press of the controller turret **(7)** from the home screen.

Rotate the controller turret **(7)** to move among the main menu items.

Main menu navigation is cyclical: when the cursor reaches the last menu item of the first page, it will continue from the first menu item on the second page. When the cursor is located at the first item of the first page, it will move to the last menu item on the second page with a counterclockwise rotation of the controller turret **(7)**.

Press the controller turret **(7)** briefly to adjust the current parameters or open the subitems.

In all menu interfaces, long press the controller turret **(7)** to save modification and exit to the home screen, or short press the Power Button **(5)** to return to the top level menu interface without saving. An automatic exit from the main menu to the home screen occurs after 15 seconds of inactivity.

Upon exiting the main menu the cursor location is stored only for a single working session (i.e. until the BOLT is turned off). Upon restarting the BOLT and entering the menu the cursor will be on the first menu item.

Main Menu Options and Descriptions

ULTRACLEAR 👁
Turn Ultraclear mode on/off

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Ultraclear menu item.

Press the controller turret **(7)** briefly to turn on/off the Ultraclear mode.
Note – you will also hear the sound of shutter calibration.

WI-FI 📶
Turn Wi-Fi on/off

Press and hold the controller turret **(7)** to enter the main menu.
Rotate the controller turret **(7)** to select the Wi-Fi menu item.

Briefly press the controller turret **(7)** to turn Wi-Fi on/off.

VIDEO OUTPUT 📺
Turn video output on/off

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Video Output menu item.

Briefly press the controller turret **(7)** to turn the video out on/off.

Video out function enables connectivity with an external display or recording device via analog video.

CALIBRATION
Select calibration mode ⚙

There are three calibration modes: **Automatic** (**A**), **Manual (M)** and **Background (B)**.

The selected calibration mode is displayed in the status bar (see Status Bar section).

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Calibration Mode menu item.

Press the controller turret **(7)** briefly to enter the Calibration Mode submenu.

Rotate the controller turret **(7)** to select one of the calibration modes described below:

Automatic: The software determines the need for calibration in automatic mode. The calibration process occurs automatically, with a 5 second countdown prompt behind the shutter icon on the status bar. You can cancel this calibration during countdown with a short press of the Power Button **(5)**. In this mode, the BOLT may also be calibrated by the user with a short press of the Power Button **(5)**.

Manual: The user independently determines the need for calibration based on the quality of the observed image.

Background: Close the lens cover before starting the calibration.

Press the controller turret **(7)** briefly to confirm your selection.

DIGITAL COMPASS Ⓐ

Select digital compass mode

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Compass menu item.

Briefly press the controller turret **(7)** to turn the digital compass on/off.

When the compass function is turned on, it will be shown in the center of the status bar.

GRAVITY SENSOR ⊕

Turn on/off the gravity sensor

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Gravity Sensor menu item.

Briefly press the controller turret **(7)** to turn the gravity sensor on/off.

Two scales are displayed on the both sides of the screen when the gravity sensor is on. The left scale shows tilt angle, and the right scale shows pitch angle.

ZEROING PROFILE ⟋

To zero your BOLT, you must first select a zeroing profile to adjust. Each zeroing profile will have three zero distances, adjustable in the Zeroing section (Pg. 17). These zeroing profiles are displayed on the status icon bar as A, B and C, with their distance show. The reticle profile should not be confused with the calibration mode, also shown on the status icon bar.

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Zeroing Profile menu item.

Press the controller turret **(7)** briefly to enter the Zeroing Profile submenu.

Rotate the controller turret **(7)** to select one of three profiles (A, B, or C). Press the controller turret **(7)** briefly to confirm your selection.

The name of the selected profile will now appear in the status bar at the top of the display.

ZEROING +

Once you have selected a zero profile, you need to set a zero distance. BOLT series supports the zeroing distance in the range of 1 to 999 Meters (1 to 1100 Yards.)

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Zeroing menu item.

Press the controller turret **(7)** briefly to enter the Zeroing submenu (zeroing distance selection - Pg. 18).

Rotate the controller turret **(7)** to select one Zeroing Distance based on the preset target distance.

Press the controller turret **(7)** briefly to enter the Zeroing Distance submenu as below.

If the zeroing distance is the same as the profile distance, you can zero your BOLT directly as follows.

Rotate the controller turret **(7)** to select Zeroing menu item in the Zeroing Distance submenu.

Press the controller turret **(7)** briefly to enter the Zeroing interface.

The X and Y Coordinates of the reticle are displayed in the upper left corner of the screen.

Aim and shoot your target.

If the point of impact does not match your point of aim, you can use either the zero freeze method or the traditional adjustment method to align your point of aim with point of impact.

To use the zero freeze method you must first align your reticle with the bullseye. Then, without moving the point of aim gently press and hold down the Palette Button **(6)** and Photography Button **(3)** at the same time until a symbol of freeze appears on the left of the screen and the image is frozen.

Adjust the reticle position by rotating the controller turret **(7)** until the reticle matches the point of impact instead of the point of aim. You can cycle between the X (windage) and Y (elevation) selection by briefly pressing the controller turret **(7)**. For a detailed description of the reticle adjusting, refer to the Zeroing section (Pg. 10).

If your zeroing distance is not the same as the profile distance, you can adjust the zeroing distance in the zeroing menu. Enter the submenu for operation with a brief press of the controller turret **(7)**. Rotate the controller turret **(7)** to select Reset Zeroing Distance menu item.

Press the controller turret **(7)** briefly, two triangle icons will appear above and below the number: 000m

Rotate the controller turret **(7)** to reset the value of the number from 0 to 9, pressing the controller turret **(7)** briefly to switch among the three numbers. After resetting, press and hold the controller turret **(7)** to save and exit. The new zeroing distance will now appear in the status bar at the top of the display and the cursor will default to the zero adjustment setting. You may now zero as described above.

NOTE: The X/Y values represent the offset auto calculated distance from X=0, Y=0, not a pixel or grid location. Changing your zero profile distance will also change the distance of your X/Y adjustments automatically. For example, at 50 yards one "click" on a TL35 is .31", at 200 yards that same "click" is 1.23". If you have a correction of 1.23" at 200 Yards, this will change to .31" if you adjust your zero profile distance to 50 yards.

STANDBY SETTINGS ⊿

Set standby status and time

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Standby Settings menu item.

Press the controller turret **(7)** briefly to enter the Standby Settings submenu.

Rotate the controller turret **(7)** to select one of four options (2min, 4min, 6min, off).

Press the controller turret **(7)** briefly to confirm selection and reveal in the status bar at the top of the display. If off is selected, it means the standby mode is turned off and your scope will run until the batteries are dead.

NOTE:

- The standby mode will be active when the BOLT is tilted up or down at an angle of more than 70° and left or right at an angle of more than 30°.

- The BOLT will not stand by while it is in a level position.

PIXELS DEFECT CORRECTION ⊞

Defect pixels are pixels that do not change correctly compared with others on the image, they are either brighter or darker than surrounding pixels. The BOLT series has a tool for correcting any defective pixels on the sensor using its internal software, as well as to cancel any previous corrections.

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Pixels Defect Correction in the menu item.

Press the controller turret **(7)** briefly to enter the Pixels Defect Correction interface.

A small cross cursor instead of the reticle will appear on the center of the screen.

The Picture in Picture (PIP) window will appear on the lower left corner of the screen.

The cursor coordinates and the number of the corrected pixels are displayed on the right of the PIP window.

On the right of the PIP window, there are prompts showing the movement direction of the cursor in X-axis (horizontal), Y-axis (vertical) and number of corrected pixels.

Press the controller turret **(7)** briefly to switch the direction between the X-axis and Y-axis.

Rotate the controller turret **(7)** to move the cursor to align with the defective pixel.

Delete the defective pixel with a short press of the Power Button **(5)** .

When the pixel has been successfully deleted a message will appear on the PIP window for a short time. Then, delete the next defective pixel by moving the cursor across the display.

Press the Power Button **(5)** briefly in the same position as the calibrated defective pixel to cancel the pixel correction, and the Del message will appear on the PIP window for a short time.

The total amount of defect pixels changes each time you add or delete a pixel correction.

The PIP and the prompt information will move to the upper left of the screen when the cursor moves near the lower left corner.

Press and hold the Power Button **(5)** until the display shows "Do you want to save these settings?" and "Yes" and "No" options.

Rotate the controller turret **(7)** to select 'Yes' to save and exit, or select 'No' to cancel and exit.

Press the Power Button **(5)** briefly to confirm your selection.

When Yes is selected, a 5-second Saving countdown appears on the screen. It will exit to the home screen after the prompt Saving successful appears.

COMPASS CALIBRATION Ⓐ

Calibrate the digital compass

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Compass Calibration menu item.

Press the controller button **(7)** briefly to enter the Compass Calibration interface.

A triaxial coordinate icon will appear on the screen.

Follow the icon prompt to rotate the BOLT along three axes at least 360 degrees each axis in the 15 seconds.

After 15s, the calibration is finished and BOLT will automatically exit to the home screen.

COMPASS CALIBRATION (CONT'D) Ⓐ

SETTINGS

Select general settings

Press and hold the controller turret **(7)** to enter the main menu.

Rotate the controller turret **(7)** to select the Settings menu item.

Press the controller turret **(7)** briefly to enter the submenu.

This menu item allows you to configure the following settings:

Date, Time, Language, Units of Measurement, Status Auto Hiding, Factory Reset and Info.

To make changes to any of these selections, use the controller turret **(7)** to navigate to you selected setting, a short press will select a sub menu item, a turn of the controller turret **(7)** will make an adjustment to that menu, and a long press will save an adjustment.

FACTORY RESET

Reset to Factory Settings

If **No** is selected, the action will be cancelled and BOLT will return to the submenu.

If **Yes** is selected, The following settings will be returned to the defaults:

- Image mode: White Hot
- Zeroing: A100
- Ultraclear mode: Off
- Magnification: 3.0 x
- Calibration mode: Automatic
- Digital Compass: Off
- Video output: Off
- Wi-Fi: Off
- Gravity Sensor: Off
- Language: English
- Units of Measure: Meter
- Status Auto Hiding: Off

INFO
Show device information

This item allows the user to view the following information about the BOLT: the product model, GUI version, SYS Info, Boot version, FPGA, PN and SN number of the BOLT and Hardware version. Press and hold the controller turret **(7)** to return to the submenu.

19. PIP FUNCTION

The PIP (Picture in Picture) function allows you to see both a magnified image in a window and also the main image.

Press and hold the Palette Button **(6)** in the home screen to turn the PIP function on or off.

A separate 'window' will appear on the top of the display simultaneously with the main image.

The image in the separate window is the image of the reticle area enlarged by 2X.

If you rotate the controller turret (**7**) to enlarge the main image, the PIP image will be enlarged 2X simultaneously.

20. STADIAMETRIC RANGEFINDER

BOLT series is equipped with a stadiametric rangefinder, which allows you to estimate the approximate distance to an object, if its size is known.

In the home screen, press and hold the Brightness Button **(4)** to switch the stadiametric rangefinder function on/off.

The display will show two horizontal lines for measurement, the icons and numbers of the measured distance for three objects on the right.

There are three predefined values for objects:

- Deer: 5.5' Tall

- Hog: 3' Tall

- Rabbit: 8" Tall

Locate the object in the middle of the measurement lines, and rotate the controller turret **(7)** to move the lines so that the object is located directly between the measurement lines. Rotate clockwise to extend the lines and counterclockwise to shrink. A target range is automatically recalculated along with movement.

The center and color of the measurement lines are the same as the reticle.

To change the unit of measurement (meters or yards), please refer to the Main Menu - Settings - Unit of measurement submenu.

Long press the Brightness Button **(4)** to exit the stadiametric rangefinder mode.

21. STATUS AUTO HIDING

This function enables automatic hiding of all GUI information in the interface other than the reticle, and to make the image unobstructed.

Rotate the controller turret **(7)** to select Settings menu item in the Main Menu.

Press the controller turret **(7)** briefly to enter the Settings submenu.

Rotate the controller turret **(7)** to select Status Auto Hiding menu item.

Press the controller turret **(7)** briefly to enter the Status Auto Hiding submenu.

Rotate the controller turret **(7)** to select On or Off.

Confirm your selection with a short press of the controller turret **(7)**.

When auto hiding is On, the GUI icons in the interface including the status bar will be automatic hidden after 8 seconds without any operation. Only the image and the reticle will be displayed.

The GUI information will be displayed again with the press of any button.

Only after the GUI is displayed, can the buttons and menu be manipulated.

22. WI-FI FUNCTION

BOLT series has a function for wireless communication with mobile device (smartphone or tablet) via Wi-Fi.

To enable the wireless module, enter the main menu by long pressing the controller turret **(7)**.

Rotate the controller turret **(7)** to select the Wi-Fi menu item.

Press the controller turret **(7)** briefly to turn on/off Wi-Fi module.

When the Wi-Fi module is off, the icon displayed in the status bar is ⚡, and the icon is 📶 when Wi-Fi is on.

The BOLT is recognized by an external device under the name "TUBE_XXXXXX" and XXXXXX is the last six digits of the serial number that consists of numbers and letters.

Select this Wi-Fi signal, and enter the password (default is 12345678) on the mobile to set up the connection.

When Wi-Fi is successfully connected, users can manipulate the BOLT via the App.

Launch InfiRay Outdoor application on your mobile device
(see Update and APP section)

23. WI-FI NAME AND PASSWORD SETUP

The Wi-Fi name and password of the BOLT series can be reset in the phone app. The default password is: 12345678

After connecting with a mobile device, find and click the "setting" icon in the app to enter the settings interface. In the text box, enter and submit the new name (SSID) and password of the Wi-Fi.

The BOLT now needs to reboot to put the new name and password into effect.

Note! When factory settings are restored, the Wi-Fi name and password are also restored to factory default settings.

24. BASIC INSPECTION

It is recommended to carry out a technical inspection every time before use.

Please check the following:

The BOLT's 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 lenses.

The rechargeable battery should be fully charged.

The controls/buttons should be in working order.

25. BASIC MAINTENANCE

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

Wipe the external surface of metal and plastic parts off dust with a cotton cloth. A blast of air may also be used for the cleaning process.

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

Check the optics of the lens and the eyepiece. If necessary, remove the dirt and sand from the optics. It is preferred to use a non-contact method. Cleaning of the exterior of the optics should be done with cleaners designed especially for this purpose, such as an optical quality wipe.

26. 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, neither have we, and 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 modification.

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

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. One week starts from the time of receipt of product at iRayUSA. Customers must ship the product to iRayUSA, iRayUSA will return the product at no cost. No returns will be accepted without an RMA. iRayUSA is not liable for any damages or loss incurred when shipping to iRayUSA

27. GENERAL TROUBLESHOOTING

The table below lists problems that may occur when operating the BOLT series. Carry out the recommended checks and troubleshooting steps in the order shown in the table. Please contact iRayUSA 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 may void your warranty.

SUPPORT/SERVICE: irayusa.com/support
info@irayusa.com
800-769-7125

FAULT	POSSIBLE CAUSES	TROUBLESHOOTING
The BOLT will not turn on.	Battery is completely discharged	Charge the battery.
The BOLT will not work with an external power supply	USB cable is damaged.	Replace USB cable.
	External power source is discharged.	Check the external power source
The image is fuzzy, not clear, not balanced, with artifacts	Calibration is required.	Perform image calibration according to the calibration section of this manual.
The Image is too dark	Brightness level is too low.	Adjust brightness of screen.
The GUI is clear, but the image is fuzzy.	The lens is not focused..	Adjust the image sharpness by rotating the lens adjuster..
	There is dust or condensation on the interior or exterior optical surfaces of the lens.	Wipe off the outside optical surfaces with a soft cotton cloth. Let the BOLT dry by leaving it in a warm environment for 4 hours.
The aiming reticle shifts after firing rounds.	The BOLT is not mounted securely or the mount is not secured on the BOLT.	Check that the BOLT has been securely mounted. Make sure you are using the same brand, type and weight of the bullets as when the BOLT and weapon were initially zeroed. If your BOLT was zeroed in different environmental conditions, a slight shift of the zero is possible.
The image of the object being observed is missing.	Looking through glass.	Remove any glass windows from the field of view.
The BOLT will not focus.	Wrong image settings, or exterior contaminants.	Rotate the objective focus ring. Adjust the BOLT objective focus ring according to the Powering On and Image Setting section. Check the outer surfaces of the objective lenses 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 as for corrective glasses.

FAULT	POSSIBLE CAUSES	TROUBLESHOOTING
The BOLT can't connect with a smartphone or tablet	Wrong Wi-Fi password	Input correct password
	Too many Wi-Fi signals around the device.	Move the device to an area with no or fewer Wi-Fi signals
Wi-Fi signal is missing or interrupted.	Smartphone or tablet is out of range of a strong Wi-Fi signal, or there are obstacles between device and the smartphone.	Relocate the device until Wi-Fi signal is stable.
Image quality is too low or the detection range is reduced.	Environmental conditions.	These problems may occur due to the weather conditions such as snow, rain, humidity, fog etc.
When the BOLT is used in low temperature conditions, the image quality of the surroundings is worse than in warm temperature conditions.	Environmental conditions.	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 thermal imager 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.

NOTES

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