ATG Series Infrared Imaging Observation Scope

User Manual(V1.1)

CONTENTS

1. Product Overview 01
2. Performance Parameters 02
3. System Functions 03
4. Product components 04
5. Operation Functions 05
   5.1 Quick Operations 06
   5.2 Menu 07
6. Preventive Maintenance 11
   6.1 Battery Replacement 11
   6.2 Product Cleaning and Maintenance 11
7. General Troubleshooting 12
8. Safety Regulations 13
9.Storage and Transportation 13
10.After-sales service 13

1.Product Overview

ATG Series is an infrared thermal imaging scope integrated with a laser rangefinding function, designed for target observation and aiming in nighttime and adverse weather conditions. The product features a high-sensitivity uncooled vanadium oxide (VOx) detector and a high-precision ranging module. With its built-in intelligent ballistic calculation function, it effectively improves shooting accuracy. Lightweight and portable, the ATG Series offers wide compatibility and can be broadly applied in reconnaissance, security, search and rescue, and various outdoor activities.

Fig 1-1 ATG Infrared Imaging Observation Scope

2.Performance Parameters

Table 1 Performance Parameters of the ATG Series Infrared Imaging Observation Scope.

Product Model		BH-ATG01-335-LRF	BH-ATG01-650-LRF
Optical Parameters	Wavelength Range	8μm~14μm	
	Resolution	384×288	640×512
	Pixel Size	12μm	
	Frame Rate	50Hz	
	Objective Lens	35mm F1.0	50mm F1.0
	Field of View	7.5°×5.6°	8.7°×7°
	Recognition Range	2100m	3000m
	Digital Zoom	1×, 2×, 4×, 8×	
	Ranging Performance	Range≥1200m,Accuracy≤1m	
Focusing Method		Knob Focusing	
Ballistic Solution		Intelligent Ballistics / Custom Ballistics	
Display Characteristics	Display Resolution	1280×1024	
	Diopter Adjustment	-5SD~+5SD	
	Eye Relief	≥50mm	
	Exit Pupil Diameter	≥5mm	
	Image Modes	White Hot (W) / Green Hot (G) / Black Hot (B) / Red Hot (R) /Fused(F)	
Interface	External Power	USB Type-C 5V	
	WIFI	2.4GHz 802.11 b/g	
Battery Life		≥8h,one 18650 rechargeable battery.	
Physical Interface		Standard Picatinny Rail	
Physical Dimensions	Weight	≤950g	
	Dimensions	≤390×80×85mm	
Environmental	Shock	1000g, 3ms	
	Operating Temperature	-20℃~+50℃	
	Storage Temperature	-40℃~+70℃	
	Protection Rating	IP66	

3.System Functions

- Image Calibration and Shutter Correction.
- Image Modes: White Hot (W) / Green Hot (G) / Black Hot (B) / Red Hot (R) / Fused (F).
- Image Digital Zoom: 1×, 2×, 4×, 8×.
- Electronic Compass.
- Laser Ranging
- Picture-in-Picture Function.
- Photo Capture and Video Recording.
- Multi-language Support.
- Real-time Clock.
- WiFi Control.
- Type-C interface for Power Supply and Data Transmission.
- Reticle Zeroing Calibration.
- Intelligent Ballistics / Custom Ballistics.

4.Product components

The structural components of the complete ATG unit are shown in Figure 4-1.

① Ranging Module	⑤ Battery Cover	⑨ Rangefinder Button
② Objective Lens Cover	⑥ Power Button	⑩ Photo Button
③ Objective Lens	⑦ Eyecup	⑪ Control Knob
④ Focus Knob	⑧ Eyepiece (with Diopter Wheel)	⑫ USB Type-C

Fig4-1 Main components of the ATG product

5.Operation Functions

The key operation functions are shown in Table 2.

NO.	Dial/Button	Function
1	Power Button	Long press: Press and hold for 3 seconds to power on; when powered on, press and hold for 3 seconds to power off. Short press: In the main interface, performs shutter calibration; in the menu, returns to the main interface.
2	Ranging Button	In the main interface, short press to enable/disable the rangefinding function; long press to enable/disable the Picture-in-Picture (PiP) function.
3	Photo Button	Short press to take photos. Long press to start/stop video recording.
4	Knob Button Press	In the main interface, short press to enter the menu. In the menu, short press to confirm selection, long press to return to the previous menu. During reticle zeroing adjustment, short press to freeze the screen.
5	Knob Turn Left	Switch operation modes in the observation interface; move up when entering the menu.
6	Knob Turn Right	Switch digital zoom in the observation interface; move down when entering the menu.

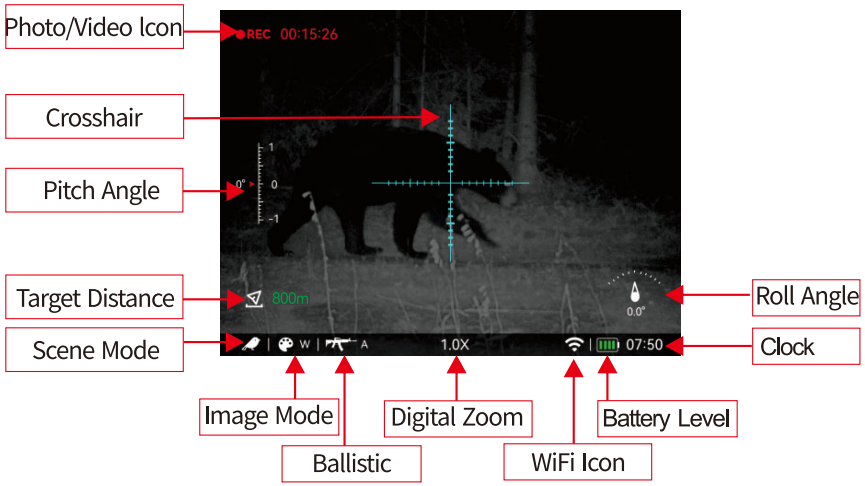

Fig 5-1 Main interface display description

Note: The "Scene Mode" corresponds to the "Image Detail Enhancement Level 1 to 5" option in the menu.

5.1 Quick Operations

▶In the off state, press and hold the power button (6) for 3 seconds to turn on the device.

▶Turn the eyepiece hand wheel (8) to view a clear image of the icon on the display.

▶Rotate the focus knob (4) to see a clear image of the observed object.

▶Turn the Knob (11) left to cycle through image modes: White Hot (W) / Green Hot (G) / Black Hot (B) / Red Hot (R) / Fused (F).

▶Turn the Knob (11) right to cycle through digital zoom levels: 1×, 2×, 4×, 8×.

▶Short press the Photo Button (10) to take a photo; long press to start/stop video recording.

▶Short press the Ranging Button (9) to turn on/off the laser ranging.

▶Long press the Ranging Button (9) to turn on/off the Picture-in-Picture function.

▶Short press the Knob Button (11) to enter the menu interface. When the ranging is turned on, short press the knob button(11) to freeze the distance and ballistic point data.

▶When powered on, short press the Power Button (6) to perform shutter calibration.

▶When powered on, press and hold the Power Button (6) for 3 seconds to power off the device.

5.2 Menu

▶Picture-in-Picture (PiP)

After selecting “Picture-in-Picture", short press the Knob Button to open the On/Off option. Rotate the rotary knob to select the desired option, then short press the knob button to save the setting and return to the main menu.

▶OLED Brightness

Select "OLED Brightness" with the cursor, and press the rotary knob todisplay a submenu with 10 levels of brightness. Selecting any of theselevels will change the screen brightness accordingly.

▶Image Brightness

Select "Image Brightness" with the cursor, and press the rotary knob to display a submenu with 10 settings. Selecting any setting will change the image brightness accordingly.

▶Contrast Ratio

Select "Contrast Ratio" with the cursor, and press the rotary knob to display a submenu with 10 settings. Selecting any setting will change the image contrast accordingly.

▶Image Detail Boost

Select “Image Detail Boost" and short press the Rotary knob to access the submenu. There are 5 adjustable levels available. The higher the level, the more pronounced the image details. Corresponding icons on the main interface: 1 House, 2 Car, 3 Rain/Fog, 4 Bird, 5 Tree.

▶Reticle Adjustment

After entering the calibration interface, align the center of the reticle with

the aimed target point.
Short press the Knob Button to freeze the image.
Short press the Photo Button to move the cursor to the X and Y axis adjustment fields. Rotate the rotary knob to adjust the reticle position until it coincides with the point of impact.
Then short press the Photo Button again to move the cursor to the distance setting field, and set the current zeroing distance.
Short press the Photo Button to move to the unit setting field and select meters/ yards.
After completing all settings, move the cursor to “Confirm” and short press the Rotary Knob Button to save and exit.
The set distance will be used as the zero profile name and saved in the zero storage menu.
If the cursor is not on the “Confirm” option, long press the Rotary Button to exit the calibration interface without saving the settings.

▶Reticle Profiles

This function is used to select saved reticle zeroing calibration profiles. Up to 10 groups of zeroing data can be stored. Select the corresponding zero profile for the desired distance. After returning to the main interface, the reticle position represents the actual point of impact for that distance.

▶Auto Ballistic Calculator

After selecting “Auto Ballistic Calculator”, short press the Knob Button to open the submenu. By default, the automatic ballistic function is disabled.
Select “Auto Ballistic Calculator Settings” and short press the rotary button to enter the settings interface. Short press the Knob Button or Photo Button to switch between the following parameters: Bullet type, Bullet weight, Ballistic coefficient (BC), Ballistic Speed, Baseline Height, Zero distance, Altitude, Temperature, Marking color.Rotate the rotary knob to adjust each parameter. The bullet type supports five profiles, corresponding to A / B / C / D / E. Move the cursor to “Confirm” and short press the Power Button to save and exit. Move the cursor to “Cancel” and short press the power button to exit without saving.
After all parameters are set, select “Auto Ballistic Calculator On” and short press the rotary knob button to exit. The automatic ballistic function is now enabled.

Return to the main interface and enable rangefinding. When a distance is measured, the reticle will automatically display the predicted ballistic point offset for that distance. Short press the rotary button to lock the current distance and ballistic offset, align the ballistic impact marker with the target, and accurately hit the target.

Note: Before using the automatic ballistic function for the first time after device installation, it is necessary to perform a reticle zeroing calibration to zero the device. Typically, select 50 meters for device zeroing. Afterward, follow the steps above to configure automatic ballistic parameters and activate the automatic ballistic function.

Once the automatic ballistic function is enabled, do not use the reticle zeroing calibration again. Only if a zero deviation is observed in the automatic ballistic output should the reticle zeroing calibration be reapplied to re-zero the device.

▶Gyro

Press the rotary knob to enter the submenu. Rotate the knob to select On or Off. Short-press the knob to confirm your selection.Ranging unit selection.

▶Reticle Type

Supports 10 reticle types, or select Off to disable the reticle.

▶Reticle Color

Available options: Black, White, Gray, Red, Green.

▶WiFi

Short press the Rotary Knob Button to open the On/Off option.Select On and short press the rotary knob button to confirm. The WiFi information will be displayed, including: WiFi name (SSID) WiFi password. The device will then automatically return to the main interface. A WiFi icon will appear in the lower-right corner, indicating WiFi is enabled. Open the mobile app and connect to the device by selecting the corresponding WiFi name and entering the password (default: 12345678). Short press the rotary knob button again to display “Please turn off WiFi!”, where WiFi can be disabled.

▶Image Adjustment

After selecting “Image Adjustment”, short press the rotary knob button. A prompt will appear: “Please cover the lens and short press MENU to calibrate!”Short press the rotary knob button again to start calibration. A

message “Calibration in progress” will appear. The calibration process takes approximately 30 seconds. After completion, “Calibration successful” will be displayed.

Note: During calibration, do not open or touch the lens cover, as this may affect the calibration result.

▶Laser Rangefinder Unit

After selecting “Laser Rangefinder Unit”, short press the rotary knob button to choose between Meters (m) and Yards (yd).

▶Date / Time

After selecting “Date / Time”, short press the rotary knob button to enter the time setting interface. Short press the rotary knob button to switch between the following fields:
Year–Month–Day–Hour–Minute–Second–Time Format Rotate the rotary knob left or right to adjust the values. After setting all parameters, move the cursor to the time format option (YY/MM/DD) and short press the rotary knob button to confirm. The time settings will be saved automatically.

In the time setting interface, long press the rotary knob button or short press the power button to exit without saving.

▶Language

After selecting “Language”, short press the rotary knob button to enter the language selection interface. Rotate the rotary knob to select the desired language, then short press the rotary button to save and exit.

▶Format

After selecting “Format”, short press the rotary knob button to display Cancel / Confirm options. Rotate the rotary knob to select Confirm, then short press the rotary knob button. A “Please wait” prompt will appear while the system clears stored data (such as photos and videos) from the memory card. After completion, the device will automatically return to the main menu.

▶Default Setting

After selecting “Default Settings”, short press the rotary button to display Cancel / Confirm options. Select Confirm and short press the rotary knob button to restore the device to factory default settings.

▶Version

After selecting “Version”, short press the rotary button to display the device software version information. Short press the rotary knob button again to return to the main menu.

6.Preventive Maintenance

6.1 Battery Replacement

▶Before replacing the battery, it is recommended to power off the product.

▶The battery level icon is displayed at the lower-right corner of the interface and is divided into 4 levels.

▶When the battery icon turns red, it indicates that the battery level is below 25%. Please replace the battery or connect to an external power source promptly.

▶Rotate the battery compartment cover counterclockwise to open it. Replace the battery, paying attention to the positive/negative polarity markings on the device body, and install the battery correctly.

Note:

This product is supplied with a dedicated charger. Do not use incompatible chargers to charge the battery. Pay attention to the correct polarity during charging.

The device supports built-in charging. Please power off the device before charging.

When using an external Type-C power supply, the power specifications must be 5V / ≥2A. Do not use the power supply if it does not meet these requirements.

When charging while the device is powered on, the charging current is relatively low and the charging time will be longer. Charging while powered on is not recommended.

6.2 Product Cleaning and Maintenance

▶Do not use cleaning products that may corrode the device body or scratch optical glass components.

▶The device body can be wiped gently with a soft cloth lightly moistened with alcohol.

▶For optical glass components, such as eyepiece and objective lenses, first blow off dust, then gently wipe using a charcoal pencil or a degreased cotton swab lightly moistened with non-methylated alcohol.

7.General Troubleshooting

If any abnormality cannot be resolved, please contact our company or the distributor as soon as possible. Unauthorized disassembly is strictly prohibited.

Table 3, general troubleshooting

Fault	Causes	Solution
Blurred Image	Objective lens focus does not match	Readjust the objective focus until the image becomes clear.
	Image adjustment not performed for a long time	Perform image correction
Blurred Vision	Diopter does not match	Adjust the eyepiece handwheel until the image is clear
Failure to Turn On	Battery installed incorrectly or battery power is low	Check battery installation or battery power.
	External power supply voltage is insufficient	Check the external power supply voltage
Intelligent Ballistic No response	No valid distance measurement	Aim at a target within the effective ranging distance. The ballistic offset marker will be displayed only after a valid distance is measured.
	Rangefinder function not enabled	Enable the rangefinder function.
	Automatic ballistic function not enabled	Enter the main menu and enable automatic ballistic.
	Incorrect intelligent ballistic parameters	Set the intelligent ballistic parameters correctly.

8.Safety Regulations

▶Only use certified batteries. Do not discard used batteries casually or throw them into fire.

▶Only use certified chargers to prevent damage to the product.

▶Do not look directly at the sun or ultra-high-energy laser sources.

▶Do not operate the product in environments with temperatures exceeding 60°C.

▶Do not throw the product into fire.

9.Storage and Transportation

The instrument should be stored in an environment with a temperature range of -20°C to +55°C. The relative humidity must not exceed 85%. It is important to ensure that the storage conditions are good, with no harmful gases or impurities in the air that could potentially corrode the instrument. Avoid severe vibration and shock during transportation, and use the manufacturer's original packaging to ensure that the equipment is securely fixed in the package.

10.After-sales service

1.The main unit of the product is covered by a free warranty for twelve (12) months from the date of purchase.

2.Accessories are covered by a free warranty for three (3) months from the date of purchase.

3.Products repaired within the warranty period will continue to be covered by the remaining warranty duration.

4.Customers are responsible for the shipping and handling costs incurred when sending the product for repair. Our company will bear the costs associated with repairing the product and shipping it back to the user.

5.For products outside the warranty period, our company will charge a reasonable repair fee based on applicable standards.

6.Damage resulting from human factors or improper use is not covered under the warranty.

7.Unauthorized disassembly of the product without our company's permission is not covered under the warranty.

Note: Revisions and updates to the content of this manual may be made without prior notice.

FCC Caution.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

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

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment 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.

* RF warning for Portable device:

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.