



TS SERIES

thermal imaging monocular

User Manual

TS2/ TS3 / TS6

IMPORTANT SAFETY INFORMATION

1 Environmental influences

WARNING! Never aim the lens of the device directly at intense heat sources such as the sun or laser equipment. The objective lens and eyepiece can function as a burning glass and damage the interior components. The warranty does not cover damage caused by improper operation.

2 Risk of swallowing

CAUTION: Do not place this device in the hands of small children. Incorrect handling can cause small parts to come loose which may be swallowed.

3 Safety instructions for use

- Handle the device and battery with care.
- Do not expose the device to fire or high temperatures.
- Only use the battery charger included in the delivery package.
- The battery capacity decreases when operated in a cold

ambient temperature. This is not a fault and occurs for technical reasons.

- Always store the device in its carrying bag in a dry, well - ventilated space.
- For prolonged storage, remove the batteries.
- Do not expose your device to extreme temperatures lower than - 20°C and higher than + 50°C.
- The product shall only be connected to a USB Type C interface.
- If the device has been damaged is defective, send the device to our after - sales service for repair.

4 Safety instructions for the power supply

The device can adapt to external power by connecting the USB cable supplied in the package with USB charger.

- Do not use the power supply unit in wet or humid environments.
- Only use the original cable provided with the battery charger.
- Do not make any technical modifications.

5 Disposal of batteries



Directive 2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. For battery details, refer to the documentation of the specific product. The battery is marked with this symbol, which may include Cd (indicating cadmium), Pb (indicating lead), or Hg (indicating mercury). For proper recycling, please return the battery to your supplier or send it to a designated collection point.

6 User information on the disposal of electrical and electronic devices(private households)



2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, please return this product to your local supplier when purchasing a new equivalent product, or send it to a designated collection point.

7 For business customers within the European Union

Please contact your dealer or supplier regarding the disposal of electrical and electronic devices.

8 Information on disposal in other countries outside of the European Union

This symbol is only applicable in the European Union. Please contact your local authority or dealer if you wish to dispose of this product and ask for a disposal option.

9 Intended use

The device is intended for displaying heat signatures during nature observation, remote hunting observations and for civil use. This device is not a toy for children.

Use the device only as described in this instruction manual. The manufacturer and the dealer accept no liability for damages which arise due to non - intended or incorrect use.

10 Function test

- Before use, please ensure that your device has no visible damage.
- Test to see if the device displays a clear, undisturbed image.
- Check that the settings for the thermal imaging are correct.
- See the notes in the section Operation.

11 Installing/removing the battery

The TS series thermal imaging monocular is equipped with batteries. The batteries can be moved and charged, referring to the section Battery for details.

12 Caution



The TS series monocular contains optional laser, although which is in compliance with the Class1 Laser classification, please avoid aiming it to human eyes, and use other than as described in the user guide, repair, or disassembly may cause damage, which could result in hazardous exposure to infrared laser emissions that are not visible. This equipment should be serviced by producer or an authorized service provider.

Functions of Laser Ranging, Laser Calibration, Ballistic Calculation is only available when the TS series monocular is ordered with the laser. The menu of the above functions will not be shown if the TS series monocular is ordered without laser.

1 TECHNICAL SPECIFICATION

Models		TS2	TS3	TS6
Detector Type		VOx Uncooled Microbolometer		
Resolution		256×192	384×288	640×512
Spectral Range		8 μm ~ 14 μm		
Pitch Size		12 μm		
NETD		≤40mK@ 25°C, @ F/1.0		
FPS		50Hz		
Lens Focal Length		19mm F1 (25mm F1 Optional)	35mm F1 (25mm F1/50mm F1 Optional)	
FOV & Magnification		9.2°×6.9°(19mm) /2.7× 7.5°×5.3°(25mm)/3.6×	10.5°×7.9°(25mm) /2.4× 7.5°×5.6°(35mm) /3.4× 5.3°×3.9°(50mm)/4.8×	12.5°×10°(35mm) /2.0× 8.8°×7°(50mm) /2.8×
Focusing		Manual		
Display		Monocular Color OLED, 0.39" ,1024×768,		
Detection distance	Upright adult	800m(19mm) / 1000m(25mm) / 1450m(35mm) / 2000m(50mm)		
	Mid truck	1800m(19mm) / 2400m(25mm) / 3400m(35mm) / 4800m(50mm)		
Recognition distance	Upright adult	400m(19mm) / 500m(25mm) / 730m(35mm) / 1000m(50mm)		
	Mid truck	900m(19mm) / 1200m(25mm) / 1700m(35mm) / 2400m(50mm)		

Models	TS2	TS3	TS6
Diopter	-8~+3		
Exit pupil	38mm		
Image function	Pseudo-colors/ Digital Zoom(1×/2×/ 3× /4×)	Pseudo-colors/ Digital Zoom (1×/2×/ 3× /4×)/ PIP	
WIFI	Image transmission (Android only)		
Power supply	CR123A Rechargeable lithium battery, 4 batteries		
Battery Life	≥ 4		
Memory	64G (512GB Max)		
Mounting Interface	Picatinny mount(Three segments adjustable)		
Weight	≤ 650g (Battery included)		
Language	Simplified Chinese/English		
Size (L ×W ×H)	≤ 260mm × 60mm × 80mm (Buckle included)		
Electrical interface	Type-C(Power supply, Cvbs output, Media management)		
Shock	≤1000g		
Operating temperature	-20℃ ~ + 55℃		
Storage Temperature	-40℃ ~ + 70℃		
Optional Function (*)	Laser rangefinder (1.5km Max)		

2 PACKAGE CONTENT

Item	Qty
TS Monocular	1
16340 Battery	8
Battery charger	1
Data cable	1
Video cable	1
Picatinny mount with assembling kits	1
Portable bag	1

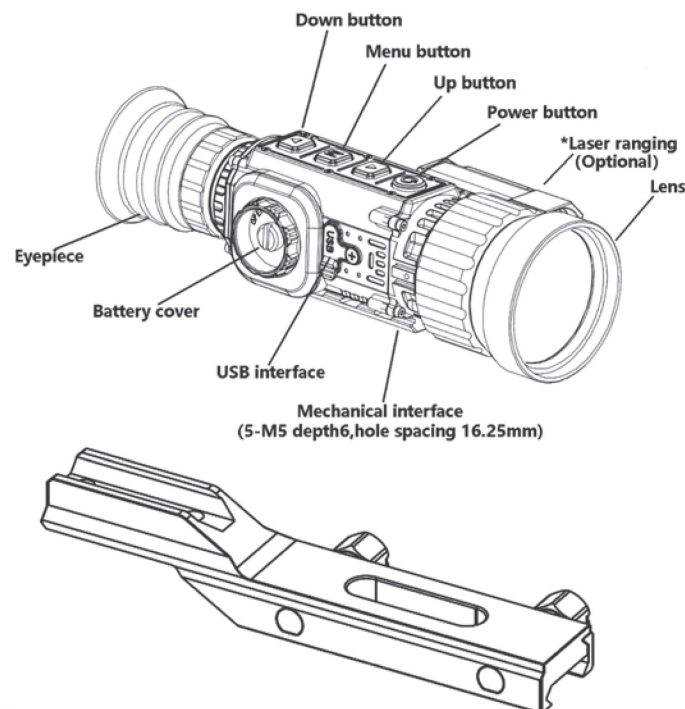
3 DESCRIPTION

TS series thermal monocular features fine image and compact design, and is dedicated for night vision and sighting; the rugged design offers not only superior flexibility and anti-shocks ability, but also convenience in operation and installation at the same time, making it an ideal choice for the hunting at night and outdoor applications.

4 FEATURES

- NETD < 40mk
- High frame frequency: 50Hz
- Aluminum alloy housing
- Maximum detection range 1500m
- Optional laser rangefinder
- HD AMOLED display:1024*768
- Digital Zoom: ×1/×2/×3/×4
- Build-in 64GB storage, supports photographing and video recording
- Build-in Wi-Fi module
- smart power management
- App support
- Build-in digital compass and gravity sensor
- Variable reticle types and color
- Support PIP and pixel calibration functions
- User friendly interface

5 COMPONENT AND CONTROL



6 BATTERY

TS series are supplied with rechargeable 16340 Li-ion Batteries which allows operation for more than 4hours, it is designed with smart power management, which enable the user to install batteries into the device regardless of the polarity. Please Remember to charge the Battery Pack before first use.

- Connect the battery charger to a USB charger with the USB cable supplied.
- Put the battery into the slot correctly as per the “+/-” sign, If the battery is reversed or short-circuited, the charging protection starts, the charger stops charging.
- There is a charging icon at the top of each battery slot, which will turn red when charging and will turn green when charging completed.

7 SAFETY PRECAUTIONS

Only use the charger supplied with the Battery. The use of any other charger may irreparably damage the Battery or the charger and may cause fire.

- Partial charging the battery is necessary if the battery is planned to be idled for long time. Avoid fully charged or discharged.
- Don't charge the battery instantly while bring the battery from cold environment to warm environment. Leave 30 - 40 mins before charging.

- Don't leave battery unattended when charging
- Never use a damaged or modified charger.
- Charge the Battery at a temperature from 0°C to +45°C, otherwise the battery life will be reduced significantly.
- Don't leave the Battery with a charger connected and unattended, when charging is completed, please remove the battery and switch off the power supply in time.
- Do not expose the battery to high temperature or to a naked flame.
- Do not submerge the battery pack in water.
- Don't connect external device with a current consumption that exceed permitted levels.
- Don't dismantle or deform the Battery.
- Don't hit or drop the battery.
- The battery capacity may decrease when using the battery in negative temperature, that is normal, not a defect.
- Use only the same type of battery, do not mix the batteries in different type
- Keep the battery out of the reach of children.

8 EXTERNAL POWER SUPPLY

TS series monocular supports external power supply, such as the mobile power bank (5V) or USB charger for cell phone.

- Connect the external power supply to the USB port on TS.
- The TS monocular will switch to operation from external power supply, and the battery will be slowly charged.
- the device can be connected to external power supply but without the Battery installed.
- While external power supply is disconnected, the device will switch to the Battery Pack without powering off.

9 POWER ON AND IMAGE SETTINGS

- Open the lens cover
- Press and hold down the Power button to turn on the monocular.
- Rotate eyepiece diopter adjustment ring until images in eyepiece are clear. After this, there is no need to rotate the eyepiece adjustment ring for distance or any other conditions.
- Rotate the lens to focus on the object being observed.

- To set up image mode OLED brightness, image sharpness, brightness, contrast, zero, ranging, please refer to the Quick Menu Function section.
- After use, hold down the Power button for about 3 seconds, the device will be power off. In the Home screen, short press the Power button to enter the power saving mode, short press any button to exit power saving mode.

10 HOME SCREEN



11 DIGITAL ZOOM

The TS series supports 1x to 4x digital zoom of images to increase visual magnification.

- On the home screen, short press the Up button to perform the digital zoom from 1x, 2x, 3x, 4x.
- The corresponding visual magnification is displayed in the status bar at the top.

12 PIP FUNCTION

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

- Press and hold down the Up button in the home screen to switch the PIP function on /off.
- When the main image is enlarged with a short press of the Up button, the PIP image will be enlarged 2x synchronously.
- For example, when the magnification of the main image is 1x, 2x, 3x, 4x, the corresponding magnification of the PIP image is 2x, 4x, 6x, 8x. and the corresponding magnification will display in the status bar at the top.
- PIP is only available in the TS3 and TS6 series.



13 DESCRIPTION OF CONTROL

Button	Current status	Short press	Long press
Power button	Device is off	-	Power on
	Device is on	-	Power off
	Home screen	OLED off	Power off
	Quick menu/main menu	Return to Home screen	Power off
	Laser ranging on	Perform ranging	Power off
Up button	Home screen	Digital zoom	PIP on/off
	Quick menu/Main menu/Submenu	Navigation upwards	-
Menu button	Home screen	Enter quick menu	Enter main menu
	Quick menu	Switch between options	-
	Main menu	Enter submenu	-
	Submenu	Switch between options/ select	-
Down button	Home screen	Take a picture	Video recording
	Quick menu/Main menu/Submenu	Navigation downwards	-
	Video recording	Take a picture	Stop and save video

14 PHOTOGRAPHY AND VIDEO RECORDING

TS series is equipped with a function for video recording and photography of the observed image which is saved on the built-in 64 memory storage. The photo and video files are named with time, 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).

15 PHOTOGRAPHY

- Press the Down button in the home screen to take a photo. The image freezes for 0.5 sec with a camera icon appears on the screen.
- Photos are stored in the built-in storage.



- When the exclamation mark icon appears on the right side of the camera icon, it prompts that the memory space is insufficient. Check and transfer videos and images to other media to free up the space.

16 VIDEO RECORDING

- In the home screen, press and hold down the Down button to start video recording.
- When the video recording starts, the icon and the video recording timer displayed in the HH:MM:SS (hour: minute: second) format will appear on the the screen.
- When recording, short press the Down button to take a photo.
- Press and hold Down button to stop and save the video recording.
- All videos and photos will be saved in the build-in storage.



17 NOTE

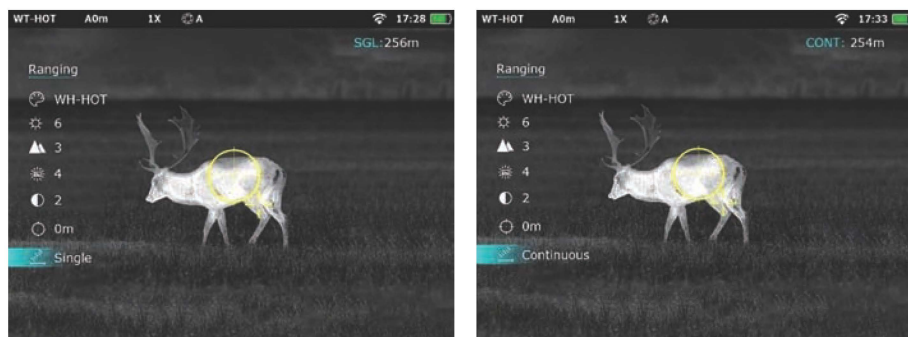
- User can enter and navigate the menu during video recording.
- The images taken and the videos recorded are stored in the built - in memory space in the format of (image) and (video), File are named with YYYY_MM_DD_HHMMSS_00.avi(video) or YYYY_MM_DD_HHMMSS_00.jpg(image), indicating Year_Month_Date_Hour/Minute/Second.
- The maximum duration of a recorded video file is 5 minutes. After this time expires, the video is recorded to a new file automatically.
- The number of the recorded files is limited by the capacity of the internal memory. Check the available space regularly and move the footage to other storage media to free up the memory card space.
- Graphic data (status bar, icons and menu) in the recorded video and photo files are not displayed.

18 RANGEFINDING FUNCTION

* This function is available only with the Laser Rangefinder

The TS series is an integrated rangefinding model that supports accurate rangefinding of up to 1,500 m.

- The TS series supports two rangefinding modes: single ranging (SGL) and continuous ranging (CONT).
 - On the home screen, press the Menu button to enter the Quick menu, then select the Ranging option to enable single ranging/continuous ranging/off in cycle by short pressing Menu button. When ranging is on, a rangefinder reticle appears on the screen, aim at the target with the reticle to perform ranging.
 - Single ranging(SGL): select the single ranging in the menu, then short press Power button to range, and the distance information is displayed on the upper right corner of the screen at this point.
 - Continuous ranging(CONT): select the continuous ranging in the menu, short press the Power button to enable continuous ranging, and the rangefinding information is displayed in real - time.
 - To exit the Ranging mode, select the Off in the ranging menu.
- The operating characteristics of laser rangefinding
- The measurement accuracy and maximum distance depend



on the reflectance of the target surface, the angle at which the emitted beam strikes on the target surface, and the environmental conditions. Reflectance is affected by the target surface texture, color, size, and shape. A glossy or bright surface usually reflects more energy than a dark surface.

- The measurement accuracy is affected by lighting conditions, fog, haze, rain, snow, and other factors. Light conditions or sunlight will degrade the rangefinding performance.
- Measuring the range of a small - sized target is much more difficult than measuring a large - sized target.

19 QUICK MENU

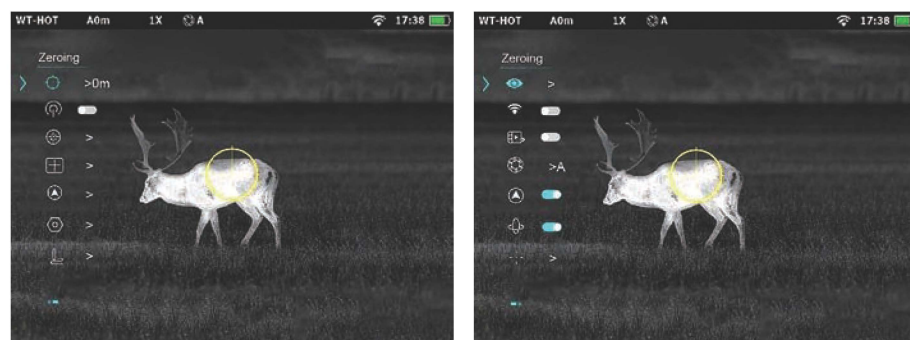
In the home screen, short press the Menu button to enter Quick menu, the navigation bar is shown at the left side of the screen as below, short press the Up or Down button to select the corresponding setting.



- Mode: switch between different color palettes from BK HOT/RED HOT/IRON/RAINBOW/WT HOT in turn;
- OLED: switch between the brightness of the OLED from level 0 to 7;
- Sharpness: adjust the sharpness of the image from level 1 to 3;
- Brightness: adjust the brightness of the image from level 1 to 10;
- Contrast: adjust the contrast of the image from level 1 to 10;
- Zero: switch between the zeroing setting saved in the Main menu, there are three zeroing settings can be saved in the Main menu;
- Ranging: switch between single ranging/continuous ranging and ranging off, perform ranging with short press of Power button.

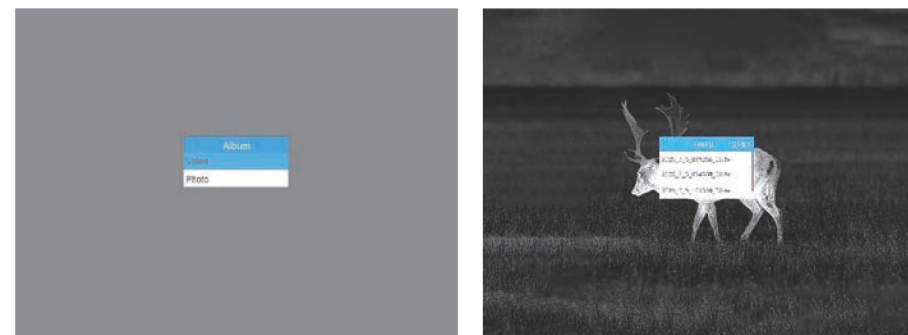
20 MAIN MENU

In the home screen, long press the Menu button to enter Main menu, the navigation bar is shown at the left side of the screen as below, short press the Up or Down button to select the corresponding setting.



21 PLAYBACK

• Short press the Menu Button to enter the submenu, use the Up or Down button to select the video or photo in the pop-up window, short press the Menu button to select, then the pop-up window will show the file list, select the file to review or playback by short pressing Menu button. Short press the Power button to return to previous menu.



• To delete the photo or video saved, enter the file list as per above instructions, select the photo or video you want to delete with short press of Menu button, the screen will show "<" ,representing "previous file" ; ">" , representing "next file" and a "dustbin icon" , representing "delete" . Switch between the option by short pressing Up/Down button, the selected option will turn WHITE, and confirm by short pressing Menu button.



• Be cautions that there will be NO further confirmation of deleting, make sure choosing the correct file to delete.

22 WIFI

- Short press the Menu button to tune on/off WIFI, the WIFI is named in the pattern of XfdApxxxxxxxxxxxx, which is generated in production and cannot be renamed.
- Find and connect to the WIFI above, there is no Password needed.

23 CVBS OUT

Connect the device with external monitor which supports CVBS video display with the video cable provided, then short press the Menu button to enable/disable CVBS out.

24 INT.SHUTTER

- Int.shutter enables to equalize the detector temperature and eliminate the image defects (such as vertical bars, phantom images, etc.).
- There are three calibration modes: Automatic (A), Manual (M)

and Background (B). Select the required calibration mode in the Main Menu.

- Automatic: Device will calibrate automatically according to the software algorithm. There is no need to close the lens cover (the internal shutter covers the sensor). In this mode, the device may be calibrated by user with the Power button.
- Manual: Press the Power button briefly to activate the shutter calibration without closing the lens cover (the internal shutter covers the sensor).
- Background: Close the lens cover and press Power button briefly.
- Short press the Menu button to enter the submenu, option of Automatic/ Manual/ Background will show, short press the Up/Down button to select, the selected option will turn green, short press Menu button to perform the corresponding shutter option. And short press the Power button to return to the Main menu.

25 COMPASS

Short press the Menu button to tune on/off Compass. When the compass is turned on the corresponding information will be displayed at the bottom of the Home screen.

26 GRAVITY SENSOR

Short press the Menu button to tune on/off Gravity sensor. When it is turned on, the corresponding information will be displayed at left and right side of the Home screen.

27 RETICLE

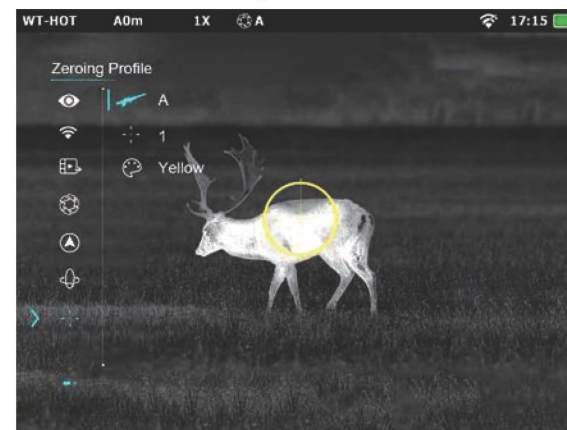
Short press Menu button to enter the Reticle submenu, short press the Up/Down button to switch between Zeroing Profile/Reticle Type/Reticle Color, and the selected option will turn green, short press Menu button to switch between corresponding options, which will be displayed in cycle as below:

- Zeroing Profile: A → B → C → D → E (The selected profile will be shown at the bar on the top of the Home menu)
- Reticle Type: 1 → 2 → 3 → 4 → 5 → 6 (The reticle on the screen will change accordingly.)
- Reticle Color: yellow → black → white → green → red (The color of the reticle will change accordingly)

28 ZEROING

TS features a "freeze" zeroing method. To zero the TS:

- Set a suitable target at the desired zero distance.
- Confirm that the rifle is empty, safe, and pointed in a safe direction, with no ammunition near the weapon.
- Set the zeroing profile to A, B, C, D ... by long press the menu button and enter the Zeroing Profile menu.



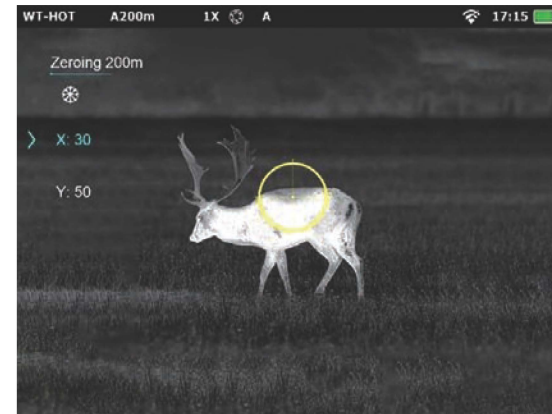
- Ensure a stable platform and natural shooting position is achieved behind the rifle.
- Load ammunition, aim, and take one good shot at the target.
- Make your rifle safe and observe the location of impact on the target.
- Based on the distance to the target you wish to zero, select or customize a zero distance to match.



- If the point of impact does not match the point of aim (the center of the reticle), adjust the X/Y position of the reticle.
- In the submenu for the selected zero distance, center the reticle on the aiming point and freeze the image view.
 - Short press the Down Button to move to the image freeze icon. The cursor position is indicated by a green arrow icon.
 - Short press the Menu Button to freeze the image.



- Select the axis (X or Y) along which to move the reticle.
 - Short press the Up or Down Button to move between X and Y. The cursor position is indicated by a green arrow icon.
 - Short press the Menu Button to select X or Y. The selected axis will turn from white to green.



- Adjust the X/Y position of the reticle until the reticle matches the point of impact.
- Use the Up Button to move in the positive direction: X= Right and Y= Up.
- Use the Down Button to move in the negative direction:
- Exit the menu by short press Power button, the reticle position is saved automatically.
- Take a confirmation shot - the point of impact should now match the point of aim. If not, adjust the X/Y position of the reticle again.

- User can quickly switch between the zeroing in different distances under the quick menu by long press the Menu button.



29 HOT TRACK

Short press the Menu button to tune on/off Hot track. When the Hot track is on, a black square will show, and it will track the place with the highest temperature on the screen.

30 LASER CALIBRATION

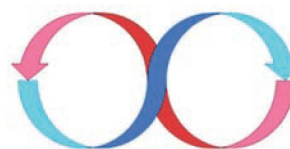
* This function is available only with the Laser Rangefinder

The default position of the laser is set at the manufacturer already, but user can also set the coordinates of the laser cursor

by adjusting the numbers of the coordinate.

- Short press the Menu button to enter the Laser Calibration submenu, option of X coordinate/ Y coordinate / default will be showed, and a yellow reticle representing the laser will be shown as well. Short press Menu button to select the corresponding option, which will turn green when selected, then short press the Up/Down button to adjust the X coordinate/ Y coordinate to calibrate the laser, and short press Menu button again to exit. The yellow reticle position will be changed as per the coordinates input.
- When Default option is selected, the coordinate of the laser will be reset to the default position.

31 COMPASS CORRECTION



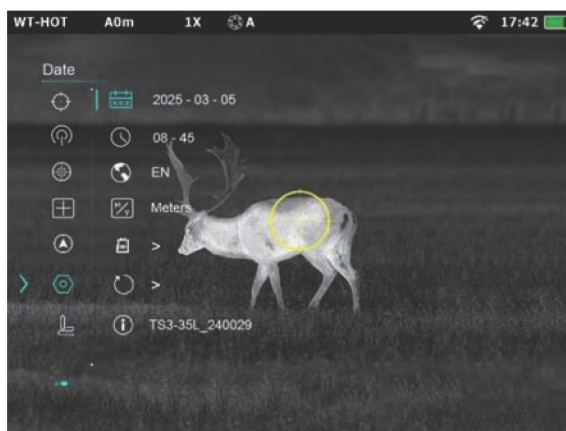
Short press the Menu button to enter the submenu, and a window will pop-up and suggest to perform Figure 8 calibration, which is shown as the figure below, as much as possible to enable the device direction pointing to all 8 quadrants of space. when it is complete, calibration completed message will pop-up.

32 PIXEL DEFECT

Short press the Menu button to enter the submenu, short press Menu button again to select Yes to correct defect pixel (message of correcting success will pop-up) or select No to return to the Main menu.

33 SETTING

Short press the Menu button to enter the setting submenu, and switch between the settings by Up/Down button, and short press Menu button to select and perform setting.



34 DATE

Short press the Menu button to active the Date submenu, the selected item will turn green.

Date format is displayed as YY.MM.DD format (2020.01.01).

Select the correct value for the year, month and date with a short press of the Up/Down button.

Switch between digits with a short press of the Menu button. Save selected date and exit the submenu with short press of the Menu button.

35 TIME

Short press the Menu button to active the Time submenu, the selected item will turn green.

Time format is displayed as HH:MM in 24-hours format (14:48).

Select the correct time for the hour and minute with a short press of the Up/Down button.

Switch between digits with a short press of the Menu button. Save selected date and exit the submenu with a short press of the Menu button.

36 LANGUAGE SELECTION

Select the Language option with the short press of Menu button, short press the Menu button to switch between languages.

37 UNITS OF MEASUREMENT

Select the measurement unit option with the short press of Menu button, short press the Menu button to switch between meters or yards.

38 MEMORY CARD

Short press the Menu button to enter the Memory card submenu, and the Memory status will be shown, short press the Up/Down button to switch between Total Memory/ Free Memory/Format. To perform Format, short press Menu button, a window will pop-up to confirm, short press the Up/Down button to switch between Yes/No/Fast Format option, the selected option will be highlighted in a red box, and short press Menu Button to confirm or short press Power button to exit and return to previous menu.

39 FACTORY RESET

Short press the Menu button to enter the Factory reset submenu, follow the instruction of the pop-up window to exit or reset. Short press Menu button to exit or long press the Menu button to reset.

40 BALLISTIC

* This function is available only with the Laser Rangefinder

The default ballistic point is not shown on the screen. Long press the Menu button to enter the Main menu, and select and enter the Ballistic menu, then switch the Ballistic mode to 1, 2 or 3 to turn on the Ballistic point, which will be shown at the center of the screen.



After all the other ballistic parameters are set, enter the quick menu, then perform Rangefinding function described above, the system will automatically calculate the deviation of the ballistic point, which will be shown at the correct position.



41 RANGE SETTING OF EACH OPTION SHOWS AS BELOW :

Menu	Range setting	Default setting
Ballistic Mode	1 ~ 3	OFF
Merge_Distance	50 ~ 500M	300M
Muzzle_vt	0 ~ 10000m/s	920m/s
FL DVert	0 ~ 200mm	38mm
FL DHort	-200 ~ 200mm	15mm

Menu	Range setting	Default setting
Altitude	0 ~ 10000m	30m
B/S TEMP	-40°C ~ 60°C	15°C
B/S PRES	100 ~ 30000hPa	1013hPa
Crosswind	-100 ~ 100m/s	0.0m/s
Longitude	-180° ~ 180°	113.50°
Latitude	-90° ~ 90°	22.30°
Temperature	-40°C ~ 60°C	25°C
Pressure	100 ~ 2000hPa	1000hPa
Humidity	0.0 ~ 100.0%	50.0%

42 NOTE :

The camera itself contains a digital compass which will calculate the parameter such as: azimuth, pitch, and roll angles. However, the digital compass will be affected by the installation position of the battery, if the azimuth, pitch, and roll angles are found abnormal after reinstalling the battery, please use the digital compass calibration function again to calibrate.

43 TECHNICAL INSPECTION

It is recommended to carry out a technical inspection each time before using the device. Check the following:

- The appearance (there should be no cracks on the body).
- The condition of the object lens and eyepiece (there should be no cracks, greasy spots, dirt or other deposits).
- The state of rechargeable battery (it should be charged).
- The controls/buttons should be in working order.

44 ID

This is the ID of the device.

45 MAINTENANCE

The 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. Silicone grease may be used for cleaning process.
- Clean the electric contacts and battery slots on the monocular 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 perfect to use a non - contact method).
- Cleaning of the exterior of the optics should be done with cleaners designed especially for this purpose.

46 TROUBLE SHOOTING

The table lists the problems that may occur when operating the Monocular. Carry out the recommended checks and troubleshooting steps in the order shown in the table. If there are defects that are not listed in the table or it is impossible to repair the defect yourself, return the monocular for repair service.

Fault	Probable Cause	Solution
Monocular will not turn on.	Batteries are completely discharged.	Charge the battery.
Monocular 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 strings	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 condensate on the interior or exterior optical surfaces of the lens.	Wipe off the outside optical surfaces with a soft cotton cloth. Let the monocular dry by leaving it in a warm environment for 4 hours.
The aiming reticle shifts after firing rounds.	The monocular is not mounted securely or the mount is not fixed on the monocular.	Check that the monocular has been securely mounted. Make sure you are using the same type and caliber of the bullets as when the monocular and weapon were initially zeroed. If your monocular was zeroed in the summer and using in the winter (or the other way round), a slight shift of the zero point is possible.

Fault	Probable Cause	Solution
The image of the object being observed is missing.	Observation through glass.	Remove the glass from the field of vision.
The monocular will not focuses.	Wrong settings.	Adjust the monocular according to the Powering On and Image Setting section. Check the outer surfaces of the objective lenses and eyepiece and, where necessary, wipe them from dust, condensation, frost, etc. In cold weather, you can use special anti - fogging coatings (e.g., the same as for corrective glasses).
The monocular can't connect with the smartphone and tablet PC.	Wi - Fi is not turned on	Turn on the WIFI in the Main menu.
Image quality is too low or the detection range is reduced.	These problems may occur due to the weather condition, such as snow, rain, fog etc.	
When the monocular is used in the in low temperature conditions, objects being observed (background) will cool down to roughly the same temperature, as a rule, and thus the temperature contrast is substantially reduced and image quality (zoom) goes down. This is a distinctive feature of the thermal imager.	In positive temperature conditions, objects being observed (surroundings and background) heat up differently	