

RATTLER

TC35-640

TC50-640

THERMAL IMAGING CLIP-ON

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FCC INFORMATION

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



This equipment complies with FCC/IC RSS-102 radiation exposure limits set forth for an uncontrolled environment.

FCC compliance: This product 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 product 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 product 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.

FCC Conditions

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

EU CONFORMITY STATEMENT



This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the EMC Directive 2014/30/EU, the RoHS Directive 2011/65/EU



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, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info



2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info

INDUSTRY CANADA ICES-003 COMPLIANCE

This device meets the CAN ICES-3 (B)/NMB-3(B) standards requirements.

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SAFETY SUMMARY

- Read and follow all instructions
- Read all warnings
- Only use the attachments/accessories specified by the manufacturer
- All service must be provided by the manufacturer

WARNING:

This product contains natural rubber latex, which may cause potentially fatal allergic reactions! If you are allergic to latex, it is important that you strictly avoid exposure to products that contain it.

WARNING:

Always make sure your firearm is unloaded before you place the scope on the firearm. Reconfirm that the chamber is empty if you stop the procedure then resume later. Safe handling rules should be followed at all times.

WARNING:

If a scope is mounted too far to the rear, the eyepiece can injure the shooter's brow. Shooting at an uphill angle also increases this hazard because it shortens the distance between the brow and the rear of the scope. For this reason, AGM scopes are engineered to provide generous eye relief. Therefore, when mounting your scope, we recommend positioning it as far forward in the mounts as possible to take full advantage of this generous eye relief. With hard-recoiling rifles, serious injury or even death can result from eyepiece impact with the shooter during the recoil process when discharging the firearm. Be certain that your installation provides sufficient eye relief for the recoil generated by your rifle before shooting the firearm.

NOTE: Give special attention to this warning when shooting uphill and/or from a prone position. These shooting conditions can dramatically reduce eye relief. PLEASE maintain maximum eye relief when shooting heavy recoiling and/or magnum firearms. THE USER ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR HAVING THE AGM SCOPE PROPERLY MOUNTED TO A FIREARM AND USING THE AGM SCOPE PROPERLY. ALWAYS CHECK THE CONDITION OF YOUR MOUNTING SYSTEM PRIOR TO USING YOUR FIREARM.

WARNING:

The proper usage of the device is important for safe operation! Therefore carefully read this manual!

WARNING:

If the device was left in storage for a longer period of time, before use, check its functionality.

WARNING:

Disassembling of the device is prohibited, except in authorized repair centers.

WARNING:

Please remove the batteries from the battery compartment before connecting the device to your PC, or it may cause computer damage.

WARNING:

The external optical surfaces should be clean at all times. Touching the optical surfaces with bare hands is not recommended.

WARNING:

Sand and sea water can damage the optical coatings!

WARNING:

Do not point the device directly at the sun!

WARNING:

Image performance is dependent on scenery and atmosphere conditions. Contrast in the same image may vary as a function of the time of day due to the effect of the sun. For example, at sunset objects will have absorbed different levels of heat resulting in greater temperature differences and better contrast.

WARNING:

When left in storage for a longer period of time, batteries have to be removed and stored in polyethylene bags to prevent contact with metal. (It is recommended to recharge the batteries every two to three months.)

WARNING:

When carrying or transporting the device, put the protective lens cap on!

WARNING:

Condensation can cause fogging of the optical surfaces! Condensation occurs when the temperature or humidity changes as follows:

- When moving the device from cold to warm place or vice versa;
- In places with high humidity.

When equalizing the temperature of the device with the environmental, the condensation disappears. Use the towel to remove moisture.

NOTES:

- The detector spectral band provides better visibility through smoke, dust, rain, smog, etc.
- Infrared radiation does not travel through glass. As a result, the clip-on does not detect objects if they are behind glass windows or other barriers.

WARNING:

Clean the lens surfaces with the lens tissue or a dry cloth!

LEGAL NOTICE

Before attaching to weapons, check the regional legal regulations in the area of application. The attachment to a weapon is always the sole responsibility of the user.

1 GENERAL INFORMATION

1.1 SYSTEM DESCRIPTION

The AGM Rattler TC35-640 and Rattler TC50-640 are the compact thermal imaging clip-on systems that allows quick transformation of the day optics into thermal imaging device without any special tools or equipment.

Rattler TC35-640 and Rattler TC50-640 clip-ons have high sensitivity 12 μ m thermal detector with 640 \times 512 resolution and 1024 \times 768 OLED monitor, which provides clear image under harsh environment conditions like darkness, fog, smoke, dust, rain, snow, wood, camouflage, etc. The clip-on can easily be attached in front of day scopes with magnification up to 8x for long range use.

The device supports pallet switch and distance measurement function. The Rattler TC detects and marks the hot spot of highest temperature. Built-in memory module supports video recording and snapshot capturing. Wi-Fi module for live video streaming and video/images recording via application is also available.

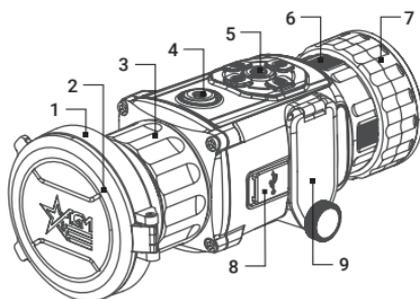


FIGURE 1-1. MAIN PARTS

TABLE 1-1. MAIN PARTS

ITEM	DESCRIPTION
1	Objective Lens
2	Objective Lens Cover
3	Objective Focus Ring
4	Power Button
5	Operation Buttons

ITEM	DESCRIPTION
6	Output Lens
7	Adapter Fixing Ring
8	USB Type-C Interface (closed with a cover)
9	Battery Compartment

1.2 KEY FEATURES

- Quick conversion of daytime optics into thermal imaging scope
- Mounts in front of any daytime scope, no re-zeroing is required
- 12 μ m high-sensitivity detector
- 640 \times 512 thermal resolution
- Fast 50 Hz imaging
- 1024 \times 768 resolution OLED display
- Lightweight and compact design
- Easy to operate control
- Adjustable color palettes
- Automatic or manual (silent) calibration
- Video recording and image capture
- Built-in EMMC memory (16 GB)
- Wi-Fi data transmission
- Stadiametric rangefinder
- Standby mode
- Waterproof, shockproof
- Powered by two standard CR123A or RCR123 rechargeable batteries
- Up to 4.5 hours continuous working
- External power supply capability
- 5-year warranty

1.3 STANDARD COMPONENTS

The Rattler standard components are shown in Figure 1-2 and listed in Table 1-2.

The ITEM column indicates the number used to identify items in Figure 1-2.

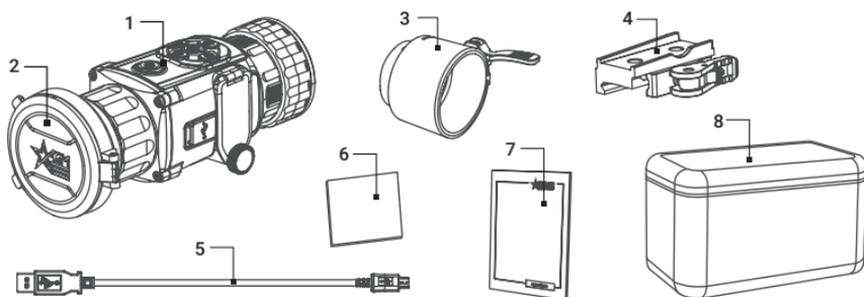


FIGURE 1-2. STANDARD COMPONENTS

TABLE 1-2. STANDARD COMPONENTS

ITEM	DESCRIPTION	QUANTITY
1	Thermal Imaging Clip-On	1
2	Objective Lens Cap	1
3	Day Scope Front Adapter*	1
4	QR Mount*	1
5	USB Cable	1
6	Lens Tissue	1
7	User Manual	1
8	Carrying Case	1

*Mounting kit depends on the region of sale.

1.4 OPTIONAL EQUIPMENT

Optional items are shown in Figure 1-3 and listed in Table 1-3.

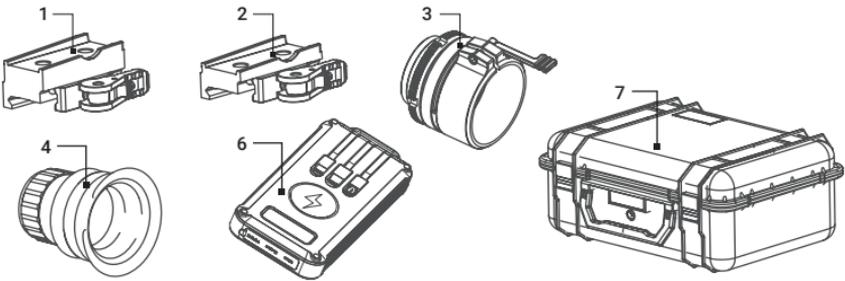


FIGURE 1-3. OPTIONAL EQUIPMENT

TABLE 1-3. OPTIONAL EQUIPMENT

ITEM	DESCRIPTION	PART NO.
1	AGM-2113 ADM Single Lever QR Mount (Height: 1.03")	6306LSR1
2	AGM-2114 ADM Low Base Single Lever QR Mount (Height: 0.78")	63061141
3	Front Q-R Adapter for Rattler TC: ARM52-56	6306RC61
	Front Q-R Adapter for Rattler TC: ARM52-50	6306RC51
	Front Q-R Adapter for Rattler TC: ARM52-44	6306RC41
	Front Q-R Adapter for Rattler TC: ARM52-30	6306RC31
4	Eyepiece for Rattler TC	6328ERC1
5	TS Kit for Rattler TC Family: Eyepiece for Rattler TC (Part # 6328ERC1) with AGM-2113 (Part # 6306LSR1). Converts CO into Scope.	6327CE31
6	AGM Power Bank	6308EPB1
7	Hard Case for Storage/Transportation	6610HCS1

2 OPERATING INSTRUCTIONS

2.1. BASIC OPERATIONS

2.1.1 UNPACKING

The following steps must be completed prior to each mission.

1. Open the carrying case, remove the device, and verify that all components are included.
2. Inspect the device for any obvious evidence of damage to the optical surfaces, body, operation buttons, etc. Ensure that all optical surfaces are clean and ready for use. Clean all optical surfaces with a lens tissue.

2.1.2 BATTERIES INSTALLATION

CAUTION:

Verify that the equipment is OFF before remove the batteries.

To install the batteries (refer to Figure 2-1):

1. Turn the battery cover knob (A) counter clockwise and then open the battery cover (B).
2. Install two CR123A or RCR123 batteries (C) into the battery compartment. Align the polarity symbols on the batteries as shown below.
3. Close the battery cover. Turn the battery cover knob clockwise until stop.

When the device is on a battery charge level is displayed on the status bar.

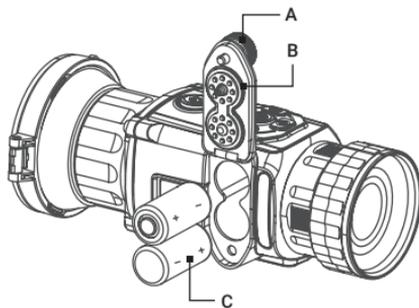


FIGURE 2-1. BATTERY INSTALLATION

2.1.3 BATTERY VOLTAGE SELECTION

The device supports 3.0 V or 3.7 V rechargeable lithium batteries or 3.0 V non-rechargeable batteries. Select the correct battery voltage in the device menu after you install the batteries, or it may cause abnormal shutdown.

1. In the view mode, hold the MENU button (⊞) to show the menu.
2. Select [➔] Battery Voltage menu item, and press the MENU button (⊞) to switch the voltage. Select 3V battery voltage for use with CR123A batteries; select 3.7V battery voltage for use with RCR123A rechargeable batteries.

2.1.4 CONNECTING THE DEVICE

WARNING:

Please remove the batteries from the battery compartment before connecting the device to your PC, or it may cause computer damage.

1. Open the cable interface cover.
2. Connect the device and power adapter with a Type-C cable to power on the device. Alternatively, connect the device and PC to copy/delete files.

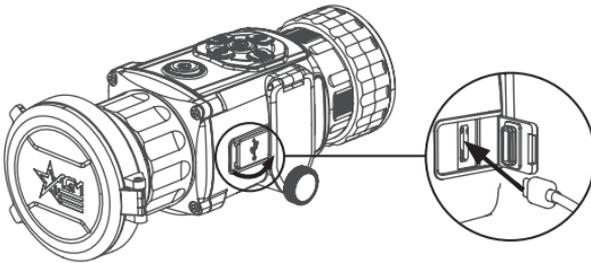


FIGURE 2-2. CABLE INTERFACE

2.1.5 CONTROL BUTTONS

The Rattler controls are shown in Figure 2-3 and are defined in Table 2-1.

Each button is responsible for some functions selected by short press or long press of the button. Pushing a button for 3+ second is considered "Long Press/ Hold."

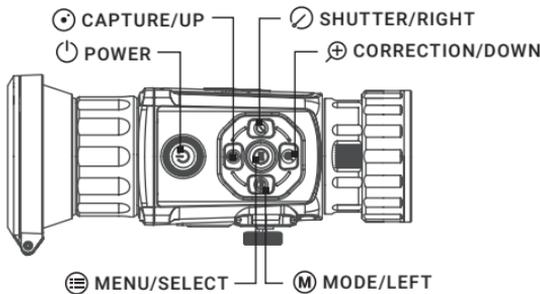


FIGURE 2-3. CONTROL BUTTONS

TABLE 2-1. BUTTON FUNCTIONS

BUTTON	FUNCTIONS
 POWER	Press: Standby Mode/Wake Up Device Hold: Power On/Off
 MENU / SELECT	Press: Enable/Disable OSD Hold: Menu Operation
 MODE / LEFT	Press: Switch Palettes
 CAPTURE / UP	Press: Capture Image Hold: Start/Stop Record Video
 SHUTTER / RIGHT	Press: Correct Non-uniformity of Display
 CORRECTION / DOWN	Press: Press with Capture button together to launch the Correction menu. Hold: Reticle ON/OFF

2.1.6 POWER ON AND OFF

Power On

Hold the POWER button  for about 3 seconds to power on the device. An image will appear on the display.

Power Off

When the device is turned on, hold the POWER button  about 3 seconds to power off the device.

Auto Power Off

In the “Auto Power Off” menu you can set the time for the automatic shutdown of the device as required (OFF / 30 min / 45 min).

The Auto Power Off function starts countdown when Standby mode enable. The auto power off countdown is disabled when the device wakes up from standby. The countdown will be restarted when the device is put into standby mode again.

2.1.7 STANDBY MODE

Standby mode is used to save battery power. In power-saving mode, some power-consuming features such as the display, network hardware, or internal storage will be temporarily disabled.

To turn on the standby mode short press the POWER button . To exit standby mode, short press the POWER button again.

When the standby mode is turned off, the normal operation of the device is quickly restored.

2.1.8 ON-SCREEN DISPLAY

Press the MENU button  in the view mode to display or hide the On-Screen Display (OSD) information.

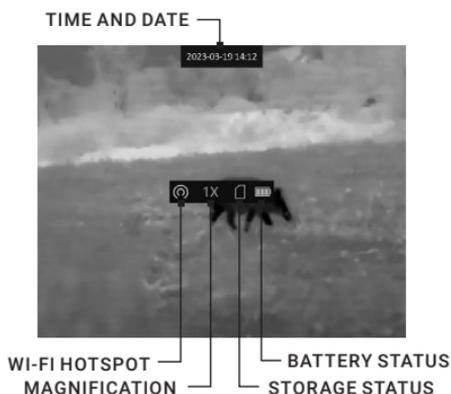


FIGURE 2-4. ON-SCREEN DISPLAY

When OSD is on, the information of Wi-Fi hotspot activation, storage memory status, battery status, time and date displays on the screen.

2.1.9 PALETTE SETTINGS

You can select different palettes to display the same scene in different effects. Press the MODE button (M) in the view mode to switch palettes.

TABLE 2-2. PALETTE SETTINGS

PALETTE	DESCRIPTION
WHITE HOT	The hot part is white-colored in view. The higher the temperature is, the lighter the color is.
BLACK HOT	The hot part is black-colored in view. The higher the temperature is, the darker the color is.
FUSION	The hot part is white-colored. From high temperature to low temperature, the image is colored in from white, yellow, red, pink to purple.
RED HOT	The hot part is red-colored in view. The higher the temperature is, the redder the color is.

2.1.10 SHUTTER RELEASE

Press the SHUTTER button (S) in the view mode to release the shutter once for correction of the non-uniformity of display (see 2.2.8 for more information).

2.1.11 VIDEO RECORDING / IMAGE CAPTURE

Video Recording

Hold the CAPTURE button (C) in the view mode and start recording. In the upper left corner, the recording time displays.

Hold the CAPTURE button (C) again to stop recording.

Image Capture

Press the CAPTURE button (C) in the view mode, to capture the image.

NOTE:

- When captured, the image freezes for 1 second and a prompt shows on the display.
- For exporting captured images, refer to File Export.

2.1.12 FILE EXPORT

WARNING:

Please remove the batteries from the battery compartment before connecting the device to your PC, or it may cause computer damage.

1. Before connecting the thermal clip-on to a computer, please make sure that the Wi-Fi function of the clip-on is disabled.
2. Connect the thermal clip-on to your PC with USB cable and open the detected disk.
3. The directory is named by the current date. Enter DCIM > "Date" to view the videos and snapshots.
 - Select and copy the videos to PC and play the file with the player.
 - Select and copy the snapshots to PC and view the files.
4. Disconnect the device from your PC.

NOTE:

- The device displays images when you connect it to PC. But functions such as recording, capturing and hot spot are disabled.
- When you connect the device to PC for the first time, it installs the driver automatically.

2.1.13 ELECTRONIC ACCURACY CORRECTION

Press the CORRECTION button ⊕ and CAPTURE button ⊙ together in the view mode to display the Electronic Accuracy Correction menu.

Use Electronic Accuracy Correction to solve the problem of shooting deviation and to achieve better accuracy.

For more information on accuracy correction procedures, see Part 2.2.21.

2.1.14 INSTALLING THE CLIP-ON ONTO THE LENS OF A DAY SCOPE

WARNING:

Always make sure your firearm is unloaded before you place the scope on the firearm. Reconfirm that the chamber is empty if you stop the procedure then resume later. Safe firearms handling rules should be followed at all times.

Use the front adapter to install the Rattler TC onto day scope lenses.

ATTENTION:

The day scope front adapters are not recommended for installing the Rattler TC on firearms with heavy dynamic recoil (.308 Win or stronger).

NOTE:

The Rattler TC cannot be attached to scopes that include focus rings on the housing of the objective lens.

NOTE:

The adapter must fit with the diameter of the day scope front lens. There are various optional day scope front adapters available for a wide range of objective lens diameters.

Install the front adapter to the Rattler as follows (refer to Figure 2-5):

1. Align the pins of the reducing ring (A) with the bayonet grooves in the Rattler's output lens attachment place. This position is marked with a red dot on the ring and output lens.

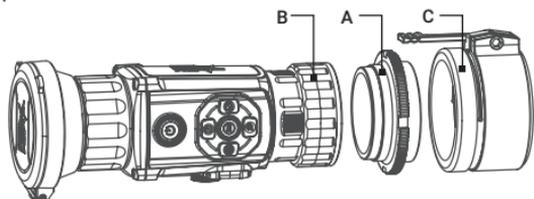


FIGURE 2-5. FRONT ADAPTER INSTALLATION

2. Insert the reducing ring to the grooves and then turn it clockwise as far as it will go.
3. Rotate the Rattler's fixing ring (B) clockwise to tighten it on the reducing ring thread. Please note the fixing ring has left-hand thread. Be careful not to overtighten the fixing ring.
4. Screw the front adapter (C) into the reducing ring.

NOTE:

Different models of front adapters may have different designs. Refer to the user manual for your adapter for correct installation.

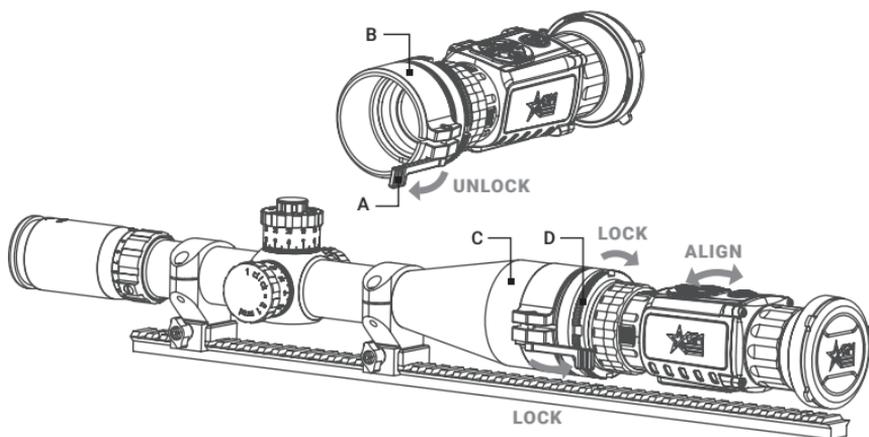


FIGURE 2-6. CLIP-ON INSTALLATION

Install the Rattler TC on the lens of a day scope as follows (refer to Figure 2-6):

1. Turn the lever (A) of adapter (B) backwards to loosen the adapter clamping device.
2. Slide the Rattler TC with the adapter onto the lens of the day scope (C) as far as it goes.

- Affix the clip-on to the day scope by locking the lever (A) of adapter.
- Rotate the clip-on to align its vertical position. Tighten the lock nut (D) tightly with the special wrench to secure the position.
- Verify that the clip-on is firmly secured to the day scope.

NOTE:

AGM recommends that you use an eyecup on the day scope's eyepiece for maximum safety and comfort, as well as to escape detection.

2.1.15 INSTALLING THE RATTLER ON A PICATINNY/WEAVER RAIL

Use the quick release mount (QR mount) to install the Rattler TC on a Picatinny/Weaver rail. The mount is attached to the scope with two screws (Figure 2-7). The recommended tightening torque for the fixing screws is 4-5.3 Nm (5.44-7.2 ft lb).

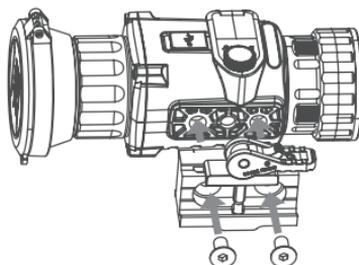


FIGURE 2-7. QUICK RELEASE MOUNT INSTALLATION

To install the Rattler TC on a Picatinny/Weaver rail, perform the following (Figure 2-8):

- Unlock the clamping device of the scope mount by pushing down on the lever holder (A) and unlocking the lever (B).
- Install the scope on the Picatinny/Weaver rail so that the stop (C) slides into the transverse slot on the rail.
- Affix the scope to the rail by locking the lever (B).
- Verify that the clamping device is firmly holding the Rattler. If necessary, adjust the clamping device's lever-cam lock.

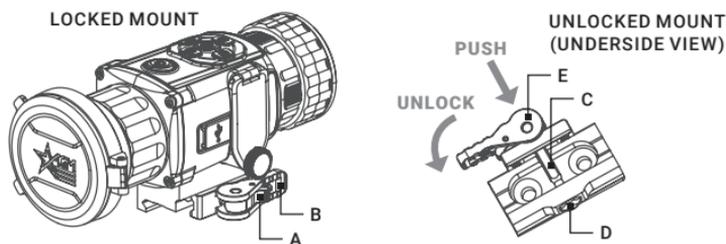


FIGURE 2-8. OPERATION OF THE QR MOUNT

To adjust the mount's clamping device, do the following:

- Remove the Rattler from the weapon.
- With the clamping device unlocked (as shown in Figure 2-8), push the cam (E) towards the arrow, which will cause the nut (D) to slide out of its hole.

3. To tighten/ loosen the clamping device, push down on the cam (E) and turn the nut (D) CW/ CCW respectively, in one-two increments (see note below). Much like when the cam (E) is released, backward-moving spring will cause the nut (D) to slide back into its hole.

NOTE:

The eight-sided nut of the mount lever-cam lock will only fit into their hole if turned in one of the discrete positions, using increments equal to $360^{\circ}/8$.

4. Verify that the lever-cam lock securely holds the weapon mounting rail.

NOTE:

The optical axis of the Rattler TC and day scope should be aligned. The distance between the axis should not exceed 3 mm. If the difference in the axis heights of the Rattler TC and day scope above the weapon rail exceeds 3 mm, you will need to replace the day scope mounting rings or monoblock.

2.1.16 THERMAL VIEW OBSERVATION

1. Install the Rattler TC on the weapon with a day scope (refer to part 2.1.15 or 2.1.16). Verify that the Rattler TC is securely mounted.
2. Remove the protective caps.
3. Point the equipment at an object.
4. Activate the Rattler TC. After approximately 4 sec, video of the thermal scene should appear.
5. If the day scope includes a focusing ring (i.e., parallax adjustment knob), adjust the focus for a parallax-free image.
6. Turn on the day scope's reticle illumination and adjust the reticle brightness.
7. Adjust the focus of Rattler TC by turning the focus ring.
8. Using the buttons on the control panel, configure the Rattler TC for your specific situation. Set palette, brightness, contrast, scene mode and FFC (Flat Field Correction), to display the best image effect.

For more information on operational setting procedures, see Part 2.2 (Main Functions).

2.1.17 EYEPIECE REPLACEMENT

An optional eyepiece turns the device to a rifle scope or to a handheld observation camera.

1. Rotate the fixing ring (Figure 2-9, A) of clip-on output lens (B) counter clockwise to remove it.
2. Align the optional monocular eyepiece (C) with the grooves (D) of device, and rotate the fixing ring of eyepiece (E) clockwise to tighten it.

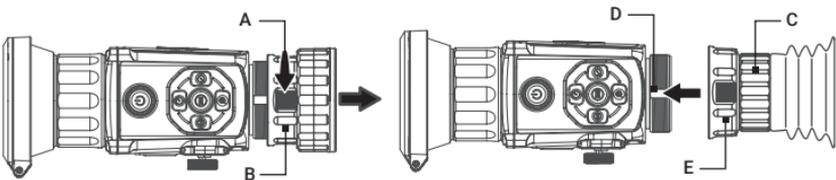


FIGURE 2-9. EYEPIECE REPLACEMENT

2.2 MAIN FUNCTIONS

2.2.1 MENU OPERATION

When the device powers on, hold the MENU button  in the view mode to display the menu.

Press the CORRECTION button  or CAPTURE button  to move between menu items. The active element is highlighted in orange. Press the MENU button  to select menu item or change an option.

Hold the MENU button  to save settings and exit the menu.



FIGURE 2-10. MAIN MENU

TABLE 2-3. MENU FUNCTION

MENU ITEM	SYMBOL	OPTION	FUNCTION
BATTERY VOLTAGE		3.0 V / 3.7 V	Battery voltage selection.
NETWORK		Close	Enables or disables the Wi-Fi hotspot.
		Hotspot	
CONTRAST		10 Levels of contrast	Adjusts the image contrast.
BRIGHTNESS		10 Levels of brightness	Adjusts the image brightness.
SCENE MODE		Recognition	Switches between the Recognition mode and Jungle mode.
		Jungle	
RETICLE		5 Types of Reticle, 4 Colors, Reticle OFF	Reticle On/OFF. Reticle type and reticle color selection.
IMAGE CALIB.		Auto FFC/ Manual FFC/ External	Select the Flat Field Correction (FFC) mode.

MENU ITEM	SYMBOL	OPTION	FUNCTION
CVBS		OFF	Turn on and off the CVBS Output function to view the video on CVBS monitor.
		ON	
DPC		---	Correct dead pixel manually.
AUTO POWER OFF		OFF/30 min/ 45 min	Set the automatic shutdown time.
UNIT		yard / m	Selection of the unit of measurement for distance.
BURN- PREVENTION		OFF	Turn on and off the Burn Prevention function.
		ON	
VERSION		---	View the firmware version number and serial number.
RESTORE		---	Restore the device to defaults.
LANGUAGE		Languages	Select the language of interface.
TIME SYNC.		Time Format / Time / Date	Set the time and date.
OSD		OSD / Time / Date	Enable or disable OSD, time, date.
MEASURE		Target: Grey Wolf / Deer / Brown Bear / Custom	Enter distance measurement mode. Set the target height.
HOT TRACKING		OFF	Enable/disable hot spot mark (marking the spot of highest temperature).
		ON	

2.2.2 BATTERY VOLTAGE

The device supports 3.0 V or 3.7 V rechargeable lithium batteries or 3.0 V non-rechargeable batteries. Select the correct battery voltage in the device menu after you install the batteries, or it may cause abnormal shutdown.

1. In the view mode, hold the MENU button  to show the menu.
2. Select  **Battery Voltage** menu item, and press the MENU button  to switch the voltage. Select 3V battery voltage for use with CR123A batteries; select 3.7V battery voltage for use with RCR123A rechargeable batteries.

2.2.3 NETWORK CONFIGURATION

Connect your phone to the Wi-Fi hotspot of the rifle scope, you can configure the parameters and realize functions of the device.

1. Hold the wheel button  to show the menu.
2. Select  **Network** menu item and press the wheel button  to enable or disable Wi-Fi hotspot.
3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.
4. Open the AGM Connect APP and connect your phone with the device (refer to Section 2.3). You can view the interface of rifle scope on your phone.

NOTE:

When the power is less than 15%, the Wi-Fi hotspot function will be turned off automatically.

2.2.4 CONTRAST ADJUSTMENT

1. Hold the MENU button  to go to the menu.
2. Select  **Contrast** menu item and press the MENU button  to adjust the image contrast. You can select one of ten levels of the contrast.
3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.5 BRIGHTNESS ADJUSTMENT

1. Hold the MENU button  to show the menu.
2. Select  **Brightness** menu item and press the MENU button  to adjust the brightness. You can select one of ten levels of the brightness to adjust the image lighter or darker.
3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.6 SCENE MODE

You can select proper Scene Mode according to environment temperature to improve the display effect.

1. Hold the MENU button  to show the menu.
2. Select  /  **Scene Mode** menu item ( is default option) and press the MENU button  to switch scene.

Recognition mode () improves an image so that the object edge is more distinct.

Jungle mode () is more suitable for hunting environment because of the highlight function of small objects.

3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.7 RETICLE

You can enable or disable the reticle and set options such as type, color, and position correction (coordinates). The crosshair helps you aim quickly and accurately when using the optional TS Kit for Rattler TC.

1. Hold the MENU button (⊞) to show the menu.
2. Select  Reticle menu item and press the MENU button (⊞) to enter the reticle setting interface. Press (+) or (○) buttons to move between options.
3. Select a **Zeroing No.** You can select **OFF** here to disable the reticle.
4. Set reticle type.
 - 1) In the reticle setting interface select **Type**.
 - 2) Press the MENU button (⊞) to select a reticle type. 5 types of reticle can be selected.

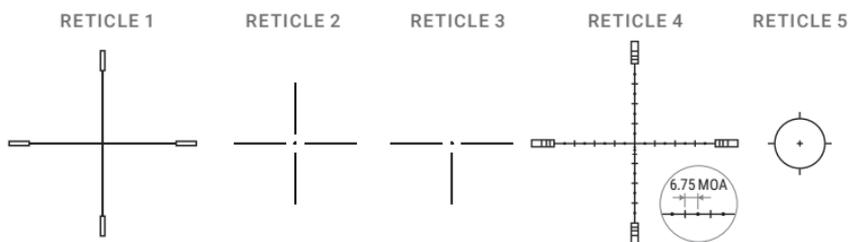


FIGURE 2-11. RETICLE PATTERNS

5. Set reticle color.
 - 1) In the reticle setting interface select **Color**.
 - 2) Press the MENU button (⊞) to select a reticle color. Black, white, red and green colors are available.
6. (Optional) Repeat 3 to 5 to set type and color for other reticles. You can save up to five reticles.
7. Set the distance to the target:
 - 1) In the reticle setting interface select **Distance**.
 - 2) Press the MENU button (⊞) to select the digit you want to change (color of selected digit will be changed to the orange).
 - 3) Press (+) or (○) buttons to change the number.



FIGURE 2-12. RETICLE SETTINGS

The reticle correcting function can help you aim with high accuracy. The rifle scope has the ability to boresighting using the “One-Shot Zeroing” method.

Set the target to the selected zeroing distance. Align the reticle with the center of the target and shoot. If the point of impact does not coincide with the aiming point, correct the reticle as follows.

8. (Optional) Select **Freeze** option, and press the MENU button  to enable the Freeze function.

NOTE:

When enabling the Freeze function in reticle, you can adjust the position of the cursor on a frozen image. This function can prevent image flutter.

9. Two crosshairs show in the view. The big one is reticle crosshair, and the small one is reference small crosshair. Reference crosshair will appear in the centre of the display. Zero the scope by moving the reticle on the screen. Set the reticle position:

- 1) Aim the big reticle at the center of target.
- 2) (Optional) Select **Zoom** option, and press the MENU button  to switch the zoom ratio.
- 3) Select the coordinates **X=0.00 Y=0.00**.
- 4) Press  and , buttons to move reticle left and right (X coordinate), press  and  buttons to move reticle up and down (Y coordinate).

Holding the reference small crosshair at the aiming point (center of the target), move the reticle until it is aligned with the point of impact. The coordinates show the current position of the reticle.

TABLE 2-4. BORESIGHT CORRECTIONS

MODEL	ADJUSTMENT VALUE	RETICLE OFFSET	BORESIGHT INCREMENT
RATTLER TC35-640	1 click	1 pixel	0.21 mil / 0.73 MOA / 2.1 cm at 100 m distance / 0.76 in at 100 yd distance
RATTLER TC50-640	1 click	1 pixel	0.15 mil / 0.51 MOA / 1.5 cm at 100 m distance / 0.53 in at 100 yd distance

10. (Optional) Repeat 7 to 9 to set the position for other reticles. You can save up to five corrections.

- 11 Hold the MENU button  to exit. The window “Save the parameters?” will appear.

- **OK:** Save the settings and exit.
- **CANCEL:** Exit without saving the settings.

NOTE:

There are 5 zeroing settings in total, and you can configure reticle, distances and corrections in each reticle group.

2.2.8 IMAGE CALIBRATION

The Image calibration function in the Rattler performs the so-called Flat Field Correction (FFC) can correct non-uniformity of display. During correction, a shutter will be lowered in front of the detector. A click is heard and the image is momentarily interrupted. In this case, the detector is calibrated and the image becomes more accurate.

1. Hold the MENU button  to show the menu.
2. Select  FFC menu item and press the MENU button  to switch the FFC mode.

Auto FFC: The clip-on performs FFC automatically when switching on or rebooting the camera.

Manual FFC: Press the SHUTTER button  in live view to correct the non-uniformity of display.

External: Cover the lens cap, then press the SHUTTER button  in live view to correct the non-uniformity of display.

3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.9 CVBS OUTPUT

You can view the video on CVBS monitor, to get a better and clear image, more convenient to check the detail.

1. Connect the USB-CVBS cable to USB port of thermal clip-on and to monitor's CVBS port.

NOTE:

USB-CVBS cable need to be purchase separately.

NOTE:

CVBS Output function doesn't support hot plug, so please connect the cable before powering on.

2. Hold the MENU button  to show the menu.
3. Select CVBS menu item and press the MENU button  to turn on or turn off the CVBS video output.
4. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.10 DEFECTIVE PIXELS CORRECTION

Defective Pixels Correction (DPC) function can correct the defective pixels on the screen which have not performed as expected.

Before you start switch the palette to White Hot mode.

1. Hold the MENU button  to show the menu.
2. Select  DPC menu item and press the MENU button .
3. Press , ,  and  buttons to move the cursor to the dead pixel.
4. Hold the MENU button  to correct the dead pixel.

2.2.11 AUTO POWER OFF

You can set the time for the automatic shutdown of the device as required.

1. Hold the MENU button  to show the menu of device.
2. Select  **Auto Power Off** menu item and press the MENU button  to select OFF, 30 min or 45 min.
3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.12 UNIT

You can set the unit (yards or meters) of measurement for distance.

1. Hold the MENU button  to show the menu of device.
2. Select  **Unit** item and press the MENU button  to switch the unit.
3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.13 BURN PREVENTION

You can protect the thermal clip-on under the sun or other bright light with high temperature that could leave a damage to the clip-on. When you point the device directly at the heat, the shutter will be released and cover the sensor to protect it. It resumes once the environment turns to normal.

1. Hold the MENU button  to show the menu.
2. Select  **Burn-Prevention** menu item and press the MENU button  to turn on or turn off the Burn Prevention function.
3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.14 VERSION

1. Hold the MENU button  to show the menu of device.
2. Select  **Version** menu item and press the MENU button . You can view the device information such as firmware version, and serial number.
3. Press  or  button to move to another menu item or hold the MENU button  to exit a menu.

2.2.15 RESTORE DEVICE

You can reset the settings of device.

1. Hold the MENU button  to show the menu of device.
2. Select  **Restore** menu item and press the MENU button  to restore the device to defaults according to the prompt.

2.2.16 LANGUAGE SETTING

You can select different languages of user interface.

1. Hold the MENU button  to show the menu.

2. Select **Aa** Language menu item and press the MENU button  to select the language.
3. Hold the MENU button  to save settings and exit.

2.2.17 TIME SYNCHRONIZATION

You can display the date and time on the screen. 24-hour and 12-hour time format are available.

1. Hold the MENU button  to show the menu.
2. Select **⌚** Time Sinc. menu and press the MENU button  to enter the Time Synchronization interface.
3. Press  or  buttons to select the **24-Hour Time** and press the MENU button  to switch the time format.
4. Press  or  buttons to select the **Time** or **Date** and press the MENU button  to select the hour, minute, second, year, month, or day to be synchronized. Press  or  buttons to change the number.
5. Hold the MENU button  to save settings and exit.

2.2.18 ON-SCREEN DISPLAY

You can choose which OSD information to display in the live view interface. You can see Wi-Fi hotspot activation, storage memory status, battery status, time and date.

1. Hold the MENU button  to show the menu.
2. Select **Ⓜ** OSD menu item and press the MENU button  to enter.
3. Press  or  buttons to select the **OSD**, **Time** or **Date**. Press the MENU button  to switch on/off.
4. Hold the MENU button  to save settings and exit.

Press the MENU button  in the view mode to display or hide the OSD) information.

2.2.19 DISTANCE MEASUREMENT

The device can measure the distance between the target and the observer's position.

NOTE:

When measuring the distance, keep your hand and the position steady. Otherwise, the accuracy may be affected.

1. Hold the MENU button  to show the menu.
2. Select **📏** Measure menu item and press the MENU button  to enter the distance measurement mode.
3. Press  button to enter the target setting interface.
 - 1) Press  or  to select the target from Wolf, Bear, Deer, and Custom.
 - 2) Press the MENU button  to set the target height. Press  or  buttons to change the number. Each target height preset can be modified from 0.1 to 9.9 m. Press the MENU button  to confirm.
 - 3) Hold the MENU button  to save settings and exit target setting.

- Align the center of the top mark with the top edge of the target. Press the MENU button (☰). The top mark blinks and then changes to the bottom mark.
- Align the center of the bottom mark with the bottom edge of the target. Press the MENU button (☰). The bottom mark blinks and then disappears.
- The left top of the image displays the distance measurement result and the height of the target.



FIGURE 2-13. DISTANCE MEASUREMENT

NOTE:

Go to distance measurement interface, and press (☰) button to view the result of the previous measuring target.

2.2.20 HOT TRACKING

The device can detect the highest temperature spot in the scene and mark it on display.

- Hold the MENU button (☰) to show the menu.
- Select (☰) **Hot Tracking** menu item and press the MENU button (☰) to enable (☰) or disable (☰) hot spot mark (marking the spot of highest temperature).
- Press (☰) or (☰) button to move to another menu item or hold the MENU button (☰) to exit a menu.

When the hot spot mark is enabled, the green cross mark -'-' displays in the spot of the highest temperature. When the scene changes, the green mark moves.

2.2.21 ELECTRONIC ACCURACY CORRECTION

After mounting of clip-on to the weapon with day scope the clip-on optical axis can be offset off scope optical axis. The Electronic Accuracy Correction function supports manually adjusting the position of the live preview window by pressing the buttons up, down, left, and right. The image region could be adjusted in 4 directions in the whole screen area.

Adjust the electronic accuracy correction as follows:

- Aim your day scope to the middle of target and shoot. This action will test the control of day scope accuracy.
- Mount the Rattler TC on the day scope. Aim at the center of the target and shoot again.
- Press (☰) and (☰) buttons together in the view mode to display the **Electronic Accuracy Correction** interface.

4. (Optional) Press \oplus or \odot button to select **Reference Line**, and press \equiv button to enable or disable it. A horizontal reference line appears in the middle of the view. This line helps to align the position of the thermal scope and day optics when using the front mount. Rotate the thermal scope to align the reference line with the daylight reticle.



FIGURE 2-14. ACCURACY CORRECTION

5. Press \oplus or \odot button to select the coordinates, and press \equiv button to confirm.
6. Press M or \curvearrowright buttons to move image in horizontal direction (X axis) and press \odot or \oplus buttons to move image in vertical direction (Y axis) until the thermal image window reaches the position to make the Point of Impact being aimed by the day optics reticle.

NOTE:

One step of image correction means 0.25 mil / 0.86 MOA / 2.5 cm at 100 m distance / 0.86 in at 100 yd distance.

7. (Optional) Press \oplus or \odot button to select **Restore**, and press \equiv button to confirm. Press OK to restore the view to default position, and CANCEL to return to the setting interface according to the prompt.

NOTE:

The default position of image window may not be exactly at zero (X = 0, Y = 0). This is caused by slight individual differences of optical components, and it is a normal phenomenon.

8. Press the MENU button \equiv to save image position and exit.

For example:

When the point of impact with Rattler is 5 cm on the right side and 7.5 cm on the up side of previous point of impact (previous aiming position), move the image to the right by pressing \curvearrowright button 2 times (the X value will increase by two), and move the image up by pressing \odot button 3 times (the Y value will decrease by three).

2.3 CLIENT SOFTWARE INTRODUCTION

Search the AGM Connect software in App Store (iOS System) or Google Play™ (Android System) and install the application on your mobile phone. Turn on the Wi-Fi hotspot on the thermal device and then connect your phone to the hotspot.

- Hotspot Name: Wlan-<Serial No.>

- Hotspot Password: Last 9 digits of Serial Number of your digital scope.

NOTE:

The device password is set by user at first activation. If the password was lost or forgotten, it can be reset. To reset a password perform the following steps:

1. When the thermal scope is turned on, hold the MENU button (☰) to activate the menu.
2. Select (↶) Restore menu item and press the MENU button (☰) to confirm. Press OK to restore all parameters to default settings.

1. Run the app and connect the phone or tablet with the device.
2. If the device is inactivated, set the password and activate it. If the device is activated, enter the password to add it to the app.
3. When the device is added, the live view can be seen. You can view the interface of the device on the software. User can change such image parameters as brightness, contrast, palettes directly via phone or tablet as well as record video on phone/tablet memory.

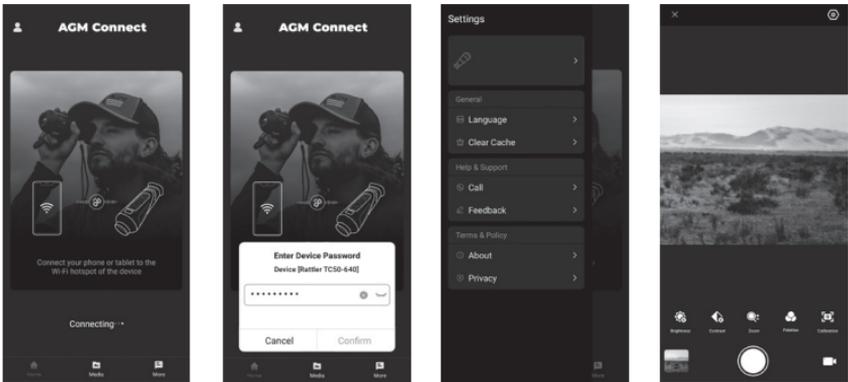


FIGURE 2-15. CLIENT SOFTWARE

3 MAINTENANCE

3.1 MAINTENANCE

3.1.1 CLEANING PROCEDURES

1. Gently brush off any dirt from the body of the device using a clean, soft cloth.
2. Moisten the cloth with fresh water and gently wipe down the external surfaces (except lenses).
3. Dry any wet surfaces (except lenses) using another dry, clean, soft cloth.
4. Using a lens brush, carefully remove all loose dirt from the lenses.
5. Use a high quality lens wipe to remove dirt or smudges from the lens and display window. Do not use abrasives or solvents to clean the housing, lens, or display window. Clean the glass surfaces using circular movements, starting from the center of the lens and moving out towards the edge.
6. Clean the accessories with a soft brush (or cloth) dampened with soap and water.

3.1.2 PREPARING FOR EXTENDED STORAGE

CAUTION:

Thoroughly dry each item before placing them into the storage case.

To prepare the clip-on for extended storage:

1. Clean the clip-on and accessories.
2. Place all items into the storage case.

3.1.3 UPGRADE DEVICE

WARNING:

Please remove the batteries from the battery compartment before connecting the device to your PC, or it may cause computer damage.

If you removed the batteries, please make sure the device is connected to the computer during the update process. Otherwise, the device will shut off and may cause unnecessary upgrade failure, firmware damage, etc.

1. Visit www.agmglobalvision.com/firmware website. Select your product, download the firmware update package to your PC and unzip it. Follow the detailed instructions on the website.
2. Connect the device to your PC with USB cable.
3. Turn on the device. Make sure the Wi-Fi hotspot function is disabled.
4. Open the detected disk (USB drive) in file manager program. Copy the unzipped *digicap.dav* file and paste it to the root directory of the device.

5. Turn off the device completely, then power it back on. After awhile, the firmware update process will start automatically. During the update, the screen will display the inscription “Upgrading...”. The update process will be completed when the inscription “Upgrading...” goes out.
6. Turn off the device and disconnect it from your PC.

You can also enjoy automatic update function in AGM Connect App (see section 2.3 for details).

1. Start the AGM Connect App and tap the Settings icon in the left top corner.
2. Tap your device in the device list. The information about your device will shown.
3. Tap **Checking for Upgrade** to detect and download the latest FW version.

3.2 TROUBLESHOOTING

Table 3-1 lists the most common malfunctions that may occur with your equipment. This table does not list all the malfunctions that may occur with your device. If the equipment malfunction is not corrected by the suggested actions, or a problem occurs that is not listed in this table, please contact AGM Global Vision’s Customer Support center or your retailer.

TABLE 3-1. TROUBLESHOOTING

MALFUNCTION	CORRECTIVE ACTION
The Rattler TC fails to activate.	<ol style="list-style-type: none"> 1. Batteries are missing or improperly installed. Insert batteries or install correctly. 2. Batteries are dead. Replace the batteries. 3. Batteries, surfaces or contacts are dirty or corroded. Clean the contact.
The Rattler TC shut off some-times after shot.	<ol style="list-style-type: none"> 1. Wrong battery voltage. The default is 3.0 V. If you use 3.7V battery, switch it in the menu. 2. Improper dimension of the battery. Check if there is the rubber ring attached on the battery compartment. 3. Low battery level. Check the remaining capacity of the batteries, which may be low on power to maintain performance.
The image is not clear.	Perform the sight adjustment referring to section 2.1.
Wi-Fi is not found.	Examine whether the Wi-Fi function is turned on. If not, go to OSD menu and turn on Wi-Fi hotspot.
Capturing or recording fails.	<ol style="list-style-type: none"> 1. The device is connected to your PC and has disabled the capturing and recording. Disconnect the device. 2. The storage space is full. Delete old files. 3. The device is in a low-battery condition. Replace the batteries.
The PC cannot identify the Rattler TC.	<ol style="list-style-type: none"> 1. Connect the device to your PC with standard USB cable. 2. If you use other USB cables, make sure the cable length is no longer than 1 m. 3. Check if the Wi-Fi function is enabled. If so, go to OSD menu and turn off Wi-Fi.

4 WARRANTY INFORMATION

4.1 WARRANTY INFORMATION AND REGISTRATION

4.1.1 WARRANTY INFORMATION

This product is guaranteed to be free from manufacturing defects in material and workmanship under normal use for a period of five (5) years from the date of purchase. In the event that a defect covered by the warranty below occurs during the applicable period stated above, AGM Global Vision, at its discretion, will either repair or replace the product; such action on the part of AGM Global Vision shall be the full extent of AGM Global Vision's liability, and the Customer's sole and exclusive reparation. This warranty does not cover a product if it has been (a) used in ways other than its normal and customary manner; (b) subjected to misuse; (c) subjected to alterations, modifications or repairs by the Customer or by any party other than AGM Global Vision without prior written consent of AGM Global Vision; (d) is the result of a special order or categorized as "close-out" merchandise or merchandise sold "as-is" by either AGM Global Vision or the AGM Global Vision dealer; or (e) merchandise that has been discontinued by the manufacturer and either parts or replacement units are not available due to reasons beyond the control of AGM Global Vision. AGM Global Vision shall not be responsible for any defects or damage that in AGM Global Vision's view are a result from the mishandling, abuse, misuse, improper storage or improper operation of the device, including use in conjunction with equipment that is electrically or mechanically incompatible with, or of inferior quality to, the product, as well as failure to maintain the environmental conditions specified by the manufacturer. This warranty is extended only to the original purchaser. Any breach of this warranty shall be enforced unless the customer notifies AGM Global Vision at the address noted below within the applicable warranty period.

The customer understands and agrees that except for the foregoing warranty, no other warranties written or oral, statutory, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose, shall apply to the product. All such implied warranties are hereby and expressly disclaimed.

4.1.2 LIMITATION OF LIABILITY

AGM Global Vision will not be liable for any claims, actions, suits, proceedings, costs, expenses, damages, or liabilities arising out of the use of this product. Operation and use of the product are the sole responsibility of the Customer. AGM Global Vision's sole undertaking is limited to providing the products and services outlined herein in accordance with the terms and conditions of this Agreement. The provision of products sold and services performed by AGM Global Vision to the Customer shall not be interpreted, construed, or regarded, either expressly or implied, as being for the benefit of or creating any obligation toward any third party of legal entity outside AGM Global Vision and

the Customer; AGM Global Vision's obligations under this Agreement extend solely to the Customer. AGM Global Vision's liability hereunder for damages, regardless of the form or action, shall not exceed the fees or other charges paid to AGM Global Vision by the customer or customer's dealer. AGM Global Vision shall not, in any event, be liable for special, indirect, incidental, or consequential damages, including, but not limited to, lost income, lost revenue, or lost profit, whether such damages were foreseeable or not at the time of purchase, and whether or not such damages arise out of a breach of warranty, a breach of agreement, negligence, strict liability, or any other theory of liability.

4.1.3 PRODUCT REGISTRATION

In order to validate the warranty on your product, the customer must complete and submit AGM Global Vision PRODUCT REGISTRATION FORM on our website (www.agmglobalvision.com/customer-support).

4.1.4 OBTAINING WARRANTY SERVICE

To obtain warranty service on your unit, the End-user (Customer) must notify the AGM Global Vision service department via e-mail. Send any requests to support@agmglobalvision.com to receive a Return Merchandise Authorization number (RMA). When returning any device, please take the product to your retailer, or send the product, postage paid and with a copy of your sales receipt, to AGM Global Vision's service center at the address listed above. All merchandise must be fully insured with the correct postage; AGM Global Vision will not be responsible for improper postage or merchandise that becomes lost or damaged during shipment. When sending product back, please clearly write the RMA# on the outside of the shipping box. Please include a letter that indicates your RMA#, the Customer's Name, a Return Address, reason for the return, contact information (valid telephone numbers and/or an e-mail address), and proof of purchase that will help us to establish the valid start date of the warranty. Product merchandise returns that do not have an RMA# listed may be refused, or a significant delay in processing may occur. Estimated Warranty service time is 10-20 business days. The End-user/Customer is responsible for postage to AGM Global Vision for warranty service. AGM Global Vision will cover return postage/shipping after warranty repair to the End-user/Customer only if the product is covered by the aforementioned warranty. AGM Global Vision will return the product after warranty service by domestic UPS Ground service and/or domestic mail. Should any other requested, required, or international shipping methods be necessary, the postage/shipping fee will be the responsibility of the End-user/Customer.

For service, repair or replacement, please contact:

AGM Global Vision, LLC

173 West Main Street

PO Box 962

Springerville, AZ 85938

Tel. 928.333.4300

support@agmglobalvision.com

www.agmglobalvision.com

5 SPECIFICATIONS

5.1 SPECIFICATIONS

	RATTLER TC35-640	RATTLER TC50-640
Detector Type	12 μ m VOx Uncooled Focal Plane Array	12 μ m VOx Uncooled Focal Plane Array
Resolution	640x512	640x512
Refresh Rate	50 Hz	50 Hz
Response Waveband	8 μ m to 14 μ m	8 μ m to 14 μ m
Lens System	35 mm, F1.0	50 mm, F1.0
Field of View (HxV)	12.5° x 10.0°	8.8° x 7.0°
Magnification	1x	1x
Exit Pupil	22 mm	22 mm
Observation Distance	1,750 m	2,500 m
Monitor	1024x768, OLED, 50 Hz	1024x768, OLED, 50 Hz
Uniformity Correction (Flat Field Correction)	Auto, Manual, External Correction	Auto, Manual, External Correction
Palettes	Black Hot, White Hot, Red Hot, Fusion	Black Hot, White Hot, Red Hot, Fusion
Scene Mode	Jungle, Recognition	Jungle, Recognition
Distance Measurement	Stadiometric rangefinder	Stadiometric rangefinder
Highest Temperature Spot Tracking	Yes	Yes
Standby Mode	Yes	Yes
Built-in Storage	16 GB EMMC	16 GB EMMC
Record Video	On-board video recording	On-board video recording
Image Capture	Yes	Yes
CVBS Output	Yes (via USB)	Yes (via USB)
Battery Type	Two CR123A Lithium (3V) or two RCR123 Rechargeable Batteries (up to 4.2V)	Two CR123A Lithium (3V) or two RCR123 Rechargeable Batteries (up to 4.2V)
Operating Time (25°C)	Up to 4.5 hours (WiFi off)	Up to 4.5 hours (WiFi off)
External Power Supply	5 VDC/2 A, USB Type-C	5 VDC/2 A, USB Type-C

Working Temperature	-20°C to 55°C (-4°F to 131°F)	-20°C to 55°C (-4°F to 131°F)
Protection Level	IP67	IP67
Shock and Vibration	750 g/ms	750 g/ms
Mounting	Front Adapter for different lens diameters or Quick Release Mount for Picatinny/Weaver rail	Front Adapter for different lens diameters or Quick Release Mount for Picatinny/Weaver rail
Dimensions	153 × 62 × 59 mm (6.0 × 2.4 × 2.3 in)	153 × 78 × 66 mm (6.0 × 3.1 × 2.6 in)
Weight (w/o batteries)	0.41 kg (0.92 lb)	0.49 kg (1.08 lb)

All data subject to change without notice.



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