

NIVISYSTM_{LLC}
OPERATOR MANUAL
TAM-14TM (Mod 7)
Thermal Acquisition Monocular



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**OPERATOR
MANUAL
for**

TAM-14TM (Mod 7)
Thermal Acquisition Monocular

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ADVISORY OVERVIEW

The following description categorizes the level of risk associated with each cautionary statement displayed throughout the manual.

WARNING

HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN INJURY TO OR DEATH OF PERSONNEL.

CAUTION

HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO OR DESTRUCTION OF EQUIPMENT OR LOSS OF MISSION EFFECTIVENESS.

NOTE

HIGHLIGHTS AN ESSENTIAL OPERATION, PROCEDURE, CONDITION OR STATEMENT.

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CHAPTER 1:

GENERAL INFORMATION

1.1 Introduction:

This manual provides operation and maintenance instructions for the TAM-14. It also provides specifications and data on the performance of the monocular. To ensure the safety of the operator and the correct operation of the monocular it is recommended that this manual is read carefully in its entirety before any deployment or field application.

1.2 Equipment Description:

The Thermal Acquisition Monocular system (TAM-14) has been developed to fill a void between image-intensified devices and future thermal fusion systems. The TAM-14 provides the operator the tactical advantages of a lightweight, low-cost system with the performance of larger, more costly thermal imaging viewers common to the market.

Standard Image-Intensified night vision systems may lack in performance due to extreme low light conditions, target camouflage tactics, poor visibility from smoke, haze or foliage. The TAM-14 proves to be superior for target detection and observation in all these conditions, making it the ideal recon and forward observation system.

Sensitive enough to detect and recognize a human at a range of up to 300 meters, and able to detect less than 1 degree in temperature difference, the TAM-14 is very impressive for its small size and tactical design. The TAM-14 may also be switched from white-hot to black-hot polarity of the viewed scene to provide contrast of target for optimum performance. This feature allows the user to adjust to various environmental

conditions and background clutter.

In addition to the standard hand-held operational mode, the TAM-14 may be used as a “hands free” monocular in the optional head-mount or helmet mount configurations. With the optional weapon mount and the built-in reticle, its size and design lend it well to its mounting onto the M-4 Carbine or into the SOPMOD (Special Operations Peculiar Modification) matrix. The TAM-14 also incorporates a video output mode to allow the system to be used as a thermal camera, using an optional video-output cable.

Extremely lightweight and versatile, the TAM-14 can be hand-held, head-mounted, helmet-mounted, camera/camcorder adapted or weapons mounted as a tactical day/night scope. The TAM-14 is the most dependable thermal monocular system available.

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1.3 Standard Kit Parts List:

The standard TAM-14 kit comes with the items listed in the following table.

Item	Part No.	Description	Qty.
1	1400-007-11 1400-007-17	TAM-14 (with 11° Field of View) TAM-14 (with 17° Field of View)	1
2	1407-500	Soft Carrying Case	1
3	1407-501	Shoulder Strap	1
4	580-0002-0	Battery, CR123 Lithium	2
5	NVM-033	Demist Shield	1
6	170-12	Cleaning Kit	1
7	1406-400	Neck Lanyard	1
8	1407-601S	Operator Manual, English	1
9	1407-605S	Quick Reference Guide (QRG)	1
10	1407-505	Accucam Mount with 7/64” Adjustment Tool	1
11	1407-400	Head/Helmet Mount Interface	1

Table 1-1 Standard Kit Parts List

1.4 Standard Kit Parts Illustration:

The illustration below is provided for quick identification of the standard parts of the TAM-14 kit.

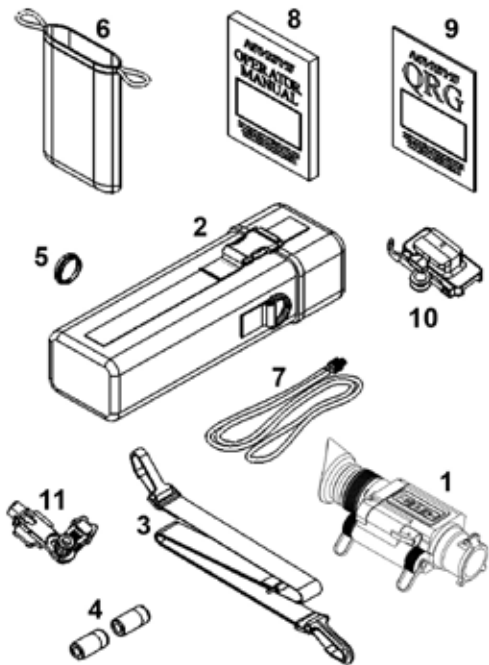


Figure 1-1 Standard Kit Parts Illustration

1.5 **Optional Items List:**

The TAM-14 is compatible with the following optional items and accessories listed in the following table.

Item	Part No.	Description
1	7000-802	TAM-14 Video Output Cable (3ft.)
2	A3256345	Shuttered Eyeguard
3	7B257-2F	Shipping/Storage Case
4	3000-000	AFT-3X, Thermal Magnifier
5	A3144268	Head mount with Browpads
6	4000-000	TLAM, Tactical Laser Aiming Module

Table 1-2 Optional Items List

1.6 Optional Items Illustration:

The illustration is provided as a visual key to optional items that can be used with the standard TAM-14.



Figure 1-2 Optional Parts Illustration

1.7 System Performance and Data:

The table below lists the technical specifications and data of the TAM-14 system. The data contained herein is subject to change without notice.

ITEM	LIMITS
Electrical Data	
Power Source	Battery (3.0V DC max.)
Battery Requirements	CR123 Lithium (2ea.)
Battery Life	>4.5 hrs @ 21°C (70°F)
Physical Data	
Monocular Dimensions	14.5cm x 7.9cm x 5.3cm (5.7" x 3.1" x 2.1")
Monocular Weight	460g (16.2 oz)
Optical Data	
Sensor	160 x 120 Amorphous Silicon Microbolometer 2D Interpolated to 320 x 240, uncooled
Magnification	1.0X @17° or 1.5X @11°
Field of View	11° x 8.5° or 17° x 12.75°
Diopter Range	+2 to -6 diopters
Thermal Sensitivity	<50mK
Eye Relief	27 mm
Spectral Response	7 – 14 μm

Table 1-3 System Performance and Data

Video Output	NTSC Composite Video
Environmental Data	
Operating Temperature	-40° C to 85° C
Storage Temperature	-40° C to 85° C
Immersion	Water resistant to 1m

Table 1-3 System Performance and Data, (cont.)

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CHAPTER 2: PREPARATION FOR USE

2.1 Introduction:

This section contains instructions for installing and attaching various components and accessories to the TAM-14 for operation under normal conditions.

2.2 Battery Precautions:

WARNING

DO NOT MIX ALKALINE AND LITHIUM BATTERIES. DO NOT MIX OLD AND NEW BATTERIES. DO NOT MIX BRANDS OF BATTERIES. DO NOT MIX DISPOSABLE AND RECHARGEABLE BATTERIES. DO NOT MIX TYPES OF BATTERIES (AA AND CR123). FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH, INJURY OR IMPOSITION OF LONG-TERM HEALTH HAZARDS.

WARNING

INSPECT BATTERIES FOR BULGING PRIOR TO USE. IF THE BATTERY SHOWS SIGNS OF BULGING, DO NOT USE.

WARNING

DO NOT HEAT, PUNCTURE, DISASSEMBLE, SHORT CIRCUIT, INCINERATE, ATTEMPT TO RECHARGE OR OTHERWISE TAMPER WITH THE BATTERIES. TURN OFF THE TAM-14 IF THE BATTERY COMPARTMENT BECOMES UNDULY HOT.

**IF POSSIBLE, WAIT UNTIL THE BATTERIES
HAVE COOLED BEFORE REMOVING THEM.**

WARNING

**DO NOT REPLACE BATTERIES IN A
POTENTIALLY EXPLOSIVE ATMOSPHERE.
CONTACT SPARKING MAY OCCUR WHILE
INSTALLING OR REMOVING BATTERIES AND
CAUSE AN EXPLOSION. FAILURE TO FOLLOW
THESE INSTRUCTIONS COULD RESULT IN
DEATH, INJURY OR IMPOSITION OF LONG-
TERM HEALTH HAZARDS.**

CAUTION

**DO NOT ATTEMPT TO OPERATE THE TAM-14
WITH AA 1.5VDC BATTERIES.**

CAUTION

**OBEY THE BATTERY MANUFACTURER'S
DIRECTIONS FOR BATTERY DISPOSAL.**

2.3 Battery Installation:

The electronic circuit is powered by two (2) Lithium CR123 cells. Install the batteries as follows.

1. Ensure that the Power Switch Knob is in the OFF position.
2. Remove the battery caps by turning them counter-clockwise.
3. Check to ensure the o-rings are present. If not, replace them.
4. Observe polarity, as indicated on the outside of the battery compartment.

5. Insert batteries into the battery compartment, plus (+) ends toward the battery caps.
6. Replace battery caps by pushing and turning them clockwise. Tighten firmly to ensure a watertight seal.

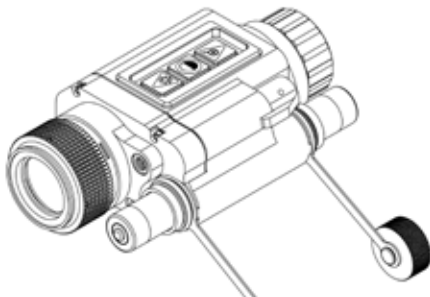


Figure 2-1 Battery Installation

NOTE

**ONE BATTERY CAN BE CHANGED AT A TIME
WITHOUT SHUTTING DOWN THE TAM-14.
(HOT-CHANGE)**

2.4 Eyecup Installation:

Perform the following procedure to install eyecup onto the monocular.

1. Carefully press the eyecup over the end of the eyepiece lens.
2. Rotate the eyecup into proper viewing position. Adjust for best fit.

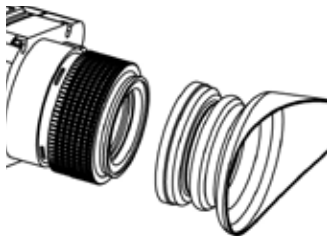


Figure 2-2 Eyecup Installation

2.5 Demist Shield Installation:

Perform the following procedures to install the demist shield on the eyepiece lens.

1. Carefully remove the eyecup.
2. Carefully screw the demist shield onto the eyepiece in a clockwise direction. Be careful not to smudge the eyepiece lens or demist shield.
3. Replace the eyecup.

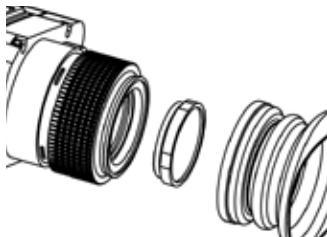


Figure 2-3 Demist Shield Installation

CAUTION

IF THE DEMIST SHIELD IS WIPED WHILE WET OR WITH WET LENS TISSUE, THE COATING WILL BE DAMAGED.

NOTE

IF INCLEMENT OPERATING CONDITIONS ARE EXPECTED TO EXIST (E.G. SIGNIFICANT TEMPERATURE CHANGE AND HIGH HUMIDITY), INSTALL DEMIST SHIELD TO MINIMIZE EYEPIECE LENS FOG PRIOR TO EXECUTION OF MISSION.

2.6 Objective Lens Cover Installation:

Perform the following procedures to install the lens cover on the objective lens.

1. Close the lens cover assembly.
2. Press the lens cover assembly onto the focus ring of the objective lens.
3. Gently rock the lens cover assembly back and forth while continuing to press firmly onto the focus ring.
4. The lens cover is fully seated as the rear edges of the focus ring and lens cover assembly meet.

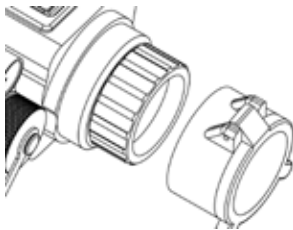


Figure 2-4 Lens Cover Installation

NOTE

THE LENS COVER ASSEMBLY WILL NOT MOVE INDEPENDENT OF THE FOCUS RING.

2.7 Head Mount Installation and Adjustment (Optional):

CAUTION

DO NOT PUT ON THE HEAD MOUNT WHILE THE MONOCULAR IS ATTACHED.

1. Prior to donning the head mount, loosen the four ends of the chinstrap two inches from the sliding bar buckles.
2. Snap the front and rear snaps in place.

NOTE

IF THE HEAD MOUNT IS TOO LOOSE, REPLACE THE SMALL BROWPAD WITH EITHER THE MEDIUM OR THICK BROWPAD SUPPLIED WITH THE HEAD MOUNT.

3. With both hands, grasp the neck pad and pull the harness over your head and the neck pad down to the back of your neck.
4. Holding the chin cup in position on chin, adjust both sides of the chinstrap until a light pressure is felt against your chin. (DO NOT TIGHTEN.)
5. Maintain the position of the chin cup and remove any slack from the chinstrap. (DO NOT TIGHTEN.)
6. Ensure that the cross-strap is not twisted and remove slack by adjusting the vertical adjustment at the neck pad.
7. Adjust chinstrap and vertical adjustment until the chin cup and headband are in a comfortable but firm position.
8. Install the head/helmet mount interface.

NOTE

**AFTER INSTALLING THE MONOCULAR,
MINOR STRAP ADJUSTMENTS MAY BE
NECESSARY TO ACHIEVE COMFORT.**

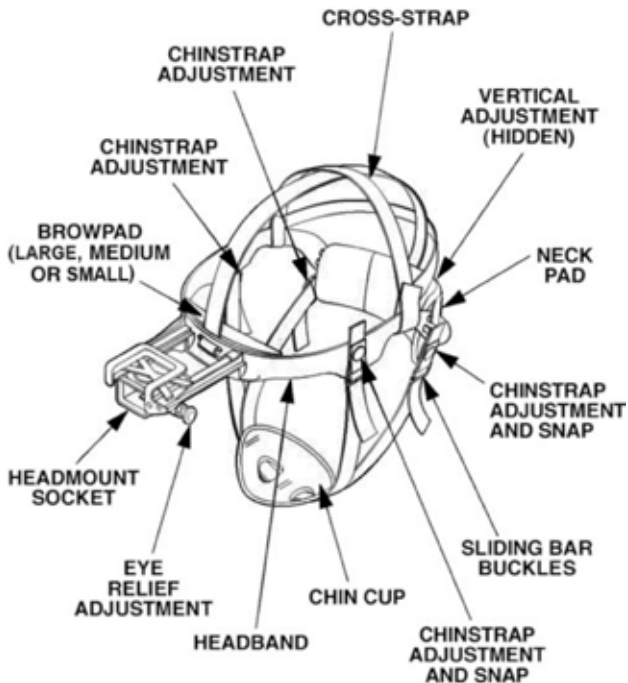


Figure 2-5 Head Mount Diagram

2.8 Head/Helmet Interface Installation (Optional):

Install the head mount/helmet mount adapter into the monocular by following the procedure.

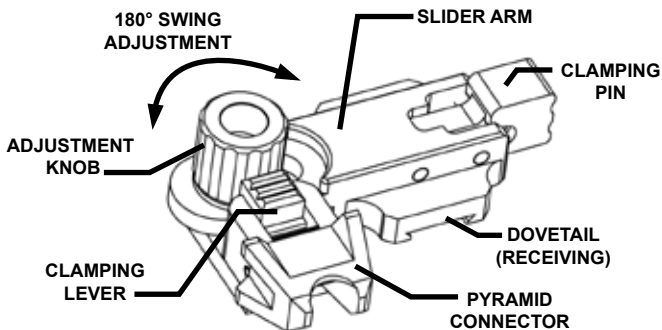


Figure 2-6 Head/Helmet Interface

1. Squeeze and hold the clamping pin towards adjustment knob.
2. Slide the dovetail on the bottom of the TAM-14 into the receiving dovetail on the mount interface. Make sure to center the dovetail of the interface mount over the dovetail of the TAM-14. This will ensure that the clamping pin can interface correctly with the TAM-14.
3. Release the clamping pin to lock it into the TAM-14 dovetail.
4. To remove the head/helmet mount interface from the TAM-14, press and hold the clamping pin. Slide the TAM-14 from the mount interface in a direction parallel to the length of the TAM-14.

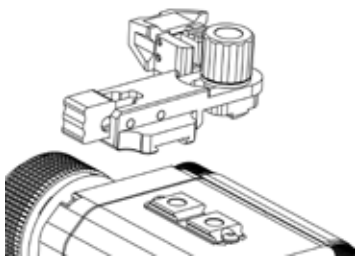


Figure 2-7 Head/Helmet Mount Interface Installation

2.9 Attaching the Mount Interface to a Head or Helmet Mount:

1. Press and hold the clamping lever of the mount interface.
2. Slide the pyramid connector into the receiving head or helmet mount.
3. Release the clamping lever to lock the mount interface into the head/helmet mount.

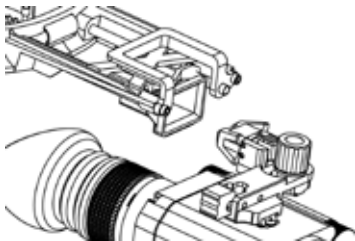


Figure 2-8 Attaching the unit to a Head/Helmet Mount

2.10 Adjusting the Mount Interface:

1. Loosen the adjustment knob by turning it counter-

clockwise.

2. For lateral movement, move the slider arm left or right to the desired position and turn the adjustment knob clockwise until secure.
3. For 180° swing adjustment, loosen the adjustment knob fully until it stops automatically. Lift up on the slider arm and swing it around 180°(pivoting around the adjustment knob). Set the slider arm down on the pyramid connector and tighten the adjustment knob until secure.

2.11 Attaching the TAM-14 to the Accucam Mount (Optional):

Perform the following procedure to install the weapon mount.

1. Loosen the knob by turning it in a counter-clockwise direction. This will open the top dovetail enough to receive the TAM-14.
2. Slide the TAM-14 dovetail into the ACCUCAM sight dovetail, centering it over the centering pin.
3. Tighten the TAM-14 onto the mount securely by turning the knob clockwise.

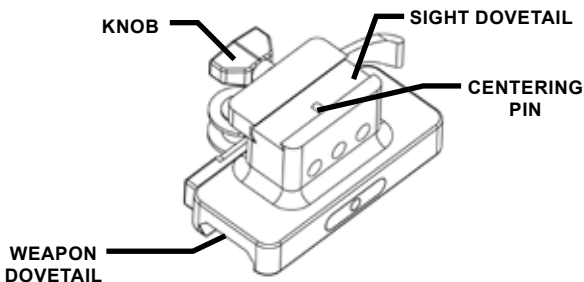


Figure 2-9 Accucam Mount

NOTE

BE SURE TO INSTALL THE TAM-14 INTO THE MOUNT SO THAT THE TAM-14 SERIAL NUMBER IS ON THE SAME SIDE AS THE KNOB. IF NOT, THERE WILL BE INTERFERENCE BETWEEN THE KNOB AND THE BODY OF THE TAM-14.

2.12 Attaching the Accucam Mount to the Firearm:

1. Swing the lever into the unlock position (finger loop open).
2. Install the mount onto MIL-STD-1913 rail by first attaching the swing arm side of the mount.
3. Then push the other side of the mount over the MIL-STD-1913 rail of the weapon.
4. Swing the lever back into the locked position (finger loop closed).
5. Check to see if the Accucam mount is securely fastened to the weapon.
6. If not, proceed as follows:



Figure 2-10 TAM-14 Attached to Weapon with Accucam Mount

2.13 Accucam Mount Normal Adjustment:

Continue to one of the two following scenarios:

1. **If the mount is loose:** Remove the mount from the firearm. Position the lever perpendicular to the dovetail rail. Pull the lever out from the rest of the mount while rotating the lever 180° in a clockwise direction. Now return the lever to the locked position (finger loop closed). Repeat again until a tight fit is achieved. If the effort required to close the lever feels excessive, stop and readjust by following the instructions in the Fine Tune Fitting Section. (This will allow a 90° adjustment instead of a full 180° adjustment.)

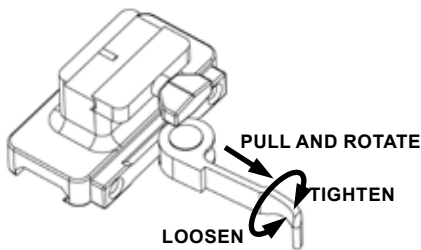


Figure 2-11 Accucam Mount: Lever Perpendicular

2. **If the lever does not clamp down:** Remove the mount from the firearm. Swing the lever perpendicular to the dovetail rail. Pull the lever away from the dovetail rail and rotate the lever 180 degrees in a counter-clockwise direction. Now return the lever to the locked position (finger loop closed). Repeat again until the lever can be clamped down in a tight fit. If a finer adjustment is needed to fit the mount securely to the firearm, readjust by

following the instructions in the Fine Tune Fitting Section. (This will allow a 90 degree adjustment instead of a full 180 degree adjustment.)

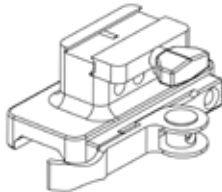


Figure 2-12 Accucam Mount: Finger Loop Closed

2.14 Accucam Mount Fine Adjustment:

1. Remove the cam lock screw with a flat head screwdriver. Swing the lever into the unlock position (finger loop open) and install the mount onto the dovetail rail of the firearm. Swing the lever back into the locked position (finger grip closed).

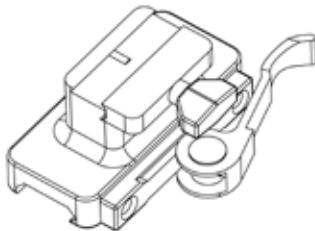


Figure 2-13 Accucam Mount: Finger Loop Open

2. Using the 7/64” hex wrench supplied with the mount, insert it into the socket head of the cross-bolt. Tighten to approximately 17 inch pounds. This operation draws the movable dovetail clamping side bar in contact with the dovetail rail of your firearm. You may have to slightly rotate the cross-bolt with the hex wrench so that one of the four pin holes in the head of the cross-bolt will align with the hole that the cam lock screw came out of.
3. Reinstall the cam lock screw and tighten.
4. To verify that the adjustment is correct, swing the locking cam lever to the unlock position. Please be advised, it will take a little effort to swing the lever into the unlock position. This effort is overcoming the tension of the unique flexbar of the mounting system. If the effort required feels excessive, stop and readjust. Reinstall the mount onto the dovetail rail and swing the lever into the lock position. This will take some effort as the lever rotates, however this is normal.

CHAPTER 3:

OPERATING INSTRUCTIONS

3.1 Introduction:

This chapter contains instructions for the safe operation of the TAM-14 under normal circumstances and environments.

3.2 Operating Precautions:

WARNING

THE THERMAL FOCAL-PLANE ARRAY UTILIZED WITHIN THE TAM-14 IS SENSITIVE TO EXPOSURE TO EXTREMELY HIGH LEVELS OF RADIANT FLUX. NEVER EXPOSE THE TAM-14, EITHER POWERED OR UN-POWERED, DIRECTLY TO THE SUN OR ANY OTHER SOURCE OF RADIANT FLUX THAT THE HUMAN EYE CANNOT TOLERATE.

NOTE

INADVERTENT SUN DAMAGE IS NOT CONSIDERED A DEFECT IN MATERIAL OR WORKMANSHIP, AND IS NOT COVERED IN THE PRODUCT WARRANTY.

3.3 Controls and Indicators:

The TAM-14 is designed to adjust for different users and corrects for most differences in eyesight. The controls and indicators for the TAM-14 are shown in Figure 3-1 and are described in Table 3-1.

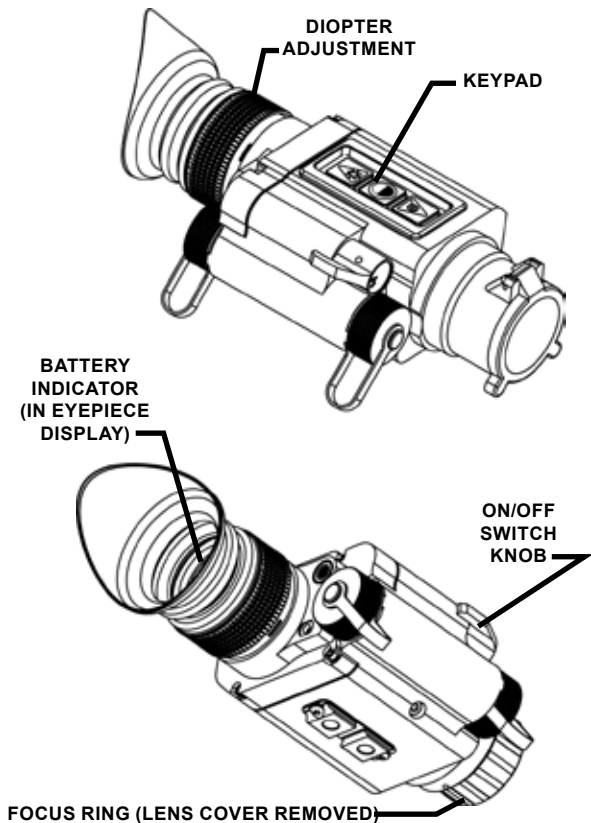


Figure 3-1 Controls and Indicators

Control and Indicators	Functions
Power Switch Knob	Controls weapon sight, ON or OFF.
Battery Indicator	Icon located in the eyepiece that indicates when the battery life is low.
Diopter Adjustment	Focuses eyepiece lens and adjusts for sharpest image of display screen.
Keypad	Used to control the digital zoom, display brightness, polarity and internal menu functions.
Focus Ring	Adjusts for sharpest image of viewed object.

Table 3-1 Controls and Indicators

3.4 Powering ON the TAM-14:

To turn on, rotate the ON/OFF knob towards the keypad. The circuit will energize and the start up screen will appear for a few seconds in the display. This time delay is used to cycle-start the sensor circuits.

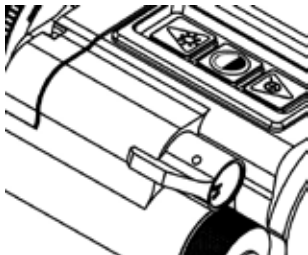


Figure 3-2 Power Switch Knob

3.5 **Powering OFF the TAM-14:**

To turn off the system, rotate the ON/OFF knob away from the keypad and visually verify that it is now inoperative.

3.6 **Low Battery Indicator:**

Two conditions determine the length of time the TAM-14 will operate on a set of batteries:

1. The brightness setting on the display.
2. The temperature at which the unit operates.

When system power is low, “CHANGE BATTERY” appears in lower left corner.



Figure 3-3 TAM-14 Battery Indicator

3.7 **Non-Uniformity Correction (NUC):**

The TAM-14 self-calibrates in order to give the user the clearest picture possible. This will cause the shutter to close and open, producing a slight “click.” Upon start-up of the TAM-14, the unit will continue to perform NUC every 30 seconds for the

first 2 minutes. After that, the unit will perform NUC every 45 seconds until powered down. The unit can be forced to activate NUC by pressing the Digital Zoom (Scroll Up) and Polarity (Menu Select) buttons at the same time.

3.8 Diopter Adjustment:

Focus the eyepiece, in accordance with your specific optical correction, from +2 through -6 diopters. Look for the sharpest image you can achieve of the scene you can see on the screen. Rotate as necessary for sharpest image.

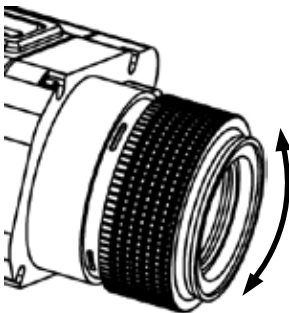


Figure 3-4 Diopter Adjustment

3.9 Range Focus Adjustment:

Carefully rotate objective lens clockwise or counter-clockwise to sharpen focus. (CAUTION: Refrain from touching lens face.) The user should be able to focus at a minimum three feet (3 ft) or at a maximum of infinity. Typically, the same setting of infinity covers all focus from 15 feet to infinity.

NOTE

IF THE LENS COVER IS INSTALLED, IT WILL ROTATE WITH THE FOCUS RING.

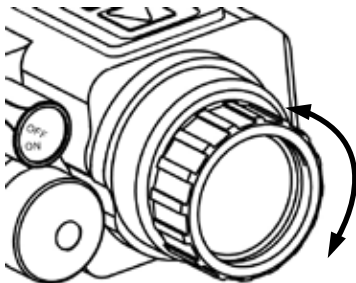


Figure 3-5 Range Focus (Without Lens Cover)

3.10 2X Digital Zoom:

The Digital Zoom (Scroll Up) button electronically magnifies the output 2X as the button is depressed. When zooming to 2X the objective focus may need to be adjusted slightly for optimal performance.



Figure 3-6 Digital Zoom (Scroll Up) Button

3.11 Polarity (White-Hot/Black-Hot):

The TAM-14 Polarity (Menu Select) button determines one of two viewing possibilities in identifying environmental temperature differences:

1. HOT temperatures are seen as WHITE on the screen.
2. HOT temperatures are seen as BLACK on the screen.

Press the Polarity (Menu Select) button to cycle through the two viewing possibilities.



Figure 3-7 Polarity (Menu Select) Button

3.12 Display Brightness:

When the system is first turned on the unit activates white-hot with a midrange display brightness setting. The unit has 12 brightness settings for white-hot and 12 brightness settings for black-hot; totalling 24 settings. When adjusting the brightness, each depression of the Display Brightness (Scroll Down) button will increase the level of intensity. A brightness level number will appear in the field of view. To change the brightness level in white-hot or black-hot mode, press the Display Brightness (Scroll Down) button.

NOTE

AFTER THE UNIT REACHES ITS MAXIMUM BRIGHTNESS SETTING IT WILL CYCLE BACK TO ITS LOWEST SETTING.

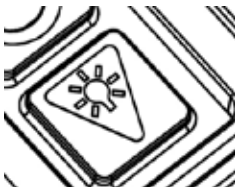


Figure 3-8 Display Brightness (Scroll Down) Button

3.13 Menu Activation and Use:

To activate Menu Mode:

1. Press and hold the Polarity (Menu Select) button until the menu appears on upper left portion of the display screen.
2. Use the Digital Zoom (Scroll Up) and Display Brightness (Scroll Down) buttons to scroll through the features.
3. The Polarity (Menu Select) button becomes the “select” tool.

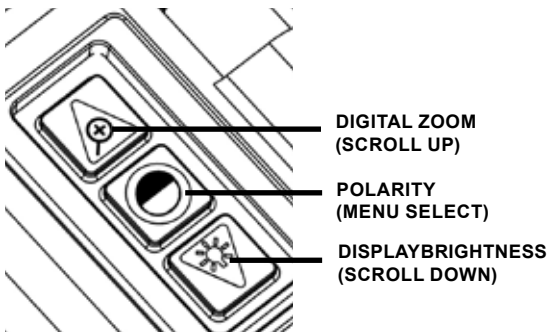


Figure 3-9 Menu Buttons

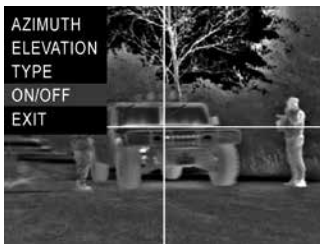


Figure 3-10 Menu Location

3.14 Selecting Reticle Type:

To choose a specific reticle perform the following:

1. Press and hold the Polarity (Menu Select) button on TAM-14 keypad until the menu appears in the top left hand corner.
2. Scroll until “TYPE” is highlighted.
3. Press the Polarity (Menu Select) button to select “TYPE”
4. Scroll until desired reticle appears in display.
5. Press the Polarity (Menu Select) button to exit “TYPE” function.
6. Press the Polarity (Menu Select) button again to exit menu mode.



Figure 3-11 Reticle Types

NOTE

**RETICLE WILL AUTOMATICALLY
CHANGE BLACK/WHITE DEPENDING ON
BACKGROUND TARGET TO GIVE BEST
CONTRAST.**

3.15 Removing Reticle:

To remove the reticle from the display screen perform the following:

1. Press and hold the Polarity (Menu Select) button on TAM-14 keypad until menu appears in top left hand corner.
2. Scroll until “ON/OFF” is highlighted.
3. Press the Polarity (Menu Select) button to select. The reticle will disappear.
4. Press Polarity (Menu Select) button again to exit menu mode.

3.16 Adjusting Azimuth:

CAUTION

**ALL BORESIGHT AND RETICLE
ADJUSTMENTS MUST BE PERFORMED IN 2X
ZOOM MODE ONLY.**

NOTE

**“DOT” RETICLE RETAINS AN INDEPENDENT
BORE SIGHT.**

1. Press and hold the Polarity (Menu Select) button on keypad until the menu appears in top left hand corner.
2. Scroll until “AZIMUTH” is highlighted.



Figure 3-12 Azimuth Selection

3. Press the Polarity (Menu Select) button to select “AZIMUTH”.
4. A master cross-hair with indices will appear IN ADDITION TO the reticle location. The distance between each index mark represents 20 pixels on the display. The reticle can be moved at 1 pixel intervals or scrolled across the screen by holding the button down.
5. Scroll up to move the reticle to the right to the desired position.

NOTE

MOVING THE RETICLE TO THE RIGHT HAS THE SAME RESULT AS MOVING THE MEAN POINT OF IMPACT (MPI) TO THE LEFT.

6. Scroll down to move the reticle to the left to the desired position.

NOTE

MOVING THE RETICLE TO THE LEFT HAS THE SAME RESULT AS MOVING THE (MPI) TO THE RIGHT.

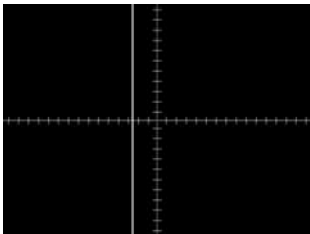


Figure 3-13 Azimuth Adjustment

7. Once satisfied with the azimuth position of reticle, press Polarity (Menu Select) button to exit and store the “AZIMUTH” selection. The menu will default to “EXIT.”
8. Press the Polarity (Menu Select) button to exit the menu or scroll to another desired tab on the menu.

3.17 Adjusting Elevation:

To adjust the elevation within the menu system of the TAM-14, perform the following:

CAUTION

**ALL BORESIGHT AND RETICLE
ADJUSTMENTS MUST BE PERFORMED IN
THE DIGITAL ZOOM MODE ONLY.**

NOTE

**THE “DOT” RETICLE RETAINS AN
INDEPENDENT BORE SIGHT.**

1. Press and hold Polarity (Menu Select) button on keypad until menu appears in top left hand corner.
2. Scroll until “ELEVATION” is highlighted.



Figure 3-14 Elevation Selection

3. Press the Polarity (Menu Select) button to select “ELEVATION”.
4. A master cross-hair with indices will appear IN ADDITION TO the reticle location. The distance between each index mark represents 20 pixels on the display. The reticle can be moved at 1 pixel intervals or scrolled across the screen by holding the button down.
5. Scroll up to move the reticle up to desired position.
6. Scroll down to move the reticle down to the desired position.

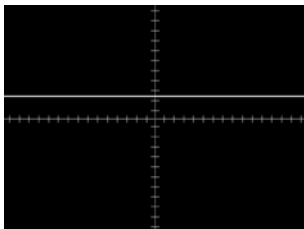


Figure 3-15 Elevation Adjustment

NOTE

MOVING THE RETICLE UP HAS THE SAME RESULT AS MOVING THE MPI DOWN.

NOTE:

MOVING THE RETICLE DOWN HAS THE SAME RESULT AS MOVING THE MPI UP.

7. Once satisfied with the elevation position of reticle, press the Polarity (Menu Select) button to exit and store the “ELEVATION” selection. The menu will default to “EXIT.”
8. Press the Polarity (Menu Select) button to exit the menu or scroll to another desired tab on the menu.

3.18 Zeroing the TAM-14 as a Weapon Sight:

For weapon sight performance with the TAM-14 it is necessary to align the sight reticle with the weapon. This is referred to as “zeroing.” To zero the TAM-14, perform the following:

1. Fix a standard target at 100 meters distance.
2. Ensure that the weapon mount is securely fastened to the weapon sight.
3. Secure the TAM-14 to the weapon.
4. Activate the TAM-14.
5. Select the digital zoom mode.
6. Select a reticle type.
7. Adjust the brightness of the display to provide a good contrast between the target and reticle image.
8. Adjust the eyepiece as necessary to ensure an in-focus image of the reticle.
9. Use the center of the reticle to aim the weapon at the target and fire five rounds.
10. Visually check the mean point of impact (MPI) as it has hit the target.

11. Make adjustments as necessary to the azimuth and elevation reticles.

NOTE

AT A DISTANCE OF 100 YARDS, 1 PIXEL REPRESENTS APPROXIMATELY 0.5 INCHES.

12. Fire and adjust the reticles until the MPI and Center Zero Position (CZP) are coincident.

3.19 Preparation for Storage:

1. Remove battery from the monocular.
2. Inspect the battery housing for corrosion or moisture. Clean and dry if necessary.
3. Replace the battery cap.
4. Remove the demist shield if installed.
5. Install objective lens cap if not installed.

NOTE

PRIOR TO PLACING TAM-14 INTO CARRYING CASE, ENSURE TAM-14 AND CASE ARE FREE OF DIRT, DUST, AND MOISTURE.

6. Place the monocular, accessories and cleaning supplies back into their storage/carrying cases. It is best to place the items in their original locations to prevent any possible damage to the unit and/or accessories.
7. Return to storage area.

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CHAPTER 4: MAINTENANCE INSTRUCTIONS

4.1 Introduction:

The TAM-14 is designed to be used in diverse environments and rugged conditions. It is recommended that simple and regular maintenance is performed for optimal system performance.

CAUTION

THE MONOCULAR IS A PRECISION ELECTRO-OPTICAL INSTRUMENT AND MUST BE HANDLED CAREFULLY.

DO NOT SCRATCH OR TOUCH THE EXTERNAL LENS SURFACES.

WIPING DEMIST SHIELD WITH LENS TISSUE WHILE WET OR WITH WET LENS TISSUE CAN DAMAGE THE COATING.

4.2 Deactivation:

Power down the system by turning the power switch knob to OFF.

4.3 Battery Removal:

Open battery compartments, remove batteries and store in carrying case. Close the battery compartment before cleaning.

4.4 Cleaning the TAM-14:

When necessary, use a moistened clean cloth to wipe the outside of the unit, EXCEPT FOR THE OPTICAL SURFACES. Be sure to wipe away excess dirt and dust that may restrict the

performance or damage moving and mating parts. If needed, the use of a very diluted detergent solution is permissible. Dry with a soft clean cloth, or allow unit to air-dry before storing it.

4.5 Cleaning the Optics:

When cleaning of the lens is required, first blow any loose dirt or grit away from the surface of the lens. EXCEPT FOR THE DEMIST SHIELD, use the supplied lens tissue lightly moistened with water or lens cleaning fluid to lightly wipe the optical surfaces, using a circular motion. Discard each lens tissue after one use to avoid transferring grit or foreign matter onto the lens surfaces. If the lens remains dirty, use a cotton swab lightly moistened with lens cleaning fluid to remove the foreign matter from the lens. Dry with a clean unused lens tissue.

4.6 Checking for Damage and Corrosion:

As a general guideline, conduct an inspection of the TAM-14, accessories, and the case after every use. Look for heavy wear and cracks in rubber or plastic. Inspect for moisture or corrosion in the battery compartment. Check for scratches, condensation and foreign matter on optical surfaces. Report missing or damaged items, for replacement.

CHAPTER 5: TROUBLESHOOTING

5.1 Troubleshooting Procedures:

Table 5-1 lists common malfunctions that may occur with the TAM-14. Perform the tests, inspections and corrective actions in the order they appear in the table.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your maintainer.

Malfunction	Test for Inspection	Corrective Action
Monocular fails to activate.	Visual. Check for defective, missing or improperly installed battery.	Turn switch to OFF position and then ON. Replace battery or install correctly. If TAM-14 still fails to activate, refer to higher level of maintenance.
Flickering image on firing.	Check for loose battery cap or caps that may cause the battery to lose contact during weapon fire.	Tighten battery caps securely.

Table 5-1 Troubleshooting

No display in eyepiece.	Visual check to see if lens cap is still on.	Flip lens cap open.
Poor image quality.	Check objective lens or eyepiece. Check for fogging or dirt on objective lens or eyepiece lens. Check eye relief distance.	Refocus. Clean optics. Readjust for proper eye relief distance.
Light visible around eyecup.	Check eyecup for resiliency. Check to see if the diopter adjustment is bent or broken.	If eyecup is defective, refer to higher level of maintenance. If damaged, refer to higher level of maintenance.
Optics hard to turn or grinding.		Return to maintainer for higher level of maintenance.

Table 5-1 Troubleshooting, (cont.)

APPENDIX A: SPARE AND REPAIR PARTS LIST

A.1 Introduction:

This section provides information needed to identify, contact and order spare and/or repair parts for the TAM-14.

A.2 Contact Information:

To order spare or repair parts for the TAM-14 or any night vision products contact:

Nivisys, LLC
400 S. Clark Drive, Suite #105
Tempe, Arizona 85281 USA

Phone: 1-480-970-3222

Fax: 1-480-970-3555

A.3 Spare Part List:

The following is a list of parts that may be ordered for spare parts for the TAM-14.

Part No.	Description	Qty.
A3256345	Shuttered Eyeguard	1
7B257-2F	Shipping/Storage Case	1
1407-601S	Operator Manual	1
1407-605S	Quick Reference Guide	1
1407-505	Accucam Mount	1

Table A-1 Spare and Repair Parts List

1407-400	Head/Helmet Mount Interface	1
7000-802	TAM-14 Video Output Cable	1
A3256347	Head/Helmet Mount Adapter	1
A3144268	Head mount Assembly	1
A3144293	Side Strap	1
A3144436	Browpad, Thick	1
A3144435	Browpad, Medium	1
A3144280	Browpad, Thin	1
1407-500	Soft Carrying Case	1
1407-501	Shoulder Strap	1
580-0002-0	Battery, CR123 Lithium	1
NVM-033	Demist Shield	1
170-12	Cleaning Kit	1
4500-202	Eyecup	1
1406-400	Neck Lanyard	1
07-0BJ	Objective Lens Cover	1
A3144315	Purge Screw	1
A3144316	Purge Screw O-Ring	1
A3256368	PASGT Helmet Mount	1

Table A-1 Spare and Repair Parts List, (cont.)

APPENDIX B: WARRANTY INFORMATION

Equipment Warranties And Remedy:

Seller warrants that each newly manufactured item sold hereunder and such portion of a repaired/refurbished item as has been repaired or replaced by Seller under this warranty, shall be free from defects in material or workmanship at the time of shipment and shall perform during the warranty period in accordance with the specifications incorporated herein. Should any failure to conform to these warranties be discovered and brought to Seller's attention during the warranty period and be substantiated by examination at Seller's factory or by authorized field personnel, then at its own cost, Seller shall correct such failure by, at Seller's option, repair or replacement of the non-conforming item or portion thereof, or return the unit purchase price of the non-conforming item or component. Buyer agrees that this remedy shall be its sole and exclusive remedy against Seller and that no other remedy shall be available or pursued by Buyer against Seller. In no event shall the Seller be liable for any cost or expense in excess of those described in this paragraph and expressly excluding any liability or damages for special, incidental or consequential damages.

The warranty period for newly-manufactured items shall extend 12 months from the date of shipment by Seller unless a different warranty period is agreed in writing to by Seller. The warranty period for repaired/refurbished electronic components shall extend for the unexpired warranty period or 90 days, whichever is longer, of the item repaired or replaced.

This warranty shall not extend to any item that upon examination by Seller is found to have been subject to:

- A. Mishandling, misuse, negligence or accident.

- B. Installation, operation or maintenance that either was not in accordance with Seller's specifications and instructions, or otherwise improper.
- C. Tampering, as evidenced, for example, by broken seals, damaged packaging containers, etc.
- D. Repair or alteration by anyone other than Seller without Seller's express advance written approval.

Failure to promptly notify Seller in writing upon discovery of any non-conforming item during the warranty period shall void the warranty of such item. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller.

Return Material Authorization Number (RMA#):

Warranty and non-warranty items returned to Nivisys for repair or replacement require a RMA#. Email support@nivisys.com, call 1-480-970-3222 or fax 1-480-970-3555 with a serial number and detailed information to obtain a RMA#.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

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NIVISYSTM
LLC

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