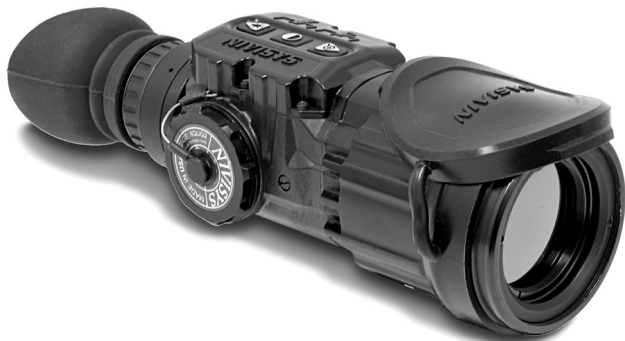


***NIVISYS***<sup>™</sup><sub>LLC</sub>  
**OPERATOR MANUAL**  
**UTAM<sup>™</sup> Series**  
**Universal Thermal Acquisition Monocular**



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**OPERATOR MANUAL**  
for  
**UTAM Series**  
Universal Thermal Acquisition Monocular

<b>PART NUMBER</b>	<b>MODEL DESCRIPTION (LENS, CORE)</b>
3205-000	UTAM-32cS (19mm, 25 $\mu$ )
3207-000	UTAM-327cS (19mm, 17 $\mu$ )
3210-000	UTAM-32iS (19mm, 25 $\mu$ )
3213-000	UTAM-327iS (19mm, 17 $\mu$ )
3215-000	UTAM-32cM (35mm, 25 $\mu$ )
3217-000	UTAM-327cM (35mm, 17 $\mu$ )
3220-000	UTAM-32iM (35mm, 25 $\mu$ )
3221-000	UTAM-327iM (35mm, 17 $\mu$ )
3316-000	UTAM-64cL (50mm, 17 $\mu$ )
3321-000	UTAM-64iL (50mm, 17 $\mu$ )
3315-000	UTAM-64cM (35mm, 17 $\mu$ )
3320-000	UTAM-64iM (35mm, 17 $\mu$ )

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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 UTAM. It also provides specifications and data on the performance of the weapon sight. To ensure the safety of the operator and the correct operation of the weapon sight it is recommended that this manual is read carefully in its entirety before any deployment or field application.

### 1.2 Equipment Description:

The UTAM defines what a multi-use thermal imager should be. It is small enough to fit in a cargo pocket and designed to be handheld. But it is also rugged enough to be attached to a light weapon equipped with any standard Picatinny rail system. The UTAM gives the operator enhanced surveillance and targeting capability during night and adverse weather conditions. User selectable reticles and digital windage and elevation adjustments are readily available through the onboard software and the monocular can be easily bore-sighted to any weapon. An included remote control switch provides increased flexibility for the user, integrating the sight and the weapon.

The UTAM units are easy to operate with simple and intuitive controls, with standard features such as polarity, display brightness and digital zoom. The user menu provides a selection of display modes including color or monochrome, enabling the user to optimize the viewed image for the target and scene conditions.

The UTAM objective lens is offered in a variety of focal lengths providing a choice of fields of view and target detection ranges. The UTAM include image capture and review of still images on the internal micro-display. Video and still images may be downloaded and captured to a SD card using our optional Audio Visual Kit.

### 1.3 Standard Kit Parts List:

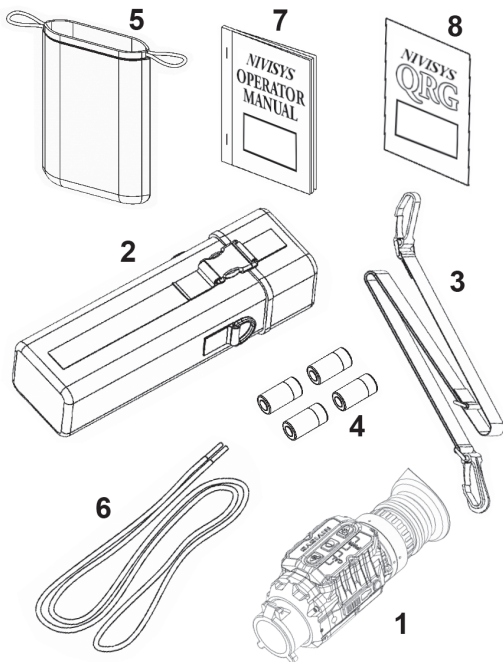
The standard UTAM kit comes with the items listed in the following table.

Item	Part No.	Description	Qty.
1	See page “i” for part numbers.	Universal Thermal Acquisition Monocular	1
2	111-0009-0	Soft Carrying Case	1
3	1407-501	Shoulder Strap	1
4	580-0002-0	Battery, CR123 Lithium	4
5	170-12	Cleaning Kit	1
6	A3144306	Neck Cord	1
7	830-0027-0	Operator Manual, UTAM	1
8	830-0028-0	Quick Reference Guide, UTAM	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 UTAM kit.



**Figure 1-1 Standard Kit Parts Illustration**

### 1.5 **Optional Items List:**

The UTAM is compatible with the following optional items and accessories listed in the following table.

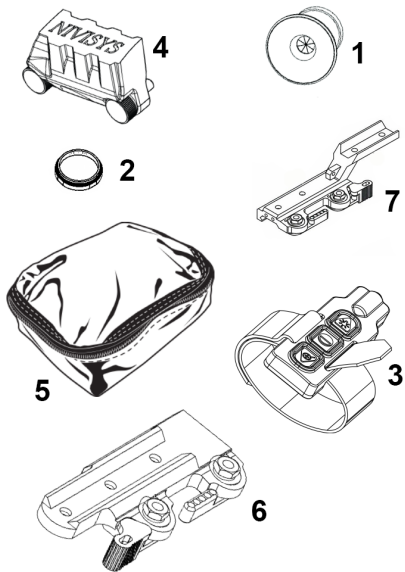
<b>Item</b>	<b>Part No.</b>	<b>Description</b>
1	A3256345	Shuttered Eyeguard
2	A3256353	Demist Shield
3	3255-000	Remote Switch System
4	3490-000	Video Power Download Module
5	AV-KIT	Audio Visual Kit (AVK)
6	3500-900	Low profile Mount, Dual Lever
7	3501-900	Dual Throw Lever Weapon Mount

**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 UTAM.



**Figure 1-2 Optional Parts Illustration**

**1.7 System Performance and Data:**

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

ITEM	LIMITS		
<b>Electrical</b>			
Power Source	Battery (3.0V DC max.)		
Battery Requirements	CR123 Lithium (2ea.)		
Battery Life	>4 hrs @ 21°C (70°F)		
<b>Physical</b>			
	<b>-S</b>	<b>-M</b>	<b>-L</b>
Overall Dimensions (L x H x W)	14.7 x 6.0 x 6.6cm	15.4 x 6.0 x 6.6cm	18.0 x 6.7 x 7.4cm
Weight (with batteries)	430g	465g	607g
<b>Environmental</b>			
	<b>“c”</b>		<b>“i”</b>
Operating Temperature	-10° to +45° C		-40° to +55° C
Storage Temperature	-40°C to +70°C		

**Table 1-3 System Performance and Data**

<b>Thermal Core</b>			
	<b>-32 (25<math>\mu</math>)</b>	<b>-32 (17<math>\mu</math>)</b>	<b>-64 (17<math>\mu</math>)</b>
Sensor Resolution	324 x 256	336 x 256	640 x 480
Pixel Pitch	25 $\mu$ m	17 $\mu$ m	17 $\mu$ m
Sensor	Vanadium Oxide (VOx) Microbolometer Uncooled 30Hz frame rate		
Thermal Sensitivity	<50mK		
Spectral Response	7 – 14 $\mu$ m		
Video Output	Composite, NTSC		
<b>Optical</b>			
	<b>-S</b>	<b>-M</b>	<b>-L</b>
Objective Lens Focal Length	19mm,	35mm	50mm
Objective Lens F Number	f/1.25	f/1.4	f/1.2
Diopter Range	+2 to -6 diopters		
Eye Relief	25mm		

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

<b>Magnification and Field of View by Model</b>				
<b>Model</b>	<b>PN</b>	<b>Pixel Pitch</b>	<b>MAG</b>	<b>FOV (H x V)</b>
UTAM-32cS	3205-000	25μ	1.0	24° x 19°
UTAM-327cS	3207-000	17μ	1.5	16° x 13°
UTAM-32iS	3210-000	25μ	1.0	24° x 19°
UTAM-327iS	3213-000	17μ	1.0	16° x 13°
UTAM-32cM	3215-000	25μ	1.9	13° x 10°
UTAM-327cM	3217-000	17μ	2.7	9° x 7°
UTAM-32iM	3220-000	25μ	1.9	13° x 10°
UTAM-327iM	3221-000	17μ	2.7	9° x 7°
UTAM-32cL	3212-000	25μ	2.6	9° x 7°
UTAM-327cL	3219-000	17μ	4.6	5° x 4°
UTAM-32iL	3222-000	25μ	2.6	9° x 7°
UTAM-327iL	3225-000	17μ	4.6	5° x 4°
UTAM-64cM	3315-000	17μ	1.4	18° x 13°
UTAM-64iM	3320-000			
UTAM-64cL	3316-000	17μ	2.0	12° x 9°
UTAM-64iL	3321-000			

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

## CHAPTER 2: PREPARATION FOR USE

### 2.1 Introduction:

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

### 2.2 Battery Precautions:

#### **WARNING**

**DO NOT MIX OLD AND NEW BATTERIES.  
DO NOT MIX BRANDS OF BATTERIES.  
DO NOT MIX DISPOSABLE AND  
RECHARGEABLE BATTERIES. 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, SHORT CIRCUIT,  
ATTEMPT TO RECHARGE OR OTHERWISE  
TAMPER WITH THE BATTERIES. TURN  
OFF THE UTAM IF THE BATTERY  
COMPARTMENT BECOMES UNDULY HOT.  
IF POSSIBLE, WAIT UNTIL THE BATTERIES  
HAVE COOLED BEFORE REMOVING THEM.**

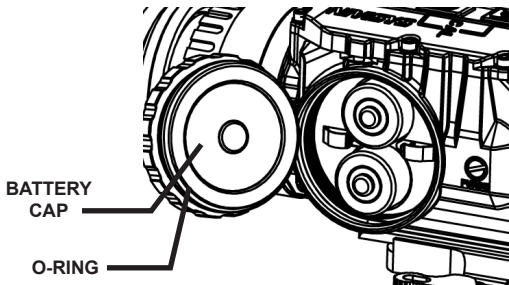
## **CAUTION**

### **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. Remove the battery cap by turning it counter-clockwise.
2. Check to ensure the orange o-ring is present and undamaged. Replace o-ring if necessary.
3. Insert batteries into the battery compartment, negative (-) ends first, positive ends toward the battery cap.
4. Replace battery cap, turning it clockwise until a stop occurs. When fully engaged the orange o-ring should no longer be visible.



**Figure 2-1 Battery Installation**

#### **2.4 Eyecup or Shuttered Eyeguard Installation:**

Perform the following procedure to install eyecup or the shuttered eyeguard onto the weapon sight.

1. Carefully press the eyecup or shuttered eyeguard over the

- end of the eyepiece lens.
2. Rotate the eyecup into proper viewing position. Adjust for best fit.

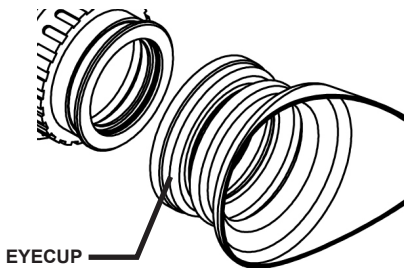


Figure 2-2 Eyecup Installation

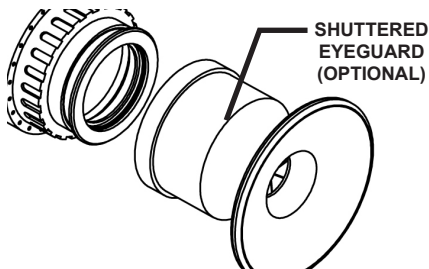


Figure 2-3 Shuttered Eyeguard Installation

## 2.5 Demist Shield Installation (Optional):

Perform the following procedures to install the demist shield on the eyepiece lens. Carefully remove the eyecup or shuttered eyeguard.

1. Carefully screw the demist shield onto the eyepiece in a

clockwise direction. Be careful not to smudge the eyepiece lens or demist shield.

2. Replace the eyecup or shuttered eyeguard.

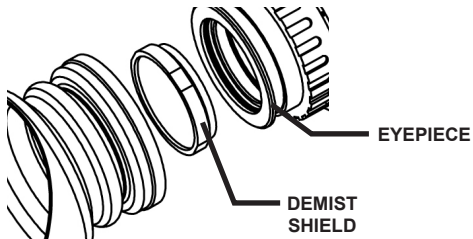


Figure 2-4 Demist Shield Installation

**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 19mm Lens Cover Installation:**

The UTAM units are issued with the lens covers pre-installed. Perform the following procedures to install the lens cover on the 19mm objective lens.



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

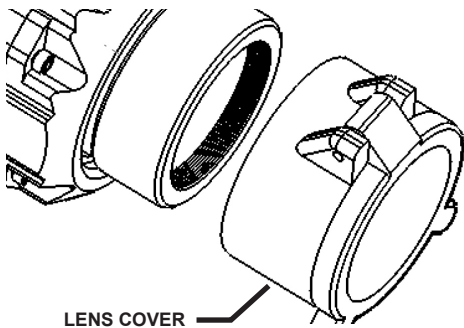


Figure 2-5 19mm Lens Cover Installation

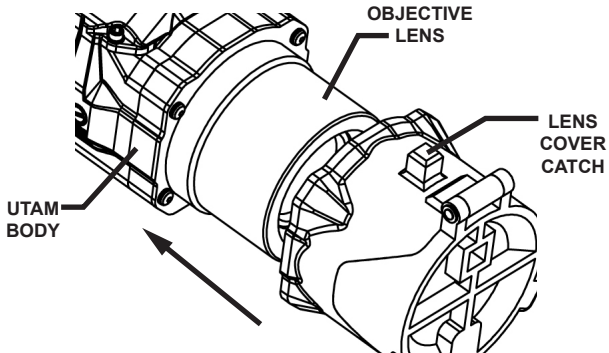
## 2.7 35mm Lens Cover Installation:

The UTAM units are issued with the lens covers pre-installed. In the event installation or re-installation is necessary, perform the following procedure.

1. Close the lens cover assembly.
2. Ensure the lens cover catch is facing up.
3. Press the lens cover assembly onto the objective lens.
4. Gently rock the lens cover assembly back and forth while continuing to press firmly onto the objective lens.
5. The lens cover is fully seated as the lens cover base and the UTAM body meet.

**NOTE**

**PROPER INSTALLATION OF THE LENS COVER MATCHES THE PROFILE OF THE LENS COVER BASE TO THE PROFILE OF THE UTAM BODY.**



**Figure 2-6 35mm Lens Cover Installation**

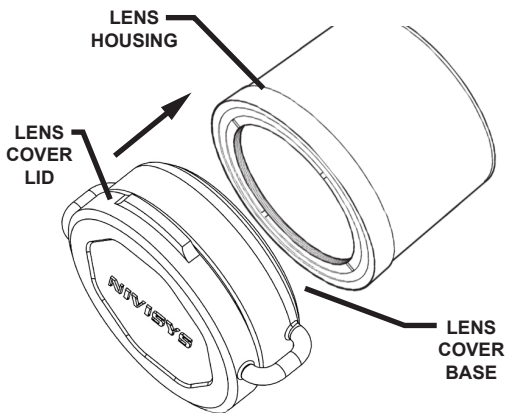
**2.8 50mm Lens Cover Installation:**

The UTAM units are issued with the lens covers pre-installed. In the event installation or re-installation is necessary, perform the following procedure.

1. Stretch the lens cover base over the lens housing.
2. Push the lens cover base onto the lens housing until it is securely seated.
3. Ensure the lens cover operates properly before use.

**NOTE**

**THE 50MM LENS COVER CAN BE ROTATED FOR OPERATOR PREFERENCE.**



**Figure 2-7 50mm Lens Cover Installation**

## **2.9 Weapon Mount Installation (“M” and “L” Models):**

All UTAM can be fitted with a weapon mount to be used as a thermal weapon sight if desired. When installation is necessary, perform the following procedure.

1. Arrange the weapon mount v-block so that it sits in the receiving v-block of the main housing.
2. Align the counter-bored holes of the weapon mount with the threaded inserts in the main housing.
3. Using a 3/32” hex key, fasten the double throw lever mount onto the mount adapter using 2 ea. 10-32 x .375” socket low-head cap screw.
4. Ensure that the mount is securely fastened to the weapon before firing.

**NOTE**  
**CORRECT ATTACHMENT OF THE WEAPON MOUNT SITUATES THE THROW LEVERS ON THE DUST COVER SIDE OF THE UTAM.**

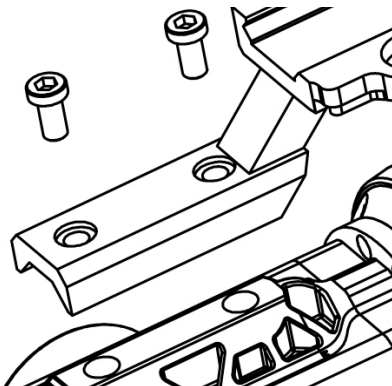
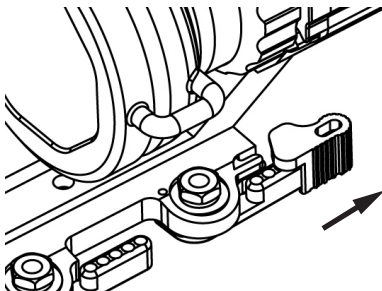


Figure 2-8 Weapon Mount Installation

### 2.10 Attaching to a Weapon:

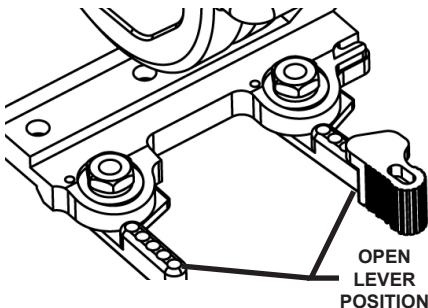
To attach the UTAM to a MIL-STD 1913 rail system perform the following procedure.

1. Ensure that the mount is securely fastened to the UTAM.
2. Set the slide lock to the unlocked position by pulling it back.



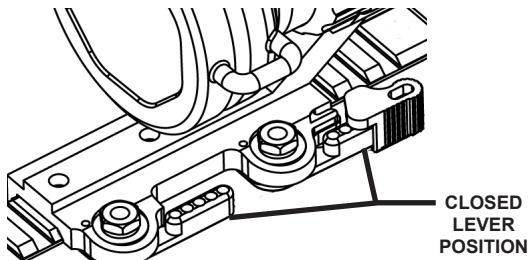
**Figure 2-9 Slide Lock in Unlocked Position**

3. Rotate the throw levers to the open position.



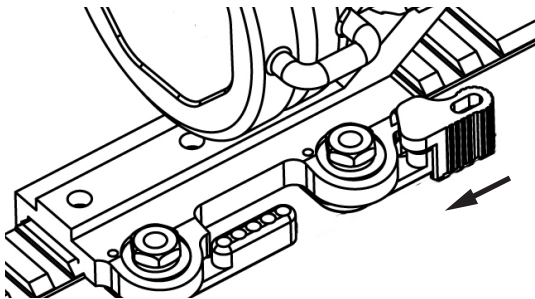
**Figure 2-10 Throw Levers in Open Position**

4. Place the UTAM on the rail system of the weapon so that it seats squarely on the rail.
5. Rotate the throw lever to the closed position. Ensure that both throw levers engage the 1913 rail.



**Figure 2-11 Throw Lever Closed**

6. Secure the slide lock to the locked position by pushing it forward.



**Figure 2-12 Throw Lever Mount Locked**

7. If needed, tighten the tension of the locking lever with the provided mount adjustment tool. Turning the locknut clockwise makes it more difficult to open or close the

levers. Turning the locknut counter-clockwise makes lever positioning easier.

**NOTE**

**LOCKNUT REQUIRES ONLY SLIGHT  
MOVEMENT FOR TENSION ADJUSTMENT.**

**CAUTION**

**NEVER REMOVE THE LOCKNUT.**

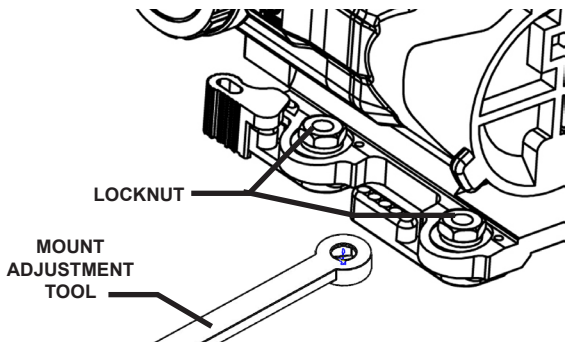


Figure 2-13 Locknut Adjustment

## 2.12 Neck Cord Installation:

The UTAM can be fitted with a neck cord when needed. To attach the neck cord to the unit perform the following procedure:

1. Locate the two neck cord eyelets between the eyepiece and the body of the UTAM.

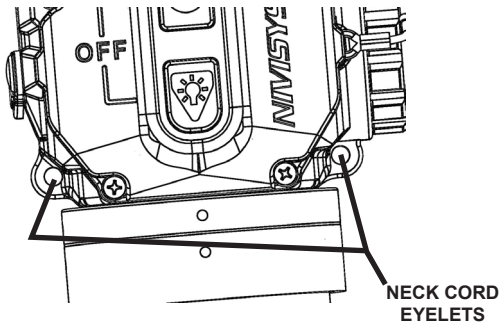


Figure 2-15 Neck Cord Eyelets

2. Tie a knot in one end of the neck cord.
3. Thread the unknotted end of the neck cord through one of the eyelets and pull until the knot stops against the eyelet.
4. Thread the unknotted end of the neck cord through the other eyelet and tie a knot in the end of the cord.
5. Pull the middle of the cord away from the unit until both knots catch against the eyelets to ensure a secure attachment.

### 2.13 Installing the Remote Switch to the UTAM:

The remote switch that is issued standard to the UTAM kit. To install the remote switch perform the following procedure:

#### **CAUTION**

**THE REMOTE SWITCH IS NOT  
DESIGNED FOR IMMERSION OR  
UNDERWATER OPERATIONS.**



**CAUTION**

**ENSURE THAT THERE IS NO WATER, DUST OR DEBRIS IN THE CONNECTOR BEFORE ATTACHING THE REMOTE SWITCH.**

**NOTE**

**THE CAN BE INSTALLED WHEN THE UTAM IS EITHER ACTIVATED OR DEACTIVATED.**

1. Move the hot shoe dust cover so that it is out of the way of the connector.
2. Align the mating connectors and push the remote switch into the hot shoe receptacle.
3. Tighten the thumbscrews.
- 4.

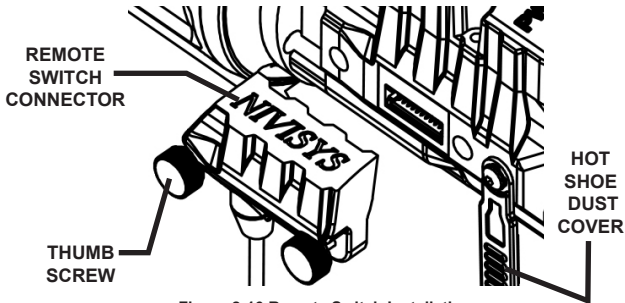


Figure 2-16 Remote Switch Installation

## 2.14 Attaching the Remote Switch to the Weapon:

The remote switch comes with the hook and loop tape preinstalled. When replacement is necessary perform the following procedure.

1. Determine the best placement of the remote switch to the weapon.
2. Starting from the label side, feed the hook and loop tape into one of the slots in the keypad housing.
3. Fold approximately two (2) inches of the hook and loop tape onto itself and press firm.
4. Place the keypad housing on the weapon so that its cord travels onto the weapon heading toward the UTAM.

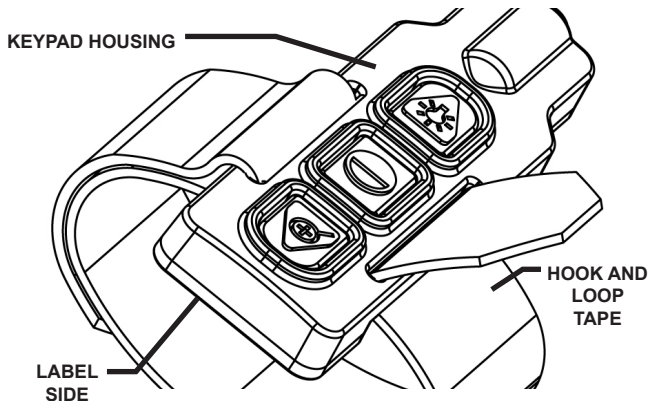


Figure 2-17 Hook and Loop Installation

**NOTE**

**ENSURE THAT THE SMOOTH SIDE FACES THE  
BUTTONS OF THE KEYPAD HOUSING SO THE  
HOOK AND LOOP CAN ADHERE TO ITSELF  
WHEN FOLDED OVER.**

5. Wrap the loose hook and loop tape around the weapon and feed the tape through the remaining open slot in the keypad housing.
6. Cinch tight and fold the hook and loop tape back onto itself.
7. Trim any excess.
8. Check for a secure attachment before use.

**CAUTION**

**REMOVE SLACK IN THE CORD TO PREVENT  
SNAG HAZARDS.**

# CHAPTER 3:

## OPERATING INSTRUCTIONS

### 3.1 Introduction:

This chapter contains instructions for the safe operation of the UTAM under normal circumstances and environments.

### 3.2 Operating Precautions:

#### **WARNING**

**THE THERMAL FOCAL-PLANE ARRAY  
UTILIZED WITHIN THE UTAM IS  
SENSITIVE TO EXPOSURE TO EXTREMELY  
HIGH LEVELS OF RADIANT FLUX. NEVER  
EXPOSE THE UTAM, 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 UTAM is designed to adjust for different users and corrects for most differences in eyesight. The controls and indicators for the UTAM are shown in Figure 3-1 and are described in Table 3-1.

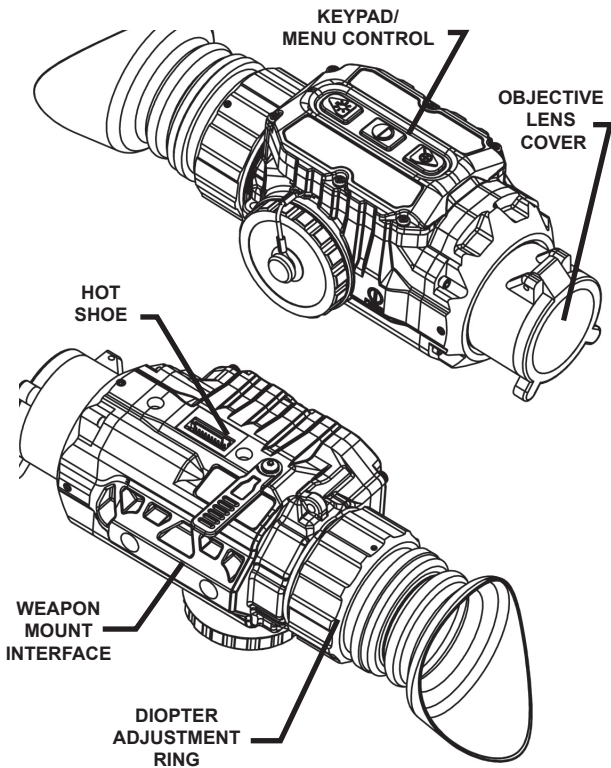


Figure 3-1 Controls and Indicators

<b>Control and Indicators</b>	<b>Functions</b>
Keypad/ Menu Control	Switches unit ON or OFF. Activates Calibration, Polarity, Display Brightness and Digital Zoom. Controls Internal Menu System such as reticle selection, azimuth adjustment and elevation adjustment.
Battery Indicator (not shown)	Icon located in the eyepiece display that shows battery life of the system.
Objective Lens Cover	Protects the objective lens from environmental contaminants and inadvertent scratching when not in use. Must be closed when performing a calibration to the unit.
Diopter Adjustment Ring	Focuses eyepiece lens. Adjust for sharpest image of display screen.
Hot Shoe	Provides the interface between the UTAM and accessories such as the RS-16 (remote switch) and the VPM (external power and video).
Weapon Mount Interface	Interface to attach weapon mounts.

**Table 3-1 Controls and Indicators**

### **3.4 Powering ON the UTAM:**

When the UTAM is powered ON, the circuit will energize and the start up screen will appear for a few seconds in the display. To power ON the UTAM perform the following procedure.

1. Close the objective lens cover.
2. Press and hold (approx. 2 seconds) the center and rear buttons as indicated on the keypad bezel by “PWR.”

**NOTE**

**THE OBJECTIVE LENS COVER MUST BE CLOSED WHILE POWERING ON TO ALLOW THE CALIBRATION OF THE SYSTEM. CALIBRATION IS COMPLETE WITHIN TWO SECONDS OF ACTIVATION.**

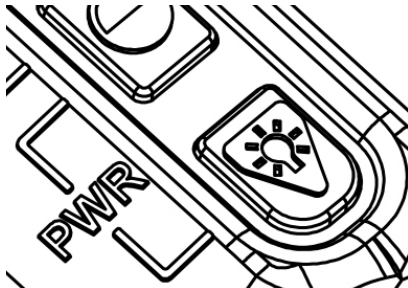


Figure 3-2 Keypad Buttons

**NOTE**

**WHEN THE REMOTE SWITCH IS ATTACHED, THE UTAM CAN ONLY BE POWERED ON THROUGH THE MAIN UTAM KEYPAD. ALL OTHER FUNCTIONS CAN BE EXECUTED USING THE REMOTE SWITCH KEYPAD.**

**3.5 Battery Indicator:**

When battery life is low, a flashing low battery indicator will appear near the center of the eyepiece display. To monitor available battery power, press and hold the rear button until the battery icon appears.



**Figure 3-3 Battery Power Icons**

Two conditions determine the length of time the unit will operate on a set of batteries:

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

**NOTE**

**WHEN THE FLASHING LOW BATTERY INDICATOR APPEARS, THE UNIT HAS APPROXIMATELY 5 MINUTES OF BATTERY LIFE BEFORE AUTOMATIC SHUTDOWN.**

### **3.6 Thermal Calibration:**

The UTAM features shutterless core technology and the lens cover unit must be closed when calibrating the system. Calibration gives the user the clearest picture possible. To calibrate the system perform the following procedure.

1. Fully close the lens cover.
2. Simultaneously press the front and center buttons, and release.

The UTAM Series will automatically perform an initial calibration at power up. For this reason it is necessary to keep the lens cover closed for a minimum of 2 seconds at power up.



A second calibration is suggested at 30 seconds after powering ON the unit. This allows the thermal sensor to adjust to the surrounding temperatures. Additional calibrations may be required as surrounding temperature changes or any time a fixed, non-uniform shading appears on the display screen.

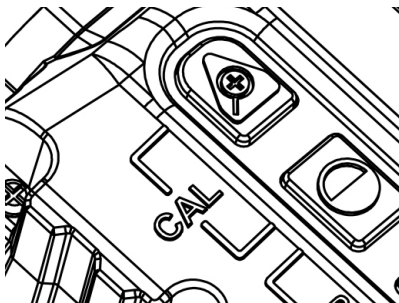


Figure 3-4 Calibration

### 3.7 **Digital Zoom:**

Press the Zoom button to cycle through the electronic zoom presets.

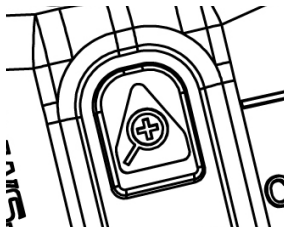


Figure 3-5 Zoom Button

### 3.8 **Polarity (White-Hot/Black-Hot):**

The UTAM Polarity button determines one of two viewing modes to identify environmental temperature differences: HOT temperatures are seen as WHITE on the screen or HOT temperatures are seen as BLACK on the screen. Press the Polarity button to toggle between the viewing modes.

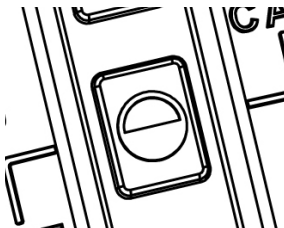


Figure 3-6 Polarity Button

### 3.9 Display Brightness:

When the system is first turned on, the unit activates white-hot with a midrange display brightness setting. The unit has 6 brightness settings. When adjusting the brightness, each time the Display Brightness button is pressed, the level of intensity will increase. A corresponding brightness level icon will appear in the field of view.

#### **NOTE**

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

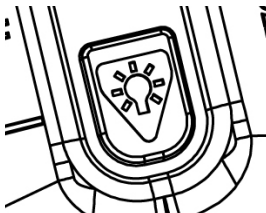


Figure 3-7 Display Brightness Button

### 3.10 Menu Activation and Use:

To activate Menu Mode:

1. Press and hold the center button until the menu appears on the display (approximately 2 seconds).
2. Use the front and rear buttons to scroll through the menu items.
3. Use the center button to select an item.
4. The menu mode will time out after 7 seconds of non-use, except in the Adjust sub-menu.

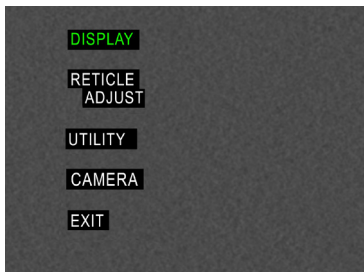


Figure 3-8 Main Menu

### 3.11 Selecting Display Mode:

1. Push and hold the center button until the Main Menu is displayed.
2. Press the center button to select the DISPLAY sub-menu.



Figure 3-9 Display Sub-menu

The 6 display modes to choose from are:

- ALERT mode shows a Monochrome image with the hot

- spots in orange and red.
- MONO mode shows a Monochrome image.
  - COLOR 1 mode shows hot as orange and cold as purple.
  - COLOR 2 mode shows gradients of brown and green with hot temperatures shown in white.
  - COLOR 3 mode shows gradients of white, yellows and orange with hotter temperatures in white.
  - COLOR 4 is a full color spectrum with hotter temperatures in reds and orange and cooler temperatures in blue and purples.

**NOTE:**

**WHEN ANY ONE OF THE COLOR VIEWING MODES IS ACTIVE, THE PRESSING CENTER BUTTON WILL CYCLE TO THE NEXT COLOR MODE.**

### **3.12 Selecting a Reticle Pattern:**

When the UTAM is used as a stand alone thermal weapon sight, an internal reticle is available. To choose a specific reticle perform the following:

**NOTE**

**UPON START UP, THE UNIT WILL DISPLAY THE LAST RETICLE SELECTED BY THE USER PRIOR TO SHUTDOWN OR BATTERY REMOVAL.**

1. Push and hold the center button until the Main Menu is displayed.
2. Scroll until RETICLE is highlighted.
3. Press the center button to select the RETICLE sub-menu.

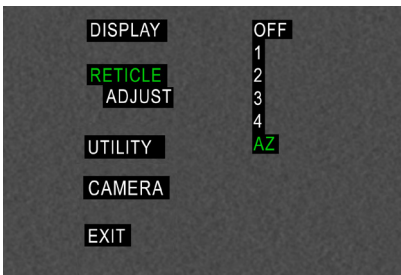


Figure 3-10 Reticle Sub-menu

4. Scroll until desired reticle appears in display.
5. Press the center button to select the reticle desired.
6. Press the center button to exit menu.



Figure 3-11 Reticle Types

**NOTE**

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

### 3.13 Removing Reticle:

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

1. Select OFF under the Reticle sub-menu.

**NOTE**

**THE RETICLE TYPE AND POSITION WILL BE MAINTAINED THROUGH THE POWERING DOWN AND STARTING UP OF THE SYSTEM.**

**NOTE**

**WHEN AZ IS SELECTED, THE ACCU-ZOOM DOT RETICLE IS SHOWN. THIS RETICLE HAS INDEPENDENT AZIMUTH (H) AND ELEVATION (V) ADJUSTMENT MEMORY AND WILL BE DISPLAYED WHEREVER IT WAS LAST MOVED TO ON THE SCREEN. ADJUSTING THE POSITION OF THE AZ RETICLE WILL NOT AFFECT THE POSITION OF THE OTHER RETICLES.**

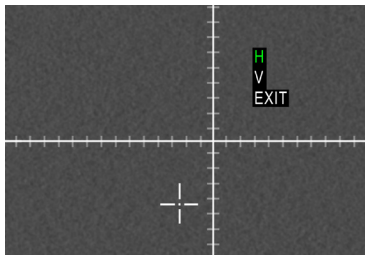
**3.14 Adjusting Reticle Position:**

1. Push and hold the center button until the Main Menu is displayed.
2. Scroll until ADJUST is highlighted.
3. Press the center button to select the ADJUST sub-menu.



**Figure 3-12 Adjust Sub-menu**

- Adjust the reticle horizontally when the H is highlighted by using the front and rear buttons.



**Figure 3-13 Reticle Adjustment**

- Press the center button when the desired position is reached.
- Adjust the reticle vertically when the V is highlighted by using the front and rear buttons.
- Select EXIT.

**NOTE**

**EACH BUTTON PUSH MOVES THE RETICLE ONE INCREMENT. PRESS AND HOLD FOR FASTER ADJUSTMENT.**

### **3.15 Zeroing as a Weapon Sight:**

To zero the UTAM, perform the following:

- Fix a thermal target at 100 meters distance. Ensure a sufficient thermal contrast is viewed through the UTAM before continuing.
- Ensure that the weapon mount is securely fastened to the UTAM Series so there is no movement.
- Securely fasten the UTAM to the weapon so there is no movement.



4. Power ON the UTAM.
5. Set the Digital Zoom at 2X.
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 diopter ring 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 3-5 rounds.
10. After clearing the weapon, visually check the center of the shot grouping on the target.
11. Find your UTAM model in the charts below. Each button press will move the Point of Impact a specific incremental distance. The data below is calculated for a target placed at 100m.
12. Make reticle adjustments as necessary according to the table below.

<b>“i” Version Reticle Adjustment Per Click at 100 meters (17<math>\mu</math> version)</b>					
<b>32iS</b>	<b>32iM</b>	<b>32iL</b>	<b>32iL</b>	<b>64iM</b>	<b>64iL</b>
5.7cm	3.1cm	1.8cm	1.3cm	3.9cm	2.3cm

**Table 3-3 Reticle Adjustment Per Click - “i” versions**

13. Fire and adjust the reticles until the center of the shot grouping and the reticle are coincident.

### 3.16 Determining Installed Firmware:

Perform the following to determine the firmware installed on the unit:

1. Push and hold the center button until the Main Menu is displayed.
2. Scroll until UTILITY is highlighted.
3. Press the center button to enter the UTILITY sub-menu.
4. Press the center button again to select INFO.
5. At this point the information about the system appears on the screen.
6. Press the center button again to EXIT.

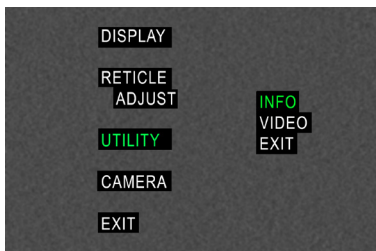


Figure 3-14 Utility Sub-menu

### 3.17 Enabling the Video Output (for Optional VPDM):

In order to utilize the video export feature of the unit, the video output feature must be selected from the menu.

#### NOTE

**IT IS RECOMMENDED THAT THE VIDEO  
OUT SELECTION REMAINS IN THE OFF  
POSITION WHEN NOT IN USE IN ORDER TO  
MAXIMIZE BATTERY LIFE.**

1. Push and hold the center button until the Main Menu is displayed.
2. Scroll until UTILITY is highlighted
3. Press the center button to select the UTILITY sub-menu.
4. Scroll until VIDEO is highlighted, then press center button to select.
5. Scroll to choose ON or OFF.
6. Press the rear button to EXIT the video enable.
7. Press the center button twice to EXIT the menu system.

### 3.18 Camera Operation

1. Hold the center button until the menu appears.
2. Scroll and select CAMERA.
3. Select CAPTURE to enter the camera mode.
4. Press the center button to take a picture and advance the counter located in the upper left corner of the screen.
5. Exit the Camera mode by holding down the center button and selecting CAPTURE or powering down the unit.

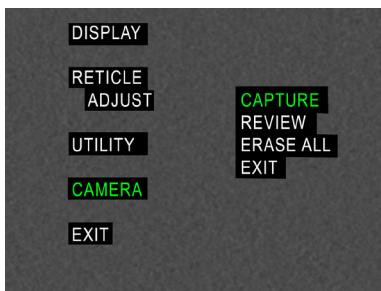


Figure 3-15 Camera Sub-menu

**NOTE**

**THE INTERNAL MEMORY IS LIMITED TO  
APPROXIMATELY:  
100 IMAGES FOR THE -32 MODELS  
50 IMAGES FOR THE -64 MODELS**

**NOTE**

**ONCE THE MAXIMUM CAPACITY OF  
IMAGES HAVE BEEN STORED, THE ERASE  
ALL FUNCTION MUST BE PERFORMED TO  
CAPTURE MORE IMAGES.**

**3.19 Image Review**

1. Hold the center button until the menu appears.
2. Scroll and select CAMERA.
3. Scroll and select REVIEW to review the stored images.
4. Use the front and rear buttons to advance through the stored images.



**Figure 3-16 Image Review Counter**

**NOTE**

**THE REVIEW COUNTER IN THE UPPER LEFT CORNER OF THE SCREEN SHOWS THE SPECIFIC NUMBER OF IMAGE YOU ARE VIEWING AS WELL AS THE TOTAL NUMBER OF IMAGES CAPTURED.**

5. Exit the Review mode by pressing the center button and selecting EXIT.

### **3.20 Downloading Images**

Still images stored on the UTAM are currently exported via an analog video feed. In order to download images, the operator must have the Nivisys VPDM (Video Power and Download Module). This can be purchased as an accessory.

With a VPDM the operator can record the stored images using:

- an external DVR
- or computer equipped for analog video capture

### **3.21 Erasing Images**

1. Hold the center button until the menu appears.
2. Scroll and select CAMERA.
3. Scroll and select ERASE ALL to erase the stored images.

**NOTE**

**THERE IS NO WAY TO ERASE SELECTED IMAGES. ERASING IMAGES ERASES ALL STORED IMAGES AND CAN TAKE UP TO 30 SECONDS.**

**NOTE**

**THE UNIT CAN NOT BE POWERED DOWN USING THE KEYPAD WHILE ERASING IMAGES.**

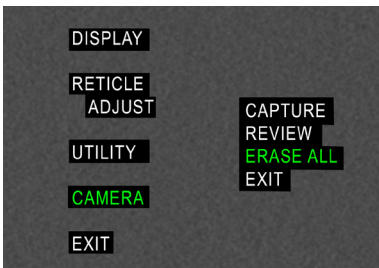


Figure 3-17 Erase All Function

### 3.22 Powering OFF the UTAM:

To power OFF the system, perform the following:

1. Simultaneously press the center and rear buttons. Visually check that the unit is OFF by looking through the eyepiece.

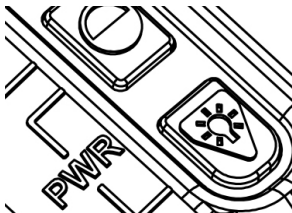
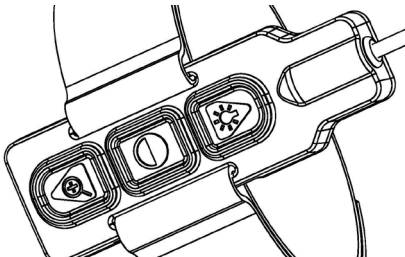


Figure 3-18 Powering OFF the UTAM

### 3.23 Use with the Remote Switch:

The UTAM may be used with the supplied remote switch. When attached, all keypad functions of the UTAM, except for powering ON, can be executed using the remote switch.



**Figure 3-19 Remote Switch**

### **3.24 Preparation for Storage:**

1. Remove batteries from the UTAM.
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 cover.

#### **NOTE**

**PRIOR TO PLACING UTAM INTO CARRYING CASE, ENSURE UTAM AND CASE ARE FREE OF DIRT, DUST, AND MOISTURE.**

6. Place the UTAM, 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.

# CHAPTER 4:

## MAINTENANCE INSTRUCTIONS

### 4.1 Introduction:

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

### **CAUTION**

**THIS SIGHT IS A PRECISION ELECTRO-  
OPTICAL INSTRUMENT AND MUST BE  
HANDLED CAREFULLY.**

**DO NOT SCRATCH THE EXTERNAL LENS  
SURFACES OR TOUCH THEM WITH YOUR  
FINGERS.**

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

### 4.2 Preparing for Maintenance:

Before performing any maintenance or cleaning of the system, remove all power sources from the UTAM including batteries and/or external power supplies.

### 4.3 Cleaning the UTAM:

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.



#### **4.4 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.

#### **4.5 Checking for Damage and Corrosion:**

As a general guideline, conduct an inspection of the UTAM, 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 equipment. 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 or Inspection	Corrective Action
Unit fails to power ON.	Visual.  Check for defective, missing or improperly installed battery.	Power OFF the system and then ON.  Replace battery or install correctly.  Tighten battery cap until the orange o-ring is no longer visible.  If UTAM still fails to power ON, refer to higher level of maintenance.

**Table 5-1 Troubleshooting**

Flickering Image on firing.	Check for loose battery cap that may cause the battery to lose contact during weapon fire.	Tighten battery cap until the orange o-ring is no longer visible.
No display in eyepiece.	Visual check to see if lens cover is still on.  Check to see if shuttered eyeguard is installed.	Flip lens cover open.  Press eye firmly against shuttered eyeguard.
Poor image quality.	Check focus of the eyepiece lens.  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.	If eyecup is defective, refer to higher level of maintenance.

**Table 5-1 Troubleshooting, (cont.)**

<p>Remote Switch keypad not working.</p>	<p>Check to ensure hot shoe connector is completely installed into unit.</p> <p>Check to ensure connectors are free from debris, dirt and corrosion.</p>	<p>Firmly push connector into mating connector on UTAM unit and tighten thumbscrew.</p> <p>Clean connectors.</p> <p>If remote switch keypad is still not working, refer to higher level of maintenance.</p>
<p>Optics hard to turn or grinding.</p>	<p>Check for dirt or debris on traveling eyepiece cell.</p> <p>Check to see if the diopter adjustment is bent or broken.</p>	<p>Clean with a soft dry cloth.</p> <p>If damaged, refer to higher level of maintenance.</p>

**Table 5-1 Troubleshooting, (cont.)**

<p>Will not zero.</p>	<p>Check to see if UTAM is securely fastened to weapon mount.</p> <p>Check to see that weapon mount is correctly and securely fastened to weapon.</p> <p>Check to see if zeroing is being done in digital zoom mode.</p>	<p>Tighten the weapon mount to the UTAM.</p> <p>Correctly and securely fasten to weapon mount to weapon.</p> <p>Press the digital zoom button to enter digital zoom mode when zeroing.</p> <p>If problem persists, refer to higher level of maintenance.</p>
-----------------------	--	--

**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 UTAM.

## A.2 Contact Information:

To order spare or repair parts for the UTAM or any other night vision products contact:

Nivisys, LLC  
1120 Alza Drive,  
El Paso, TX 79907 USA

Phone: 1-915-633-8354

Fax: 1-915-833-8175

## A.3 Spare Parts List:

The following is a list of parts that may be ordered for spare parts for the UTAM.

Part No.	Description	Qty.
A3256345	Shuttered Eyeguard	1
830-0071-0	Operator Manual, UTAM Series	1
830-0072-0	Quick Reference Guide, UTAM Series	1
3501-900	High Profile Double Throw Lever Mount	1
3500-900	Low Profile Double Throw Lever Mount	1
790-0015-0	Mount Adjustment Tool	1
3255-000	Remote Switch	1

580-0002-0	Battery, CR123 Lithium (2ea. required for operation)	1
A3256353	Demist Shield	1
170-12	Cleaning Kit	1
4500-202	Eyecup	1
A3144306	Neck Cord	1
A3144315	Purge Screw	1
A3144316	Purge Screw O-Ring	1
3200-114	Dust Cover Retaining Pin	1
3200-112	Hot Shoe Dust Cover	1
4200-800	Lens Cap Assembly (35mm)	1
3200-620	Battery Cap Assembly	1
111-0009-0	Soft Carrying Case - Black	1
220-0013-0	Lens Cover (50mm)	1
310-0015-0	Eyepiece Eyecup Retainer	1
07-OBJ	Lens Cover (19mm)	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 24 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 as to 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 [services@nivisys.com](mailto:services@nivisys.com), call 1-915-633-8354 or fax 1-915-833-8175 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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