



# ZEUS

## Thermal Imaging Riflescopes



## OPERATION AND MAINTENANCE MANUAL

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## SAFETY SUMMARY

Before operating this product, you must study carefully this Operation and Maintenance Manual.

The Armasight Zeus Thermal Imaging Riflescope is a precision electro-optical instrument and requires careful handling. To avoid physical danger to the user and damage to the equipment, follow all WARNINGS, CAUTIONS and NOTES.

Below are definitions of the alerts that will appear throughout this Manual:

**WARNING** – Identifies a clear danger to the person operating the equipment.

**CAUTION** – Identifies risk of damage to the equipment.

**NOTE** – Highlights essential procedures, conditions, statements, or conveys important instructional data to the user.

The information provided in this manual is for familiarization purposes only. The contents may undergo further changes with no commitment by Armasight® to notify customers of any updates.

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**WARNING:**

When installing the equipment on a weapon, verify that the weapon is clear and that the safety is on before proceeding.

**WARNINGS:**

**This product contains natural rubber latex, which may cause allergic reactions!** The FDA has reported an increase in the number of deaths that are associated with an apparent sensitivity to natural latex proteins. If you are allergic to latex, it is a good idea to learn which products contain it and strictly avoid exposure to those products.

**CAUTION:**

- Do not dismantle the equipment.
- Keep the equipment clean. Protect it from moisture, dramatic temperature drops, and electrical shocks.
- DO NOT force the equipment controls past their stopping points.
- DO NOT leave the equipment activated during breaks in operation.
- DO NOT store the equipment with the batteries installed.
- Thoroughly clean and dry each item before placing them into the storage case.

**CAUTION:**

To prevent thermal damage to the equipment, never point it, either on or off, directly at the sun or any other source of high intensity light that the unprotected human eye cannot tolerate (such as a welding arc). To prevent inadvertent exposure to these types of sources, never leave the equipment with the objective lens cap off.

**NOTES:**

- Zero the weapon prior to installing and bore sighting the Zeus.
- To avoid losing unsaved data, DO NOT remove the batteries or disconnect the external power source while the Zeus is on.
- Inadvertent sun damage is not considered a defect in material or workmanship, and is therefore not covered in the product warranty.

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## HOW TO USE THIS MANUAL

### USAGE

You must familiarize yourself with the entire manual before operating the equipment. Read the entire maintenance checklist before performing maintenance. Follow all WARNINGS, CAUTIONS, and NOTES.

### MANUAL OVERVIEW

The Manual contains sections on operating and maintaining the Zeus Thermal Imaging Rifle. Throughout this Manual, the Zeus Thermal Imaging Rifle will be referred to as the Zeus or the equipment.

The Product Warranty Registration Card is in Appendix A.

A List of Spare Parts is in Appendix B.

# INTRODUCTION

## 1.1 GENERAL INFORMATION

### 1.1.1 TYPE OF MANUAL

Operation and Maintenance (including a List of Spare Parts).

### 1.1.2 MODEL NUMBER AND EQUIPMENT NAME

The equipment is available in the following versions that are structurally different in terms of thermal imaging cameras and objective lenses:

Zeus 4 160-30 Thermal Imaging Riflescope, FLIR Tau 2 – 160x120 (25µm) 30Hz Core, 42mm Lens  
Zeus 7 160-30 Thermal Imaging Riflescope, FLIR Tau 2 – 160x120 (25µm) 30Hz Core, 75mm Lens  
Zeus 3 336-30 Thermal Imaging Riflescope, FLIR Tau 2 – 336x256 (17µm) 30Hz Core, 42mm Lens  
Zeus 3 336-60 Thermal Imaging Riflescope, FLIR Tau 2 – 336x256 (17µm) 60Hz Core, 42mm Lens  
Zeus 5 336-30 Thermal Imaging Riflescope, FLIR Tau 2 – 336x256 (17µm) 30Hz Core, 75mm Lens  
Zeus 5 336-60 Thermal Imaging Riflescope, FLIR Tau 2 – 336x256 (17µm) 60Hz Core, 75mm Lens  
Zeus 2 640-30 Thermal Imaging Riflescope, FLIR Tau 2 – 640x512 (17µm) 30Hz Core, 42mm Lens  
Zeus 2 640-60 Thermal Imaging Riflescope, FLIR Tau 2 – 640x512 (17µm) 60Hz Core, 42mm Lens  
Zeus 3 640-30 Thermal Imaging Riflescope, FLIR Tau 2 – 640x512 (17µm) 30Hz Core, 75mm Lens  
Zeus 3 640-60 Thermal Imaging Riflescope, FLIR Tau 2 – 640x512 (17µm) 60Hz Core, 75mm Lens

### 1.1.3 PURPOSE OF EQUIPMENT

The Zeus is intended for use on a variety of hunting and sporting weapons equipped with a Picatinny/Weaver rail. Displaying the thermal differences in the scene, the high-performance thermal imaging system of the Zeus provides round-the-clock, all-weather detection and discrimination of heat-generating objects (such as animals), including those that are hidden. The Zeus is effective at close and long ranges irrespective of light and weather conditions, i.e., in total darkness, through smoke, haze, fog, and light rain.

The ZEUS is available in different versions with magnifications ranging from 1.5x to 7.2x.

The Zeus is powered by two CR 123A (2x3V) batteries. An external 6 VDC/1A power source can also be used to power the Zeus.

The Zeus can be controlled by a wireless remote control that fastens to the weapon.

The Zeus is equipped with a standard NTSC/PAL video input/output function that makes it possible to connect to an external video display or monitor, or to record thermal images for field documentation or training purposes. It also allows the transmission of data from one remote display to that of the Zeus.

The Zeus can be used in conjunction with other Armasight equipment such as the DT Digital Video Recorder and MCS Miniature Collimating Sight that can be mounted onto the Zeus' Picatinny/Weaver rail or detachable platform ring.

Extremely reliable and versatile, the Zeus is a useful multifunctional addition to any security or hunting weapon platform.

## 1.1.4 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS

User recommendations for improvements to the device are encouraged.

Mail your comments to:

Armasight Inc.

815 Dubuque Avenue

South San Francisco, CA 94080

USA

Or, send an email to [info@armasight.com](mailto:info@armasight.com).

## 1.2 WARRANTY INFORMATION AND REGISTRATION

### 1.2.1 WARRANTY INFORMATION

This product is guaranteed to be free from manufacturing defects in material and workmanship under normal use for a period of two (2) years from the date of purchase. This warranty does not cover the battery or damage caused by leaking batteries. Nor does it protect against damage due to loss, misuse or mishandling.

In the event a defect that is covered by the warranty occurs during the 2 year period stated above, Armasight, at its option, will either repair or replace the product, and such action on the part of Armasight shall be the full extent of Armasight's liability, and the Customer's sole and exclusive remedy. This warranty does not cover a product (a) used in 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 Armasight without prior written consent of Armasight; (d) special order or "close-out" merchandise or merchandise sold "as-is" by either Armasight or the Armasight 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 Armasight. Armasight shall not be responsible for any defects or damage that in, Armasight's opinion, is a result from the mishandling, abuse, misuse, improper storage or improper operation, including use in conjunction with equipment which 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 waived unless the customer notifies Armasight 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.

### 1.2.2 LIMITATION OF LIABILITY

Armasight 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. Armasight'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 Armasight 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 or legal entity outside Armasight and the Customer. Armasight's obligations under this Agreement extend solely to the Customer.

Armasight's liability hereunder for damages, regardless of the form or action, shall not exceed the fees or other charges paid to Armasight by the customer or customer's dealer. Armasight 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.



### **1.2.3 PRODUCT WARRANTY REGISTRATION**

In order to validate the warranty on your product, Armasight must receive a completed Product Warranty Registration Card for each unit, or the Customer can complete a warranty registration on our website at [www.armsight.com](http://www.armsight.com). Please complete the included form (Appendix B) and immediately mail it to our Service Center:

Armasight Inc.  
815 Dubuque Avenue  
South San Francisco, CA 94080  
USA

### **1.2.4 OBTAINING WARRANTY SERVICE**

To obtain warranty service on your unit, the End-user must notify the Armasight's service department in order to receive a Return Merchandise Authorization number (RMA#). The customer can do this by sending an email to [service@armsight.com](mailto:service@armsight.com).

When returning any product, please take or send the product, postage paid, with a copy of your sales receipt, to our service center, Armasight Inc. at the address noted above. All merchandise must be fully insured with the correct postage; Armasight will not be responsible for improper postage or missing or damaged merchandise during shipment.

When sending merchandise back, please write the RMA# clearly on the outside of the shipping box. Please include a letter that indicates your RMA#, Name, Return Address, reason for service return, Contact information (such as a valid telephone number and/or e-mail address), as well as proof of your purchases 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 be subject to a significant delay in processing.

Estimated Warranty service time is 10-20 business days. The End-user/Customer is responsible for postage to Armasight for any warranty service. Armasight will cover return postage/shipping to continental USA End-users/Customers after warranty repair only if product is covered by the aforementioned warranty. Armasight will return the product after warranty service via domestic ground service and/or domestic mail. The postage and shipping fees for any other requested, required or international shipping methods will be the responsibility of the End-user/Customer.

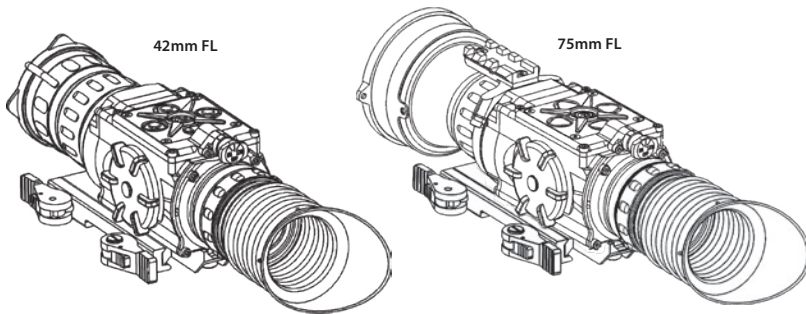
## 1.3 LIST OF ABBREVIATIONS

µm	micrometer
AWREC	Advanced Wireless Remote Control
C	Celsius (Centigrade)
CCW	counterclockwise
CW	clockwise
F	Fahrenheit
FFC	Flat Field Correction
FL	Focal Length
g	gram
H	Height
hr	hour
in	inch
inf.	infinity
kg	kilogram
L	Length
lbs	pounds
m	meter
mA	milliampere
mil	angular mil
min	minute
mm	millimeter
MOA	Minute Of Angle
mrad	milliradian
NO.	Number
NTSC	National Television Standards Committee
OEM	Original Equipment Manufacturer
oz	ounce
PAL	Phase Alternating Line
PMCS	Preventive Maintenance Checks and Services
RMA#	Return Merchandise Authorization number
sec	second
SEQ	sequence
SOA	Second Of Angle
SR	Service Representative
V	Volt
W	Width

# DESCRIPTION AND DATA

## 2.1 SYSTEM DESCRIPTION

The Zeus consists of two primary parts: a thermal imaging aiming device and a mount. The equipment comes as shown in Figure 2-1, with the mount secured to the body of the device. The figure represents two versions of the equipment: one including a 42mm focal length objective lens, and the other with a 75mm focal length objective lens.



**FIGURE 2-1. ZEUS THERMAL IMAGING RIFLESCOPES APPEARANCE**

The Zeus is a thermosensitive device equipped with an aiming reticle. The Zeus senses the differences in heat emitted by objects in its field of view and converts the received temperature pattern into a viewable image that represents the scene in contrasting black and white or color patterns, depending on the user's selected image palette.

**NOTE:**

It is important that the Zeus sensor receive sufficient thermal contrast between the target and background area, or between the different parts of a target. The vast temperature contrast between the snow and any heat target (such as an animal) makes it very easy to distinguish the target.

The main optical-electronic components of the Zeus include: an objective thermal lens, an eyepiece, a thermal-imaging camera, a display, a control card, and a button control panel. The reticle is digitally input into the display that is in the image plane.

The Zeus is equipped with manual eyepiece and objective lens focusing, and digital boresight adjustment.

To accommodate individual user needs, the Zeus has a variety of digitally-controlled options, such as display brightness, temperature imaging mode (image palette), reticle pattern and color, a hunting scenarios function, field environment corrections, temperature measurement, and zoom capabilities.

Information on the current operating state (battery status, active function, the reticle running coordinate in the display etc.) is continuously displayed, making field operation of the Zeus simple and convenient.

Manufactured for exceptional durability, the Zeus has a lightweight and robust aluminum body.

A side Picatinny/Weaver rail allows for the installation of an optional Armasight DT Digital Video Recorder or other equipment.

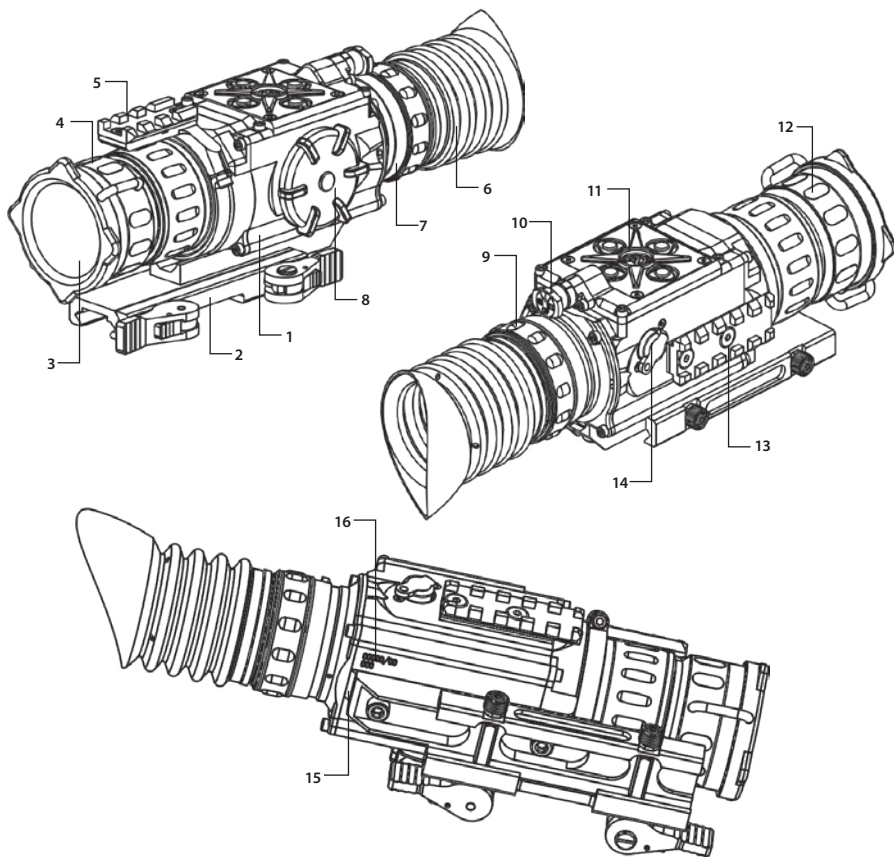
An optional detachable Platform Ring makes it possible to mount additional equipment, such as Armasight MCS Miniature Collimating Sight, to the top of the device.

A standard NTSC/PAL video input/output connector enables an external video display (monitor, TV) or video recorder to be connected to the Zeus. An external 6 VDC/1A power source can also be connected to the Zeus.

The quick-release mount of the Zeus fits any Picatinny, MIL STD 1913, or Weaver weapon rail. The mount's lever-cam clamping device ensures easy, quick and reliable mounting and removal.

The Zeus is powered by two CR 123A (2×3V) batteries.

The Zeus is shown in Figure 2-2. The ITEM NO. column of Table 2-1 indicates the number used to identify items in Figure 2-2.



**FIGURE 2-2. ZEUS THERMAL IMAGING RIFLESCOPE. SYSTEM DESCRIPTION**

**TABLE 2-1. ZEUS SYSTEM DESCRIPTION**

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Body	9	Eyepiece Focus Ring
2	Mount	10	Turn-pull Switch
3	Objective Lens Cap	11	Button Control Panel
4	Objective Lens	12	Objective Focus Ring
5	Platform Ring*	13	Side Picatinny/Weaver Rail
6	Eyecup	14	Connector (closed with a Cap)
7	Eyepiece	15	Seating Rail
8	Battery Cap	16	Serial Number

\*Optional item

## 2.2 ZEUS SPECIFICATIONS

**TABLE 2-2. SYSTEM DATA**

ITEM	ZEUS 4 160-30	ZEUS 7 160-30	ZEUS 3 336-30 ZEUS 3 336-60	ZEUS 5 336-30 ZEUS 5 336-60	ZEUS 2 640-30 ZEUS 2 640-60	ZEUS 3 640-30 ZEUS 3 640-60
Magnification (NTSC/PAL)	4.0x / 4.8x	7.2x / 8.6x	2.8x / 3.4x	5.0x / 6.0x	1.5x / 1.8x	2.7x / 3.2x
Objective Lens Type	Germanium					
Type of Focal Plane Array	FLIR Tau 2					
Pixel Array Format	160x120		336x256		640x512	
Pixel Size	25 μm			17 μm		
Resolution, mrad	0.60	0.33	0.40	0.23	0.40	0.23
Display Type	AMOLED SVGA 060					
Pixel Display Format	800x600					
Display Brightness	Discretely Adjustable to 8 Levels					
Turn-on Time, max	3 sec					
Digital Zoom	1x, 2x, and 4x				1x, 2x, 4x, and 8x	
Temperature Imaging Modes (Image Palettes)	White Hot, Black Hot, Fusion, Rainbow, Globow, Ironbow 1, Ironbow 2, Sepia, Color 1, Color 2, Ice-Fire, Rain, and OEM Custom					
Reticle Type	6-Pattern Digitally Controlled: "Dot 4 MOA", "Line Dot", "Cross Center Dot", "Cross", "Crosshair", and "No Reticle"					
Reticle Color	Black, White, Red, Cyan					
Windage/Elevation Bore-sight Adjustment Type	Digitally Controlled					
Windage/Elevation Boresight Increment	2 MOA 0.6 mils 6cm/100m	1.1 MOA 0.3 mils 3cm/100m	1.3 MOA 0.4 mils 4cm/100m	0.76 MOA 0.2 mils 2cm/100m	1.3 MOA 0.4 mils 4cm/100m	0.76 MOA 0.2 mils 2cm/100m

**TABLE 2-2. CONTINUED**

ITEM	ZEUS 4 160-30	ZEUS 7 160-30	ZEUS 3 336-30 ZEUS 3 336-60	ZEUS 5 336-30 ZEUS 5 336-60	ZEUS 2 640-30 ZEUS 2 640-60	ZEUS 3 640-30 ZEUS 3 640-60
Windage Adjustment Range	±160 MOA	±88 MOA	±105MOA	±60 MOA	±105 MOA	±60 MOA
Elevation Adjustment Range	±120 MOA	±66 MOA	±80 MOA	±46 MOA	±80 MOA	±46 MOA
Analog Input/Output Format	PAL*/ NTSC					
Output	PAL		768×574 pixels			
Resolution	NTSC		640×480 pixels			

\*Default setting (may be altered at the customer's request).

**TABLE 2-3. MECHANICAL DATA**

ITEM	ZEUS 4 160-30	ZEUS 7 160-30	ZEUS 3 336-30 ZEUS 3 336-60	ZEUS 5 336-30 ZEUS 5 336-60	ZEUS 2 640-30 ZEUS 2 640-60	ZEUS 3 640-30 ZEUS 3 640-60
Weapon Mount Type	Picatinny MIL STD 1913 and Weaver Rails					
Overall Dimensions	255×70×80 mm 10"×2.8"×3.2"	275×70×80 mm 10.8"×2.8"×3.2"	255×70×80 mm 10"×2.8"×3.2"	275×70×80 mm 10.8"×2.8"×3.2"	255×70×80 mm 10"×2.8"×3.2"	275×70×80 mm 10.8"×2.8"×3.2"
Height of the Zeus Axis above Rail	40 mm (1.57 in)					
Weight (w/o Batteries)	0.7 kg (1.5 lbs)	0.8 kg (1.8 lbs)	0.7 kg (1.5 lbs)	0.8 kg (1.8 lbs)	0.7 kg (1.5 lbs)	0.8 kg (1.8 lbs)

**TABLE 2-4. OPTICAL DATA**

ITEM	ZEUS 4 160-30	ZEUS 7 160-30	ZEUS 3 336-30 ZEUS 3 336-60	ZEUS 5 336-30 ZEUS 5 336-60	ZEUS 2 640-30 ZEUS 2 640-60	ZEUS 3 640-30 ZEUS 3 640-60
Field of View - ang. X degrees	5.5	3.0	7.8	4.3	14.8	4.3
- ang. Y degrees	4.0	2.2	5.9	3.3	11.8	3.3
Objective Focal Length	42mm	75mm	42mm	75mm	42mm	75mm
Objective F-number	1:1	1:1.3	1:1	1:1.3	1:1	1:1.3
Eyepiece Focal Length	25 mm					
Entrance Pupil Diameter	42mm	60mm	42mm	60mm	42mm	60mm
Exit Pupil Diameter	10 mm					
Eye Relief	45 mm					
Focus Method	Manual					

TABLE 2-4. CONTINUED

ITEM	ZEUS 4 160-30	ZEUS 7 160-30	ZEUS 3 336-30 ZEUS 3 336-60	ZEUS 5 336-30 ZEUS 5 336-60	ZEUS 2 640-30 ZEUS 2 640-60	ZEUS 3 640-30 ZEUS 3 640-60
Focusing Range	5m to inf.	10m to inf.	5m to inf.	10m to inf.	5m to inf.	10m to inf.
Diopter Adjustment	Manual					
Diopter Adjustment Range	±5 diopter					

TABLE 2-5. ELECTRICAL DATA

ITEM	DATA
Battery	Two CR 123A (2x3V)
Current Consumption, maximum	350 mA
Battery Life at 20 °C (68 °F)	4 hr
External Power Supply	6 VDC/ 1 A

TABLE 2-6. ENVIRONMENTAL DATA

ITEM	DATA
Operating Temperature	-40 to +50°C (-40 to +122°F)
Storage Temperature	-50 to +70°C (-58 to +158°F)
Recoil Resistance	700g
Immersion	10m for 30 min

## 2.3 STANDARD COMPONENTS

The Zeus standard components are shown in Figure 2-3 and listed in Table 2-7. The ITEM NO. column indicates the number used to identify items in Figure 2-3.

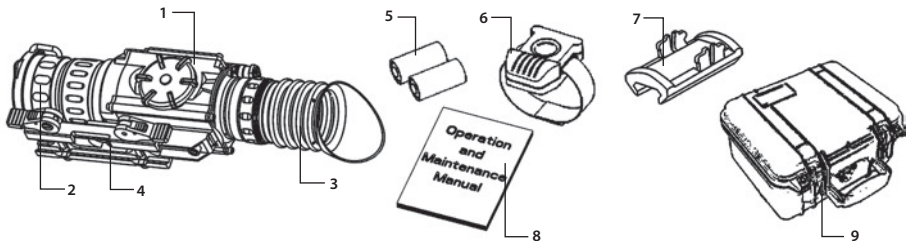


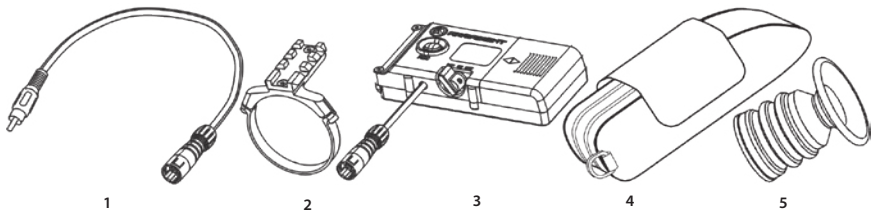
FIGURE 2-3. ZEUS STANDARD COMPONENTS

**TABLE 2-7. ZEUS STANDARD COMPONENTS**

ITEM NO.	DESCRIPTION	QUANTITY
1	<b>Armasight Zeus Thermal Imaging Rifle Scope</b> A thermal imaging aiming device. Comes fully assembled with a quick-release Picatinny/Weaver mount.	1
2	<b>Objective Lens Cap</b> Securely protects the objective lens from dirt and mechanical damage and provides thermal protection of the Zeus. Comes attached to the objective lens.	1
3	<b>Eyecup</b> A specially designed latex eyecup that reduces the amount of light that escapes from the eyepiece and prevents illumination of the user's face, minimizing the risk of detection. Prevents ambient light from entering the equipment. Allows for correct and comfortable positioning. Comes attached to the eyepiece.	1
4	<b>Mount</b> A quick-release mount used to install the Zeus on a Picatinny/Weaver rail. Comes attached to the Zeus.	1
5	<b>CR123A Lithium Battery</b> Batteries are used to power the Zeus.	2
6	<b>Advanced Wireless Remote Control (AWREC)</b> Allows the user to operate the Zeus in short-time activation mode. Ensures quick and silent activation/deactivation of the equipment. Comes with two CR2016 (3V) batteries installed.	1
7	<b>Picatinny Adapter for Advanced Wireless Remote Control</b> Allows the advanced wireless remote control to be installed on a weapon's Picatinny/Weaver rail.	1
8	<b>Operation and Maintenance Manual</b> Provides safety information, equipment description, mounting procedures, operating instructions, and preventive maintenance checks and services (including a List of Spare Parts).	1
9	<b>Hard Shipping/Storage Case</b> A protective case used for the shipping/storage of the Zeus and its accessories.	1

## 2.4 OPTIONAL EQUIPMENT

Optional items are shown in Figure 2-4 and listed in Table 2-8.



**FIGURE 2-4. OPTIONAL EQUIPMENT**

The ITEM NO. column indicates the number used to identify items in Figure 2-4.

The PART NO. column indicates the primary number used by the manufacturer, to identify an item.



**TABLE 2-8. OPTIONAL EQUIPMENT**

ITEM NO.	DESCRIPTION	PART NO.
1	<b>Video Cable</b> A cable used to connect the analog video input/output of the Zeus to external display devices (monitor, TV) or power sources. Supported input and output video formats include PAL and NTSC.	ATCA000004
2	<b>Platform Ring</b> A dedicated mount with a Picatinny/Weaver rail, used to install on the top of the Zeus and additional equipment, such as the Armasight MCS Miniature Collimating Sight.	ATAM000003
3	<b>DT Digital Video Recorder</b> A compact digital system used for video recording, storage and playback. Can also serve as an external power source. Equipped with a remote control.	ATAM000004
4	<b>Carrying Case</b> A textile bag with a shoulder strap used for the transportation and storage of the Zeus and its accessories.	AGSC000009
5	<b>Shuttered Eyeguard</b> Prevents light from being emitted by the Zeus eyepiece.	ANEC000010

## 2.5 KEY FEATURES

- Multiple versions with magnifications ranging from 1.5x to 7.2x
- High-performance thermal imaging camera
- Lightweight and robust design
- Easy to operate
- Manually adjustable eyepiece and objective lens
- Real-time display
- Digitally controlled features:
  - Adjustable display brightness
  - Selectable 6-pattern reticle including no reticle option
  - Switchable reticle color
  - Selectable image palette
  - Temperature measurement
  - Hunting scenarios function
  - Field environment corrections
  - Zoom capabilities
  - Windage/Elevation bore sighting
- Current operational state information display (battery status, active function etc.)
- Wireless remote control
- Analog video input and output (NTSC/PAL)
- Powered by two standard CR123A batteries.
- Power input capability
- Digital video recorder (optional)
- Fits any Picatinny, MIL STD 1913, and Weaver rail with an adjustable quick-release mount
- Serviceability under severe conditions
- Filled with dry nitrogen to prevent internal fogging
- Waterproof
- Limited two-year warranty

# OPERATING INSTRUCTIONS

## 3.1 INSTALLATION AND MOUNTING

### 3.1.1 BATTERY INSTALLATION

**CAUTION:**

Verify that the equipment is off before installing a battery.

Install two CR123A batteries as follows (refer to Figure 3-1):

1. Unscrew the battery cap (not shown) by hand.
2. Open the hinged contact clamping plate (C).
3. Install the batteries (D) into the battery compartment. Align the polarity symbols on the batteries with the polarity symbols (A and B) on the body of the Zeus.
4. Replace the contact clamping plate (C).
5. Replace the battery cap.

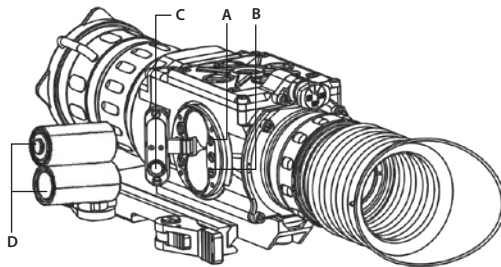


FIGURE 3-1. BATTERY INSTALLATION

### 3.1.2 INSTALLING THE ZEUS ON A PICATINNY/WEAVER RAIL

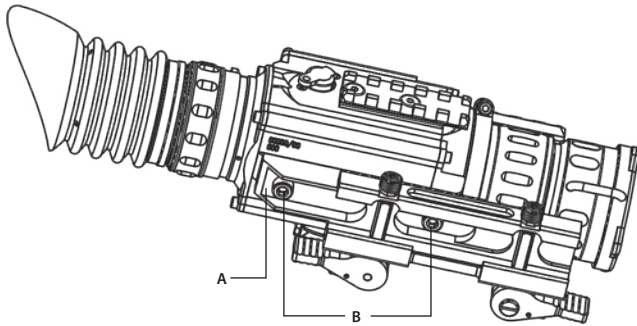
**WARNING:**

When installing the equipment on a weapon, verify that the weapon is clear and that the **safety is on** before proceeding.

**NOTE:**

Zero the weapon prior to installing and bore sighting the Zeus.

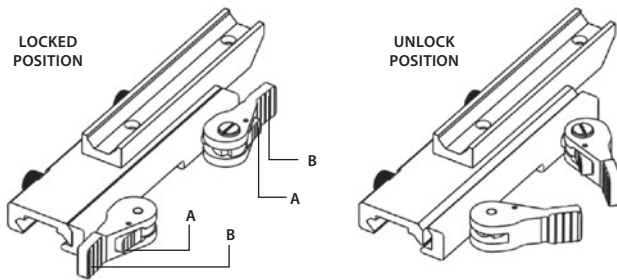
The Zeus comes fully-assembled with a Picatinny/Weaver mount (Figure 3-2). The mount (A) is attached to the Zeus seating rail with two M4×20 flathead socket cap screws (B).



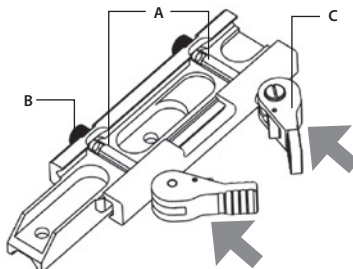
**FIGURE 3-2. THE ZEUS FULLY ASSEMBLED WITH THE MOUNT**

To install the Zeus on a Picatinny/ Weaver rail, perform the following:

1. Unlock the clamping device of the Zeus mount by pushing down on the lever holders (A, see Figure 3-3) and unlocking the levers (B).
2. Install the Zeus on the Picatinny/ Weaver rail so that the stops (A, see Figure 3-4) slide into the transverse slots on the rail.
3. Affix the Zeus to the rail by locking the levers (B, Figure 3-3).
4. Verify that the clamping device is firmly holding the Zeus. If necessary, adjust the clamping device's lever-cam locks as detailed in Part 3.1.3 (Clamping Device Adjustment).



**FIGURE 3-3. ZEUS MOUNT. TOP VIEW**



**FIGURE 3-4. ZEUS MOUNT. UNDERSIDE VIEW**

### 3.1.3 CLAMPING DEVICE ADJUSTMENT

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

1. Remove the Zeus from the weapon.
2. With the clamping device unlocked (as shown in Figure 3-4), push the cam (C) towards the arrow, which will cause the nut (B) to slide out of its hole.
3. To tighten/ loosen the clamping device, push down on the cam (C) and turn the nut (B) CW/ CCW respectively, in one-two increments (see note below). Much like when the cam (C) is released, backward-moving springs will cause the nut (B) to slide back into its hole.

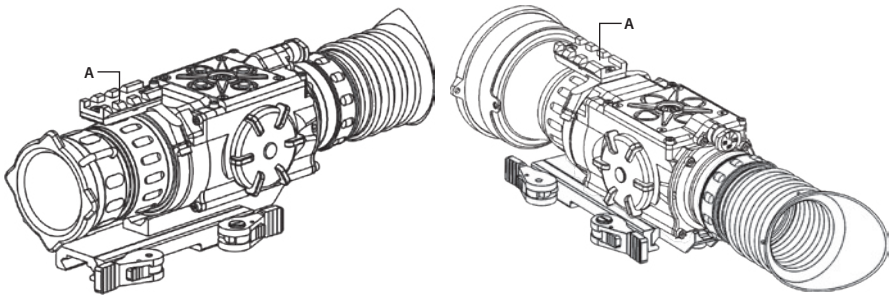
#### NOTE:

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

4. Verify that the adjusted lever-cam lock securely holds the weapon mounting rail.
5. Repeat the procedure to adjust the clamping device's second lever-cam lock.

### 3.1.4 MOUNTING A PLATFORM RING TO THE ZEUS

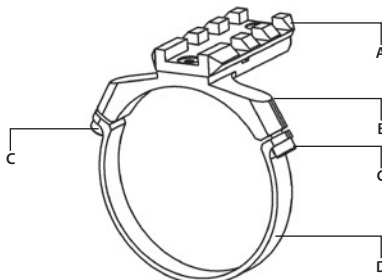
Figure 3-5 shows the Zeus with the Platform Ring adapter (A, Figure 3-5) installed.



**FIGURE 3-5. THE ZEUS FULLY ASSEMBLED WITH THE PLATFORM RING**

Mount the Platform Ring (optional) on the Zeus as follows (refer to Figure 3-6):

1. Using a 1.5 hex key, unscrew the both clamp screws (C).
2. Place the clamps (B, D) onto the mounting tube (as in Figure 3-5). Screw the clamps together without tightening the screws (C).
3. Adjust position of the Platform Ring until its rail (A) is level. Apply a small amount of thread lock to the threads and tighten the screws (C).



**FIGURE 3-6. PLATFORM RING**

### 3.1.5 FASTENING AN ADVANCED WIRELESS REMOTE CONTROL TO A WEAPON

Using Velcro tape (A, Figure 3-7), fasten the remote control (B) to your weapon in an easily accessible place (e.g., on the front of the rifle stock).

If your rifle has a Picatinny or Weaver rail on the front end, you can use the Picatinny adaptor for the Advanced Wireless Remote (C). Install the adaptor onto the rail (D). Insert the remote control unit into the adapter.

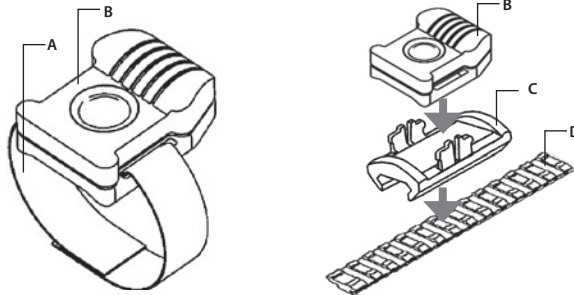


FIGURE 3-7. ADVANCED WIRELESS REMOTE CONTROL

### 3.1.6 INSTALLING ADDITIONAL EQUIPMENT ON THE ZEUS

Use a Platform Ring (optional) to install any additional equipment, such as the Armasight MCS Miniature Collimating Sight. For adapter mounting procedures, see Part 3.1.4.

Use the side Picatinny/Weaver rail to install any additional equipment, such as the Armasight DT Digital Video Recorder, a rangefinder, or an external power source.

### 3.1.7 CONNECTING AN EXTERNAL VIDEO RECORDER/DISPLAY TO THE ZEUS

Use a video cable (optional) to connect an external video recorder/monitor/TV to the input/output connector (14, Figure 2-2).

**CAUTION:**

Turn off the Zeus before you begin connecting/disconnecting any external equipment.  
After removing the cable, replace the protective cap over the connector.

### 3.1.8 CONNECTING AN EXTERNAL POWER SOURCE TO THE ZEUS

Use a video cable (optional) to connect an external 6 VDC/1a power source to the input/output connector (14, Figure 2-2).

**CAUTION:**

Remove the batteries before you connect any external power source.  
To avoid a sudden loss of power, turn off the Zeus before removing the batteries or disconnecting the external power source.

**CAUTION:**

After removing the cable, replace the protective cap over the connector.

## 3.2 CONTROLS AND DISPLAY INDICATIONS

### 3.2.1 ZEUS CONTROLS

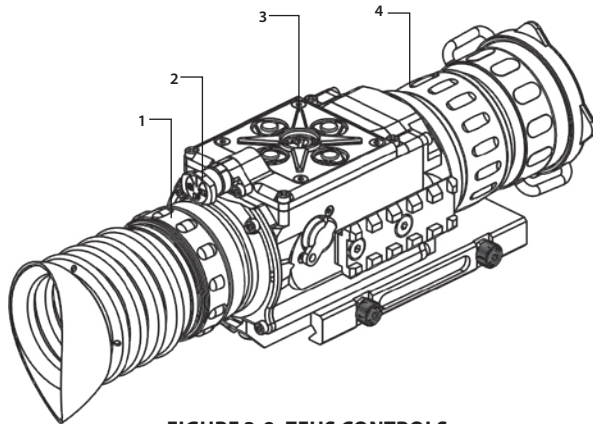
**CAUTION:**

DO NOT force the equipment controls past their stopping points.

The Zeus controls are shown in Figures 3-8 and 3-9, and are defined in Tables 3-1 and 3-2. The ITEM NO. columns of the tables indicate the number used to identify items in the figures.

**NOTE:**

Various display symbols indicating the current operating state of the Zeus can be displayed permanently, may appear momentarily, or can be set to appear only when a certain function is activated.



**FIGURE 3-8. ZEUS CONTROLS**

**TABLE 3-1. CONTROLS AND INDICATORS**

ITEM NO.	CONTROL/INDICATOR	FUNCTION
1	Eyepiece Focus Ring	Adjusts the eyepiece diopter. The total diopter adjustment range is covered with 2 turns of the ring.
2	Turn-pull Switch	Activates the Zeus when turned to ON. <b>NOTE:</b> You must pull the knob before turning in order to use either the ON or STB. Activates standby mode when turned to STB (see note above). Deactivates the Zeus when turned to OFF.
3	Control Panel Buttons	Configures operational settings. See Table 3-2 for button functions.
4	Objective Focus Ring	Focuses the objective lens. Adjusts for sharpest view of the scene. The total focus range is covered with three quarter turns of the lens.
—	Remote Control Button	Activates/deactivates the Zeus in standby when held down/released.

**TABLE 3-1. CONTINUED**

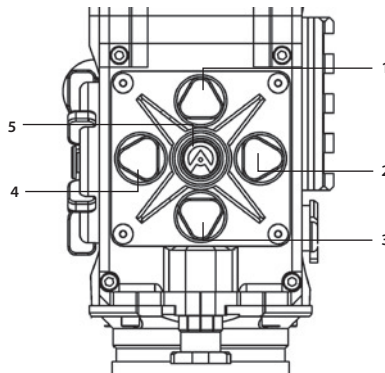
ITEM NO.	CONTROL/INDICATOR	FUNCTION
—	Battery Status Indicator (a battery icon in the lower right hand part of the display)	The light gray bar in the battery icon indicates the current power level of the internal battery, or remaining battery life. The totally shaded battery icon indicates the fully charged battery. The flashing transparent battery icon indicates a low battery.

The Zeus button control panel is shown in Figures 3-9.

Table 3-2 contains the button functions and their brief descriptions. The ITEM NO. column of the table indicates the number used to identify buttons in Figure 3-9.

**NOTE:**

Each button is responsible for some functions selected by briefly pushing or holding down the button, or using the button in combination with a second one (as described in Table 3-2). Pushing a button for 3+ seconds is considered “holding down.”



**FIGURE 3-9. BUTTON CONTROL PANEL**

**TABLE 3-2. BUTTON CONTROLS**

ITEM NO.	FUNCTION	DESCRIPTION
	DISPLAY BRIGHTNESS CONTROL	Push the button (1) to increase the screen brightness or push the button (3) to decrease the screen brightness.
1, 3	IMAGE PALETTE CONTROL	To scroll up through the available palettes push and hold button (1) or (3) to scroll down or up respectively. There are 13 palettes available: White Hot, Black Hot, Fusion, Rainbow, Globow, Ironbow1, Ironbow2, Sepia, Color1, Coror2, Ice-Fire, Rain and OEM.
	FLAT FIELD CORRECTION (FFC)	Simultaneously holding down buttons (1) and (3) induces manual Flat Field Correction (FFC).
	UP, DOWN	Use the UP (1) and DOWN (3) buttons to navigate through the items on the menu.
2	DIGITAL ZOOM CONTROL	To change the zoom progressively, push button (2).
4	RETICLE COLOR CONTROL	To change the reticle color, push button (4). There are four colors available of the reticle: black, white, red and cyan.

TABLE 3-2. CONTINUED

ITEM NO.	FUNCTION	DESCRIPTION
2, 4	RETICLE PATTERNS CONTROL	To scroll through the reticle types, push and hold button (4) or push and hold button (2) to scroll down. There are five types of reticles available: "Dot 4 MOA", "Line Dot", "Cross Center Dot", "Cross", "Crosshair", and position with no aiming mark.
	RETICLE POSITION ZEROING	Simultaneously pushing buttons (2) and (4) zeroes the reticle position to the center of the screen.
	LEFT, RIGHT	Use the LEFT (2) and RIGHT (4) buttons to navigate through the items on the menu.
5	FFC PROCESS INTERRUPTION	Pushing button (5) when the countdown is on the screen will cancel the FFC and the shutter will not interrupt viewing.
	MENU	Pushing and holding button (5) will bring up the Main Menu selection. The menu includes the following functions: Palette, Temperature, Reticle, Boresight, Scenarios, Settings, Corrections and Store Image.
	SELECTION	Push the SELECTION button (5) to view the settings available for the item selected.

### 3.2.2 MAIN MENU

Most setup options can be accessed from the MAIN MENU.

To display the MAIN MENU, push and hold down the MENU button (5) on the control panel (Figure 3-9).

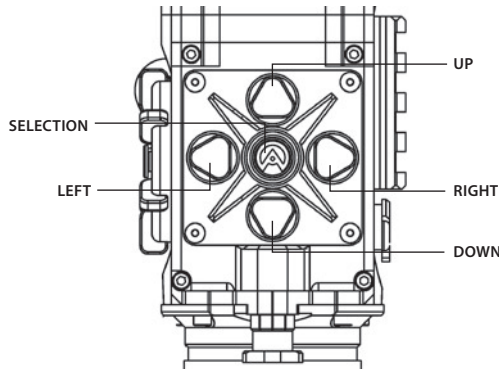


FIGURE 3-10. MAIN MENU NAVIGATION BUTTONS

Once the MAIN MENU is displayed (Figure 3-11), use the UP and DOWN buttons (Figure 3-10) to navigate through the items on the menu.

Push the SELECTION button to view the settings available for the item selected.

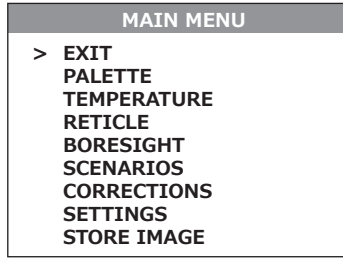
**NOTES:**

Navigate through submenu items by pushing the UP and DOWN button, except where otherwise expressly indicated. The LEFT and RIGHT buttons are available only when specified on the menu screen with < > symbols.

After a menu item is selected, push the SELECTION button to make the selected setting/ activate the selected function.

Select the EXIT item and then push the SELECTION button to return to the MAIN MENU.





**FIGURE 3-11. ZEUS MAIN MENU**

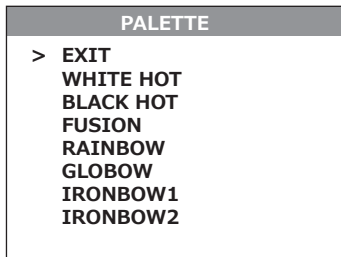
### Palette Menu

The PALETTE menu (Figure 3-11) allows the user to select from a choice of temperature imaging modes: White Hot, Black Hot, Fusion, Rainbow, Globow, Ironbow 1, Ironbow 2, Sepia, Color 1, Color 2, Ice-Fire, Rain, and OEM Custom.

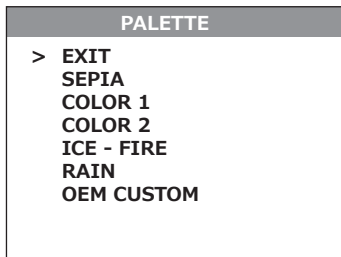
#### **NOTE:**

To navigate through the items on the two-page PALETTE menu, hold down the UP/DOWN button.

The palettes act as color templates for visualizing temperature changes in the scene.



**FIGURE 3-12. PALETTE MENU. PAGE 1**



**FIGURE 3-13. PALETTE MENU. PAGE 2**

#### **NOTE:**

The most popular palettes are White Hot and Black Hot, usually known as inversion. White Hot mode is good for spotting targets, while Black Hot mode is most useful for situational reading.

**NOTE:**

Training and experience are required to quickly and properly interpret the thermal image being displayed.

**Temperature Menu**

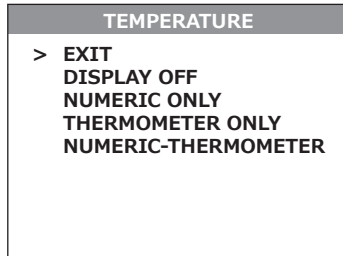
The TEMPERATURE menu (Figure 3-14) allows the user to select varying temperature detection graphics in the display field of view.

Select Display Off to remove all temperature data from the display.

Select Numeric Only for a numerical representation of the temperature data on the display. The current temperature of the object or scene in the center of the field of view will be printed on the display.

Select Thermometer Only for a graphical representation of the temperature data on the display. The current temperature of the object or scene in the center of the FOV will be indicated by a graphical thermometer.

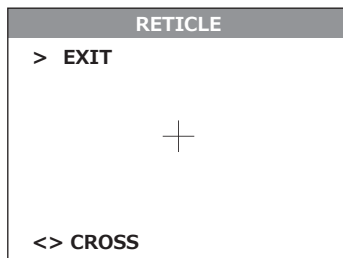
Select Numeric-Thermometer item for both numerical and graphical representation of the temperature data on the display.



**FIGURE 3-14. TEMPERATURE MENU**

**Reticle Menu**

The RETICLE menu (Figure 3-15) allows the user to select from a choice of reticle patterns: Dot type, Line Dot, Crosshair Center Dot, Crosshair, and position with no aiming mark.



**FIGURE 3-15. RETICLE MENU**

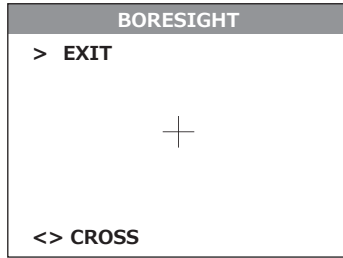
**NOTE:**

To navigate through the items on the RETICLE menu, push and hold down the LEFT/RIGHT button.

**Boresight Menu**

The BORESIGHT function allows the user to change the reticle position in the display.

Figure 3-16 shows the boresight screen.



**FIGURE 3-16. BORESIGHT MENU**

Push the buttons UP/DOWN and RIGHT/LEFT to shift the reticle in the display up/down and to the right/left, respectively.

Every time one of these buttons is pushed, the reticle shifts a single pixel increment corresponding to the minimum boresight correction value, and the **center of impact** on the target moves according to the specified windage/elevation boresight increment, in the opposite direction to that of the shifting reticle.

Every time one of these buttons is pushed for 3 sec, then the reticle begins to shift in 4 pixels increments until you let go.

**NOTE:**

Remember that **the center of impact on the target shifts in the opposite direction from the direction that the reticle shifts**. So, to bring the center of impact to the right/left and up/down, you must shift the reticle to the left/right and down/up, respectively.

To control the reticle shifting, check the running reticle center coordinates, which are printed in the lower left hand corner of the display.

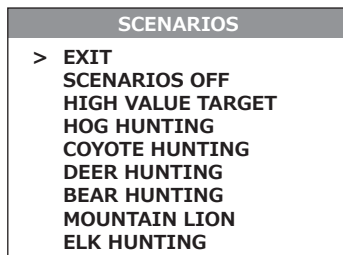
**NOTE:**

For display coordinates, the origin is the center of the display. The running coordinate of the reticle is the number of incremental shifts of the reticle from the center of the display. The minus sign appears before the displayed number when the reticle shifts left or down (**the center of impact on the target shifts right or up, respectively**).

Push and hold down the combination of buttons (LEFT+RIGHT) to reset to zero azimuth and elevation the reticle will shift to the display center.

**Scenarios Menu**

The SCENARIOS menu (Figure 3-17) allows the operator to select from a choice of hunting scenarios or turn the scenarios off. When a scenario is selected, the display image of the object with the correct temperature will be colorized for easy detection.



**FIGURE 3-17. SCENARIOS MENU**

### Corrections Menu

The CORRECTIONS menu (Figure 3-18) allows the user to select from a choice of filter patterns. The different field environments are pre-set with the correction filters valued for the best field performance.

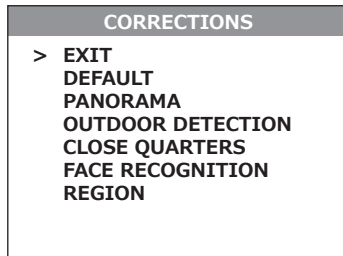


FIGURE 3-18. CORRECTIONS MENU

### Settings Menu

The SETTINGS menu (Figure 3-19) allows direct changes to the contrast, brightness, video standard, and temperature scale settings, as well as to restore the settings to their factory defaults.

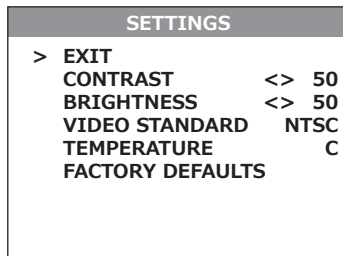


FIGURE 3-19. SETTINGS MENU

### Store Image Menu

The STORE IMAGE menu (Figure 3-20) allows the images to be stored, viewed, or deleted.

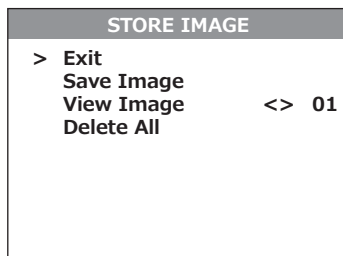


FIGURE 3-20. STORE IMAGE MENU

#### NOTE:

After configuration is complete, select EXIT on the MAIN MENU and push the SELECTION button to leave the MAIN MENU. All settings will be saved.

## 3.3 OPERATING PROCEDURES

### 3.3.1 OPERATING THE ZEUS

**WARNING:**

When installing the equipment on a weapon, verify that the weapon is clear and that the **safety is on** before proceeding.

**CAUTION:**

DO NOT force the equipment controls past their stopping points.

**CAUTION:**

To prevent thermal damage to the equipment, never point it, either powered or not, directly at the sun or any other source of high intensity light that the unprotected human eye cannot tolerate (such as a welding arc). To prevent inadvertent exposure to these sources, never leave the equipment without the objective lens cap secured.

**NOTE:**

Zero the weapon prior to installing and bore sighting the Zeus.

Operating procedures are as follows:

1. Remove the Zeus from the carrying case.
2. Install the Zeus on the weapon's Picatinny/Weaver rail.
3. Verify that the Zeus is securely mounted to the weapon.
4. Remove the objective lens cap.
5. Point the equipment at an object.
6. Activate the Zeus by turning the turn-pull switch to the ON position. After approximately 3 sec, video of the thermal scene should appear.
7. Adjust the Zeus for your eyesight by turning the eyepiece focus ring CW up to the stop, and then CCW until the display and symbols (such as the reticle) are as clear as possible. Bring the object into focus by turning the objective focus ring (CW for far focus, CCW for near focus).

**NOTE:**

The total diopter adjustment range is covered with 2 turns of the eyepiece focus ring.  
The total focus range is covered with 3/4 turn of the objective focus ring.

8. Using the buttons on the control panel (Figure 3-21), configure the Zeus to adapt it to your situation.

For more information on operational setting procedures, see Part 3.2 (Controls and Display Indications).

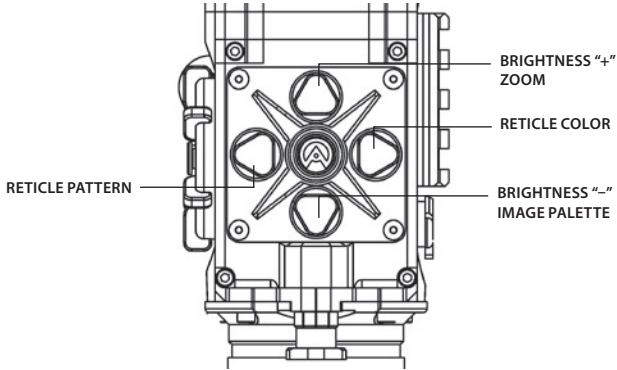
- A. Adjust the brightness of the display for your comfort.

Momentarily push the brightness adjustment buttons to increase/decrease the display brightness by one level at a time until you reach your desired brightness level.

- B. Use FFC (Flat Field Correction) to improve image quality.

Push the two brightness control buttons at the same time to induce a manual Flat Field Correction.

If necessary, interrupt the automatic process by pushing the central button on the control panel during the 5 second countdown which appears at the bottom of the display.



**FIGURE 3-21. SETTING BUTTONS**

C. Adjust the necessary adjustment using the MAIN MENU. See Part 3.2.2 (Using the MAIN MENU).

**NOTE:**

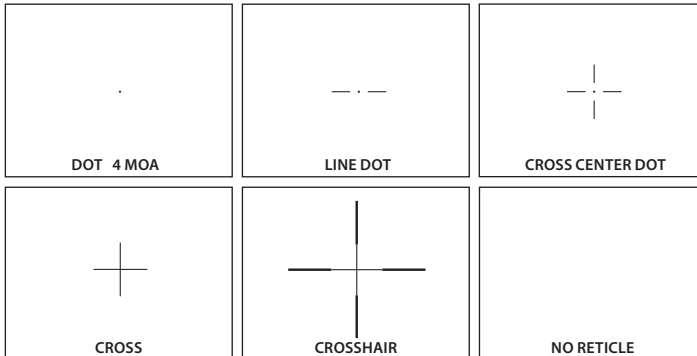
After configuration is complete, select EXIT on the MAIN MENU and push the SELECTION button to leave the MAIN MENU. All settings will be saved.

D. Select the color of the reticle.

Momentarily push the reticle color control button to select among black, white, red, and cyan.

E. Select a reticle pattern.

Push and hold button (2) or button (4) to select from a choice of reticle patterns: "Dot 4 MOA," "Line Dot," "Cross Center Dot," "Cross," "Crosshair," or "No Reticle" (Figure 3-22).



**FIGURE 3-22. RETICLE PATTERNS**

**NOTE:**

The reticles appear in the most recently saved position on the display.

9. Use digital zoom to magnify the central area of the displayed scene.

Momentarily push the zoom control button to slowly magnify into the displayed scene. The X1, X2, X4, X8 symbols (maximum zoom factor is dependent of model) will appear in the lower part of the display.

**NOTE:**

Digital zoom allows distant objects to appear larger; however, the resolution will be compromised.

**NOTE:**

Zooming does not affect the boresight.

**NOTE:**

Digital zoom and reticle color control help target detection and discrimination.

10. To align the barrel of the weapon, place the reticle on the desired target. To allow for the bullet's travel (i.e. bullet drop, windage, and the target mobility), use the boresight adjusting buttons.

11. To operate the Zeus in short-time activation mode, turn the switch to the STB position (standby). To activate the Zeus, hold down the remote control button. Release the button to deactivate the Zeus.

**CAUTION:**

DO NOT leave the equipment activated when not in use.

### 3.3.2 BORE SIGHTING THE ZEUS

**NOTE:**

Zero the weapon prior to installing and bore sighting the Zeus.

Boresight the Zeus as follows:

1. Locate a target at the fire adjustment range (100m).
2. Turn on the Zeus.
3. Adjust the eyepiece and focus the objective lens to sharpen the image of the target.
4. Adjust the brightness of the display.
5. Select a reticle pattern.
6. Take aim by centering the reticle on the target and fire a series of shots (3-4).
7. Find the center of impact and measure (in centimeters) its vertical and horizontal deviations from the center of the target.
8. Work out the values of boresight correction required to compensate for the measured deviation of the center of impact from the center of the target. Table 3-3 contains examples of calculating boresight correction values when firing at ranges of 100m.
9. Use the BORESIGHT MENU to apply corrections required to bring the center of impact as close as possible to the center of the target. See Part 3.2.2 (Using the MAIN MENU).

**NOTE:**

Remember that **the center of impact on the target shifts in the opposite direction from the direction that the reticle shifts**. To bring the center of impact to the right/left and up/down, you must shift the reticle to the left/right and down/up, respectively.

10. Fire a series of shots to check the boresight.

11. After completing the boresight adjustment procedure, turn off the Zeus and place the cap over the objective lens.

**TABLE 3-3. CALCULATING BORESIGHT CORRECTIONS (100M FIRE RANGE)**

ZEUS VERSION	ZEUS 4 160-30	ZEUS 7 160-30	ZEUS 3 336-30 ZEUS 3 336-60 ZEUS 2 640-30 ZEUS 2 640-60	ZEUS 5 336-30 ZEUS 5 336-60 ZEUS 3 640-30 ZEUS 3 640-60
Angular Boresight Increment	2 MOA	1.1 MOA	1.3 MOA	0.76 MOA
Boresight Increment in metric units*	6	3.3	3.9	2.3
Measured Windage/Elevation Deflection of the Centre of Impact from the Target Centre	12cm/ 23cm, for example	10cm/ 7cm, for example	12cm/ 16cm, for example	5 cm/ 23 cm, for example
Correction Value	Windage	12/6≈2 reticle shifts	10/3.3≈3 reticle shifts	12/3.9≈3 reticle shifts
	Elevation	23/6≈4 reticle shifts	7/3.3≈2 reticle shifts	16/3.9≈4 reticle shifts

\* To calculate boresight increment value in metric units for a fire range  $R$  different from 100m, use the coefficient  $R/100$ . So at a range  $R$  (in meters) the boresight increment is:

$6 \times R/100$ , cm — for Zeus 4 160-30;

$3.3 \times R/100$ , cm — for Zeus 7 160-30;

$3.9 \times R/100$ , cm — for Zeus 3 336-30/ Zeus 3 336-60/ Zeus 2 640-30/ Zeus 2 640-60;

$2.3 \times R/100$ , cm — for Zeus 5 336-30/ Zeus 5 336-60/ Zeus 3 640-30/ Zeus 3 640-60.

### 3.3.3 ZEUS SHUT-DOWN

**NOTE:**

Shut down the Zeus properly to avoid losing unsaved settings and data.

Shut-down the Zeus as follows:

1. Be sure to save your settings and data.
2. Turn off the Zeus.
3. Replace the cap on the objective lens.
4. Disconnect the cable (if applicable).
5. Place the cap on the connector.
6. Dismount the Zeus from the weapon.
7. Remove the batteries.

**CAUTION:**

Do not store the Zeus with the batteries still in it.

8. Store the Zeus and all accessories in the carrying case.



# PREVENTIVE MAINTENANCE AND TROUBLESHOOTING

## 4.1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES

### 4.1.1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Table 4-1 Preventive Maintenance Checks and Services (PMCS), has been provided so that you can keep your equipment in good operating condition.

Perform functional tests in the order listed in Table 4-1.

Operating procedures are detailed in Chapter 3.

#### Explanation of Table Entries:

**SEQ NO. column.** Sequence numbers are for reference and appear in the order required to perform checks and services.

**LOCATION/ITEM TO CHECK/SERVICE column.** Indicates the location and the item to be checked or serviced.

**PROCEDURE column.** Details the check/ service procedure.

**NOT FULLY MISSION CAPABLE IF ... column.** Indicates what faults will prevent your equipment from operating successfully.

**TABLE 4-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES**

SEQ NO.	LOCATION ITEM TO CHECK/SERVICE	PROCEDURE	NOT FULLY MISSION CAPABLE IF ...
<b>BEFORE OPERATION CHECKS</b>			
1	Completeness	Open storage/carrying case and inventory items by means of comparing with the data specified in this manual.	Missing items.
2	Soft Carrying Case	Shake out loose dirt or foreign material. Inspect for tears, cuts, excess wear or damage.	
3	Body	Inspect for cracks or damage. Scratches and gouges are OK if operation is not affected. Inspect for missing parts. Clean as required.	Cracked or damaged. Missing parts.
4	Objective Lens Cap	Inspect for cuts, tears and dirt. Clean as required.	Cap is torn or cut. Cap is not secured to the housing of the lens.
5	Eyecup	Inspect for cuts, tears and dirt. Inspect for torn, bent or improperly fitting eyecup. Clean as required.	Cup is torn or cut.

**TABLE 4-1. CONTINUED**

SEQ NO.	LOCATION ITEM TO CHECK/SERVICE	PROCEDURE	NOT FULLY MISSION CAPABLE IF ...
6	Battery Compartment and Cap	Inspect for corrosion, moisture, and corroded or defective contacts. Inspect for cap damaged or retainer breaks. Inspect rubber gasket for damage.	Contacts are damaged or corroded. Retainer is broken. Cap or rubber gasket is damaged.
7	Lenses	Inspect for cleanliness, scratches, chips or cracks. Clean as required.	Chipped or cracked. Scratches hinder vision through the equipment.
8	Objective Focus Ring	Rotate objective focus ring to ensure it is not too tight or too loose. Range is approximately 3/4 turns.	Ring gets stuck, is too loose, or adversely affects the user's ability to properly focus the objective lens.
9	Eyepiece Focus Ring	Rotate eyepiece focus ring to ensure the ring is not too tight or too loose. Range is approximately 2 turns.	Ring gets stuck, is too loose, or adversely affects the user's ability to properly adjust the diopter.
10	Turn-pull Switch	Check for operation (without batteries).	Switch is inoperative.
11	Connector	Inspect for corrosion, moisture, and corroded or defective contacts. Inspect for cap damaged or retainer breaks.	Contacts are damaged or corroded. Cap is damaged. Retainer is broken.
12	Mount	Inspect for damage or corrosion, for missing parts. Check for proper operation and attachment security.	Damaged. Missing parts. Clamping device is inoperative.
13	Remote Control Unit	Check for damage and missing parts. Check Velcro tape for wear.	Damaged. Missing parts.
14	Platform Ring (optional)	Inspect for damage, corrosion, or missing parts. Check for proper operation. Clean as required.	Damaged. Missing parts.
15	Video Cable (optional)	Inspect for damage. Inspect the cable connector for corrosion, moisture, and corroded or defective contacts. Clean as required.	Damaged.

**OPERATIONAL CHECKS**

**NOTE:**

For a complete operational checking, it is necessary to connect a video monitor to the Zeus.

16	Turn-pull Switch	Install the batteries. Remove the objective lens cap. Point the equipment at an object. Turn the equipment on. Look for a thermal image on the display. Look for a flashing battery icon in the eyepiece viewing area.	No thermal image. Battery icon is flashing (indicates a low battery).
17	Control Board	Ensure the Zeus is responsive to control buttons.	Unresponsive buttons.
18	Remote Control	Turn the equipment to standby. Point the equipment at an object. Push and hold the remote control button. Look for a thermal image on the display. Release the button. Turn off the equipment.	No image.
19	Video Cable (optional)	Connect an external monitor to the Zeus. Point the equipment on an object. Turn the equipment on. Look for an image on the monitor. Turn off the Zeus. Disconnect the monitor.	No image.
20	Boresight	Test boresight as per Part 4.3.3.	

**POST-CHECK PROCEDURES**

- Turn off the equipment.
- Replace the objective lens cap.
- Remove the batteries.
- Return the equipment and all accessories to the carrying case.

## 4.2 OPERATOR TROUBLESHOOTING

The purpose of troubleshooting is to identify the most frequent equipment malfunctions, probable causes, and corrective actions required.

Table 4-2 lists the common malfunctions that may be found during the operation or maintenance of the Zeus. Perform the tests/inspections and corrective actions in the order listed.

**This table does not list all of the malfunctions that may occur with your device, or all of the tests and corrective actions that may be necessary.** If you experience an equipment malfunction that is not listed, or is not fixed by the corrective actions listed in the table, please contact Armasight's Customer Service center.

**TABLE 4-2. OPERATOR TROUBLESHOOTING**

MALFUNCTION	PROBABLE CAUSE/ TEST/INSPECTION	CORRECTIVE ACTION
The Zeus fails to activate.	Batteries are missing or improperly installed.	Insert batteries or install correctly.
	Batteries are dead.	Replace the batteries.
	Batteries, surfaces or contacts are dirty or corroded.	Clean the contact surfaces with a pencil eraser and/or alcohol and cotton swabs.
	Remote control unit is damaged.	Please contact Customer Support.
	Remote control batteries are dead.	Replace the batteries as per Part 4.3.4.
	The equipment is damaged.	Please contact Customer Support.
The Zeus is not responsive to control buttons.	The equipment is damaged.	Please contact Customer Support.
Remote control does not work.	Batteries are missing or improperly installed.	Insert batteries or install correctly.
	Batteries are dead.	Replace the batteries.
	Batteries surfaces or contacts are dirty or corroded.	Clean the contact surfaces with a pencil eraser and/or alcohol and cotton swabs.
	Remote control unit is damaged.	Please contact Customer Support.
Poor image quality.	Check objective lens and eyepiece focus.	Refocus.
	Check for fogging or dirt on objective lens and eyepiece.	Clean the lenses as detailed in Part 4.3.2.
	The equipment is damaged.	Please contact Customer Support.
No image on an external monitor.	Video cable is damaged.	Replace the video cable with a new one. Please contact Customer Support.
	The equipment is damaged.	Please contact Customer Support.
Hindered rotation of the battery cap.	Dirty cap thread.	Clean the thread.
	Damaged cap thread.	Replace the cap with a new one. Please contact Customer Support.
Light is visible around eyecup.	Check eyecup resilience.	If the eyecup is defective, please contact Customer Support.

## 4.3 MAINTENANCE

### 4.3.1 GENERAL

The Zeus operator maintenance consists of operational tests, inspections for unit serviceability, cleaning and mounting procedures, corrective actions (troubleshooting and replacement of a limited number of parts). Maintenance instructions covered elsewhere in this manual (PMCS, troubleshooting, etc.) are not repeated in this section.

**CAUTION:**

The Zeus is a precision electro-optical instrument and must be handled carefully at all times to prevent damage.

**CAUTION:**

DO NOT dismantle the equipment.

### 4.3.2 CLEANING PROCEDURES

Clean the Zeus and optional items as follows:

1. Gently brush off any dirt from the equipment using only a clean, soft cloth.
2. Moisten the cloth with fresh water and gently wipe the external surfaces (except for optical surfaces).
3. Dry any wet surfaces (except for optical surfaces) with another clean, dry soft cloth.
4. Using a lens brush, carefully remove all loose dirt from optical surfaces (objective lens and eyepiece).
5. Slightly dampen a cotton swab with ethanol and lightly and slowly wipe optical surface. Clean the optical surface by circular movements from the center to the edge, not touching the lens holder and changing cotton swab after each circular stroke. Repeat until the optical surface is clean.
6. Clean the battery contact surfaces and contact springs with a pencil eraser and/or alcohol and cotton swabs.

#### CAUTION:

Thoroughly dry each item before replacing into the storage/carrying case.

### 4.3.3 BORE SIGHTING

Perform the Zeus bore sighting:

- When the Zeus is mounted to weapon for the first time;
- After repair of the Zeus/weapon;
- As the need arises (in case of systematic inaccuracy and missing the target).

Refer to Part 3.3.2 for boresight procedure.

### 4.3.4 BATTERY REMOVAL AND REPLACEMENT

Refer to Part 3.1.1 for battery installation procedures.

Replace the remote control batteries as follows:

1. Using a screwdriver, unscrew the four screws (A, Figure 4-1) that secure the cover to the bottom of the unit. Remove the cover.
2. Replace the batteries with two new ones (CR2016, 3V). Stack the batteries in their place under the leaf contact spring with the minus contacts directed towards the electric board, as the minus sign etched on the board indicates.
3. Replace the cover and tighten the screws (A).

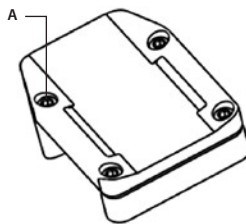


FIGURE 4-1. ADVANCED WIRELESS REMOTE CONTROL BATTERY INSTALLATION

## 4.4 RETURN INSTRUCTIONS

For service, repair or replacement, please email: [service@armasight.com](mailto:service@armasight.com).

To assist the Service Representative (SR) with determining if the item is repairable, please provide the following information:

1. Serial Number of the defective item (engraved on bottom of the equipment).
2. Thorough description of the malfunction, defect or damage.
3. An explanation of how the malfunction, defect or damage occurred, if known.

If the SR determines that the item is under warranty or should be returned for repair, a Return Material Authorization number (RMA#) will be provided.

When returning the Zeus for service or repair, the following procedures should be followed to prevent any additional damage:

1. Make sure the Zeus is free of all contaminants such as dirt or any other foreign material.
2. Remove the batteries.
3. Place the cap over the objective lens.
4. Place the Zeus and accessories in the carrying case.

Place the Zeus and a copy of the test report or detailed description of the failure in a suitable packing/shipping container. Mark the package with the RMA#. Ship the fastest, traceable, prepaid means to:

Armasight Inc.  
815 Dubuque Avenue  
South San Francisco, CA 94080  
USA.

**A. PRODUCT WARRANTY REGISTRATION CARD**

In order to validate the warranty on your product, Armasight must receive a completed Product Warranty Registration Card for each unit, or the user must complete warranty registration on our website ([www.armsight.com](http://www.armsight.com)). Please complete the included form and immediately mail it to our Service Center:

Armasight Inc.  
 815 Dubuque Avenue  
 South San Francisco, CA 94080  
 USA

**ARMASIGHT PRODUCT WARRANTY REGISTRATION CARD**

**PRODUCT INFORMATION**

Product Name \_\_\_\_\_ Purchased From \_\_\_\_\_

Purchase Date \_\_\_\_\_ Product Serial # \_\_\_\_\_

**CUSTOMER INFORMATION**

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Country \_\_\_\_\_ Zip \_\_\_\_\_

Day Phone # \_\_\_\_\_ Home Phone # \_\_\_\_\_

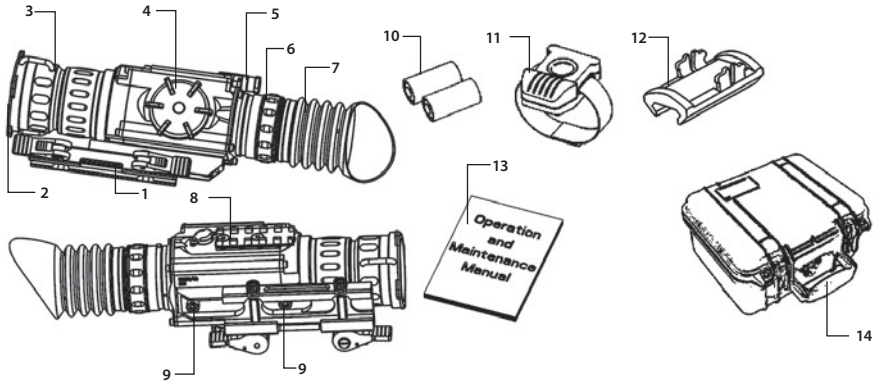
E-mail address \_\_\_\_\_

.....  
 Customer Signature Required

## B. LIST OF SPARE PARTS

The parts authorized by this list of spare parts are required for operator maintenance. The list includes parts that must be removed before replacing authorized parts.

The PART NO. column indicates the primary number used by the manufacturer, which controls the design and characteristics of the item in terms of its engineering drawings, specifications, standards, and inspection requirement, to identify an item.



**FIGURE B-1. ZEUS SPARE PARTS LIST**

**TABLE B-1. ZEUS SPARE PARTS LIST**

ITEM NO.	DESCRIPTION	PART NO.
1	Mount	AZSQRM2
2	Objective Lens Cap	AZSOLC
3	Objective Lens Assembly	AZSOLA
4	Battery Cap	AZSBC
5	Turn-pull Switch	AZSSWT
6	Eyepiece Assembly	AZSEPA
7	Eyecup	AZSECC
8	Side Picatinny/Weaver Rail	AZSRRL
9	M4x20 Flat Head Socket Cap Screw	ALT
10	CR 123A Lithium Battery	ALT
11	Advanced Wireless Remote Control	ANVR000001
12	Picatinny Adapter for Advanced Wireless Remote Control	ANRA000002
13	Operation and Maintenance Manual	AZSOMM
14	Hard Shipping/Storage Case	ANHCC000004



Armasight Inc.

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South San Francisco  
CA 94080, USA

Phone: (888)959-2259

Fax: (888)959-2260

Intl Phone/Fax: (650)492-7755

[info@armasight.com](mailto:info@armasight.com)

**CAUTION:**

**This product contains natural rubber latex which may cause allergic reactions!** The FDA has reported an increase in the number of deaths that are associated with an apparent sensitivity to natural latex proteins. If you are allergic to latex, it is a good idea to learn which products contain it and strictly avoid exposure to those products.

[www.armasight.com](http://www.armasight.com)