



# JANUS 10X JANUS 15X

Digital Night Vision Bi-Ocular



## OPERATION AND MAINTENANCE MANUAL

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## SAFETY SUMMARY

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

The Armasight Janus Digital Night Vision Bi-Ocular 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 clear danger to the person operating the equipment.

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

**NOTE** – Highlights essential procedures, conditions, statements, and important instructional information for 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.

Armasight® assumes no responsibility for any misprints or other errors that this manual may contain.

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**WARNING:**

**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 remove the batteries or disconnect the external power source while the Janus is on.
- DO NOT store the equipment with the batteries installed.
- Thoroughly clean and dry each item before placing them into the storage case.

**CAUTION:**

- Although the equipment is highly resistant to damage from light overload, DO NOT point it, either powered or un-powered, directly at the sun or any other source of high intensity light that the unprotected human eye cannot tolerate (such as welding arc). To prevent inadvertent exposure to these light sources, never leave the equipment unsupervised with the objective lens cap removed.
- 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 Janus Digital Night Vision Bi-Ocular. Throughout this Manual, the Janus Digital Night Vision Bi-Ocular will be referred to as the Janus, "the bi-ocular", or "the equipment".

A List of Spare Parts is in Appendix A.

The Product Warranty Registration Card 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

**Janus 10x** Digital Night Vision Bi-Ocular.

**Janus 15x** Digital Night Vision Bi-Ocular.

### 1.1.3 PURPOSE OF EQUIPMENT

The Janus is a professional grade, Digital Night Vision Bi-Ocular with optical 10x or 15x magnification, making it the most powerful Bi-Ocular in its class. Sensitive to both near-infrared and visible light, the high performance CCD imaging system of the Janus provides round-the-clock observation. The Janus is effective regardless of light conditions - in daylight, in natural lighting, and at nighttime. The Janus is an ideal product for both professional and amateur use, such as hunting, security, law enforcement, general nighttime observation, and recording.

The Janus is available in two versions, with optical magnifications of 10x and 15x.

The Janus is powered by two CR123A (2x3V) batteries. The external battery power supply or 6VDC/600mA power source can also be used to power the Janus.

The Janus can be controlled by a wireless remote control.

A detachable, long-range IR illuminator provides additional lighting and enables the use of the Janus in extremely low light conditions or total darkness.

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

The Janus can be used in conjunction with other Armasight equipment, such as the Digital Video Recorder, External Battery Power Supply, and Modular Range Finder. The additional equipment can be mounted onto the Janus's Picatinny/ Weaver rail or detachable platform ring.

Extremely reliable and versatile, the Janus is a valuable, multifunctional addition to any security or hunting.

## 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.

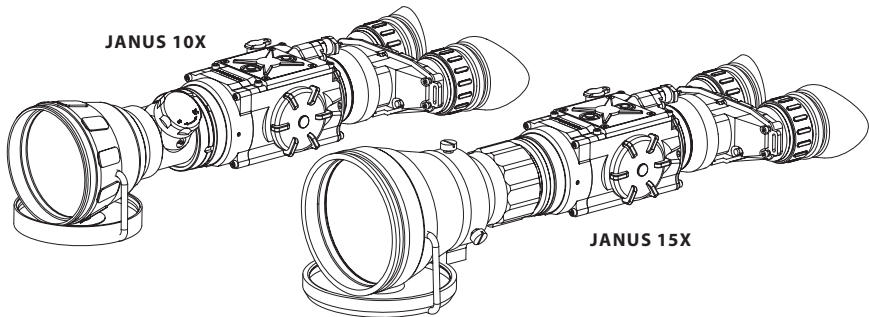
## 1.3 LIST OF ABBREVIATIONS

μm	micrometer
AWREC	Advanced Wireless Remote Control
C	Celsius (Centigrade)
CCW	counterclockwise
CW	clockwise
F	Fahrenheit
FL	Focal Length
g	gram
H	Height
hr	hour
in	inch
inf.	infinity
kg	kilogram
L	Length
lbs	pounds
m	meter
mA	milliampere
min	minute
mm	millimeter
NO.	Number
NTSC	National Television Standards Committee
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 Janus consists of next primary parts: a body, a lens assembly and a eyepiece assembly. The equipment comes as shown in Figure 2-1.



**FIGURE 2-1. JANUS DIGITAL NIGHT VISION BI-OCULAR APPEARANCE**

The Janus is a highly light-sensitive device. The Janus sensor (CCD array) reacts to near-infrared and visible light and converts the received light into electric charges. The controlling circuit converts the entire contents of the two-dimensional array to a sequence of voltages that are processed into a continuous analog signal. The Janus displays, as a result, a real-time images corresponding to the scene projected onto the focal plane of the sensor.

The main optical-electronic components of the Janus include: an objective lens, an eyepiece, a CCD camera, a display, a control card, and a button control panel.

The Janus is equipped with a manually adjustable eyepiece, focusable objective lens, and a digitally controlled display brightness.

Information on the battery status is continuously displayed.

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

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

A detachable Platform Ring makes it possible to mount an IR illuminator or other additional equipment to the top of the device.

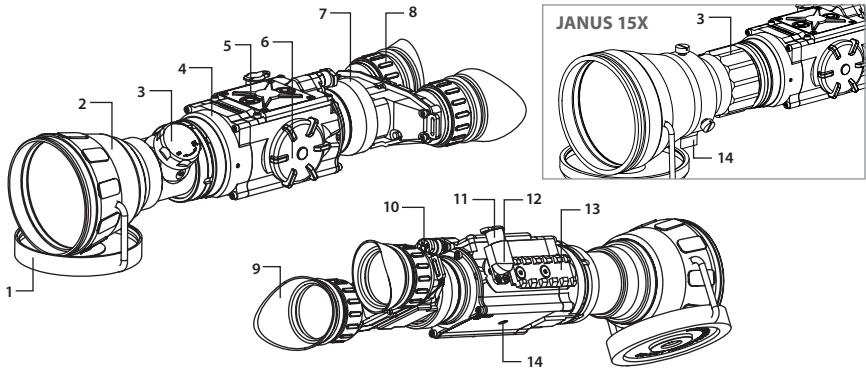
A detachable, long-range IR illuminator provides additional lighting and enables the use of the Janus in extremely low light conditions or total darkness.

A standard NTSC/PAL video input/output connector enables an external video display (monitor, TV) or video recorder to be connected to the Janus. The Janus is powered by two CR 123A (2x3V) batteries.

An external battery power supply or 6 VDC/600mA power source can also be connected to the Janus. The Janus 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.

**NOTE:**

Here and below, the model Janus 10x is used for the example.



**FIGURE 2-2. JANUS DIGITAL NIGHT VISION BI-OCULAR. SYSTEM DESCRIPTION**

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

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Objective Lens Cap	8	Eyepiece Focus Ring
2	Objective Lens	9	Eyecup
3	Objective Focus Knob (Ring)	10	Turn-Pull Switch
4	Body	11	Connector Cap
5	Button Control Panel	12	Connector
6	Battery Cap	13	Side Picatinny/ Weaver Rail
7	Eyepiece	14	Tripod Socket

## 2.2 JANUS SPECIFICATIONS

**TABLE 2-2. SYSTEM DATA**

ITEM	DATA
CCD Camera	High-Rate High Resolution Near-IR Hypersensitive CCD Camera
Pixel CCD Array Format	976×582
CCD Array Spectral Response	0.4 to 1.1 $\mu\text{m}$
Resolution	9.5 SOA
Display Type	OLED SVGA 060
Pixel Display Format	800×600
Display Brightness	Discretely Adjustable to 8 Levels
Turn-on Time, max	3 sec
Analog Input Format	PAL/ NTSC
Analog Output Format	PAL
PAL Output Resolution	768×574 pixels

**TABLE 2-3. MECHANICAL DATA**

ITEM	JANUS 10X	JANUS 15X
Overall Dimensions	316 x 100 x 76 mm (12.4"×3.9"×3.0")	344 x 102 x 91 mm (13.5"×4.0"×3.6")
Weight (w/o Batteries)	1.04 kg (2.29 lbs)	1.25 kg (2.76 lbs)

**TABLE 2-4. ELECTRICAL DATA**

ITEM	DATA
Battery	Two CR123A 3V Lithium batteries or CR123 type rechargeable batteries with voltage from 3.0V to 3.7V (2)*
Current Consumption, maximum	450 mA
Battery Life at 20°C (68°F)	up to 3 (optional up to 10 hrs)
External Power Supply	Optional Extended Battery Pack with rechargeable batteries (up to 7 hours) or 6 VDC/ 600mA external power source

\* Rechargeable batteries with voltage 3.2V-3.7V can be used only in devices with serial number starting from 140885

**TABLE 2-5. OPTICAL DATA**

ITEM	JANUS 10X	JANUS 15X
Magnification	10x	15x
Field of View	- ang. X degrees	2.0°
	- ang. Y degrees	1.5°
Objective Focal Length	108 mm	145 mm
Objective F-number	1:1.54	1:1.8
Exit Pupil Diameter	14 mm	14 mm
Eye Relief	16 mm	16 mm
Focus Method	Manual	Manual
Focusing Range	10m to infinity	25m to infinity
Diopeter Adjustment	Manual	Manual
Diopeter Adjustment Range	±5 diopter	±5 diopter

**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)
Impact Loading	Up to 700g
Environmental Rating	Water and Fog-Resistant

**TABLE 2-7. XLR-IR850 ILLUMINATOR DATA**

ITEM	DATA
IR Emitter Type	LED
Power	1000 mW
Peak Wavelength	850 nm
Illumination Range	Up to 1000 m
Divergence	4 to 35°
Battery	Single 18650 Rechargeable Battery (3.7V)*
Battery Life at 20°C (68°F)	up to 10 (1/4 Power); 8 (1/2 Power); 6 (3/4 Power); 2.5 (Full Power)
Overall Dimensions (with Mount)	150×48×57 mm (5.9"×1.9"×2.2")
Weight (with Mount, w/o Battery)	264 g (9.3 oz)
Operating Temperature	-20 to +50°C (-4 to 122°F)
Storage Temperature	-50 to +70°C (-58 to 158°F)
Environmental Rating	Water and Fog-Resistant

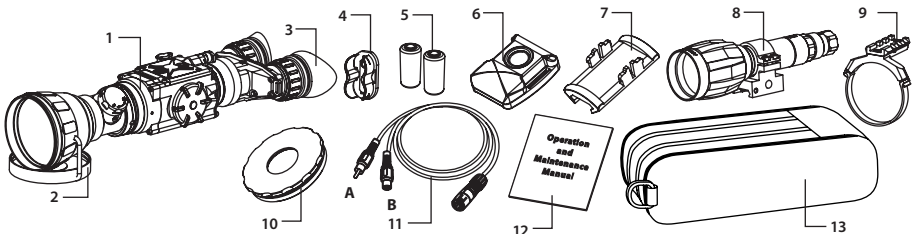
\* 18650 rechargeable battery and charger are included

**TABLE 2-8. ADVANCED WIRELESS REMOTE CONTROL (AWREC) DATA**

ITEM	DATA
Type	Wireless Remote Control
Working Range	Up to 0.5m
Battery	Single CR2032 Lithium battery (3V)
Battery Life at 20°C (68°F)	Approx. 10,000 clicks
Overall Dimensions	48×39×18 mm (1.9"×1.5"×0.7")
Weight (with Battery)	25 g (0.9 oz)
Operating Temperature	-30 to +50°C (-22 to 122°F)
Storage Temperature	-50 to +70°C (-58 to 158°F)
Environmental Rating	Water and Fog-Resistant

## 2.3 STANDARD COMPONENTS

The Janus standard components are shown in Figure 2-3 and listed in Table 2-9. The ITEM NO. column indicates the number used to identify items in Figure 2-3.



**FIGURE 2-3. JANUS STANDARD COMPONENT**

**TABLE 2-9. JANUS STANDARD COMPONENTS**

ITEM NO.	DESCRIPTION	QUANTITY
1	<b>Armasight Janus Digital Night Vision Bi-Ocular</b> A Digital Night Vision device.	1
2	<b>Objective Lens Cap</b> Protects the objective lens from dirt and mechanical damage, and provides protection from light overload. Comes attached to the objective lens.	1
3	<b>Eye-cup</b> A rubber cup used to protect the eyepiece as well as provide comfort for the operator. Comes attached to the eyepiece.	2
4	<b>Battery Cassette</b> Intended for the installation of two CR123 batteries in the battery compartment. The Janus comes with two battery cassettes (includes one installed in the battery compartment and one spare cassette).	2
5	<b>CR123A Lithium Battery</b> Batteries are used to power the Janus.	2
6	<b>Advanced Wireless Remote Control (AWREC)</b> Allows the user to operate the Janus in remote activation mode. Ensures quick and silent activation/deactivation of the equipment. Comes with CR2032 (3V) battery installed.	1
7	<b>Picatinny Adapter for Advanced Wireless Remote Control</b> Allows the advanced wireless remote control to be installed on a Picatinny/Weaver rail.	1
8	<b>XLR-IR850 Detachable Wide Angle Adjustable X-Long-Range Infrared Illuminator</b> A detachable LED long-range infrared illuminator with a wide, adjustable beam angle. Compatible with night vision devices that rely on CCD or image intensifier technology. Should be used when there is little to no ambient light. Comes fully assembled with a dedicated mount in order to be installed on a Picatinny/Weaver rail. The Riser #182 for XLR-IR, 18650 rechargeable battery, and charger are included.	1
9	<b>Platform Ring</b> A dedicated mount with a Picatinny/Weaver rail, used to install the additional equipment on the Janus	1
10	<b>Color (Day Time) Filter</b> Optical filter which was purposely designed to improve color rendering of digital devices, when they are used in color mode during daylight hours.	1
11	<b>Video Cable</b> A cable used to connect the analog video input/output of the Janus to external display devices (a monitor, TV) or power sources. The cable plug A is used for video, the plug B is used for external power source connection.	1
12	<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
13	<b>Carrying Case</b> A textile bag used for the transportation and storage of the Janus and its accessories.	1

## 2.4 OPTIONAL EQUIPMENT

Optional items are shown in Figure 2-4 and listed in Table 2-10.

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.

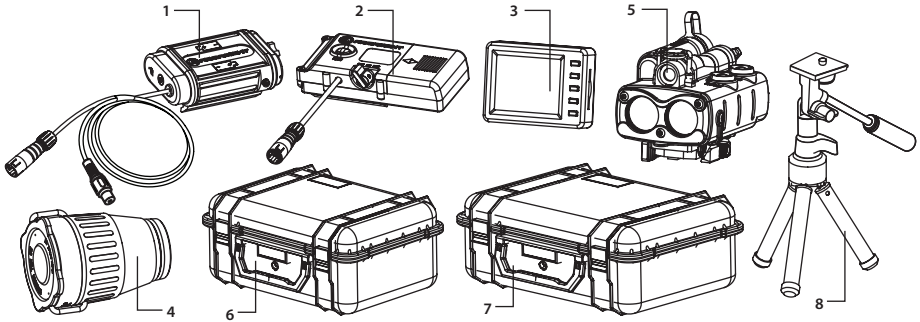


FIGURE 2-4. OPTIONAL EQUIPMENT

TABLE 2-10. OPTIONAL EQUIPMENT

ITEM NO.	DESCRIPTION	PART NO.
1	<b>External Battery Power Supply</b> The power source for extended operational time. Takes four CR123A Lithium batteries (3V) or CR123 type rechargeable batteries (3.2V or 3.7V) or two 18650 type rechargeable batteries (3.7V).	ATAM000008
2	<b>Digital Video Recorder DT</b> A compact digital video recorder used for video recording, storage and playback. Can also serve as an external power source. Equipped with a remote control.	ATAM000004
3	<b>HD DVR Digital Video Recorder</b> High Definition Digital Recorder for all Armasight High Performance Digital and Thermal Devices.	ATAM000005
4	<b>XLR-IR Afocal Doubler</b> Doubles the distance of XLR-IR850 IR Illuminator beam. Comes complete with an thread adapter #174.	ANAF18XXLR
5	<b>AMRF2200 Advanced Modular Range Finder</b> The modular range finder is designed to determine the exact distance between the observer and the target. Measurement results are shown on both the module display and in the field of view of the connected digital device.	IALA00AMRF22001
6	<b>Hard Shipping/Storage Case #101</b> A protective case used for the shipping/storage of the Janus 10x and its accessories.	ANHC000001
7	<b>Hard Shipping/Storage Case #102</b> A protective case used for the shipping/storage of the Janus 15x and its accessories.	ANHC000004
8	<b>Tripod with a Grip</b> Lightweight and compact tripod used to produce a stable image for long range observation or photo shoot with long exposures.	ANAMTM0003



## 2.5 KEY FEATURES

- 10x or 15x optical magnification
- High-performance CCD camera
- Bright-light tolerance
- Lightweight and robust design
- Easy to operate
- Manually adjustable eyepiece and objective lens
- Real-time display
- Digitally controlled display brightness
- Current operational state information display (battery status, active function etc.)
- Wireless remote control
- Analog video input (NTSC/PAL) and output (PAL)
- Powered by two standard CR123A batteries or CR123 type rechargeable batteries (max 3.7 volts each)
- Power input capability
- Digital video recorder (optional)
- Serviceability under severe conditions
- Heavily water-resistant
- Limited two-year warranty

# OPERATING INSTRUCTIONS

## 3.1 INSTALLATION AND MOUNTING

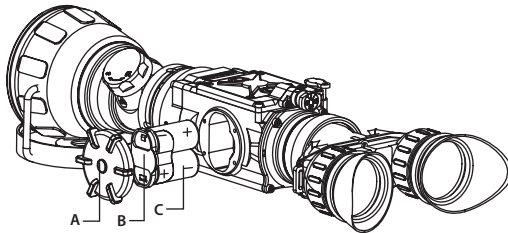
### 3.1.1 BATTERY INSTALLATION

**CAUTION:**

Before installing a battery, verify that the equipment is off.

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

1. Unscrew the battery cap (A).
2. Remove the battery cassette (B).
3. Insert the batteries (C) into cassette. Align the polarity symbols on the batteries with the polarity symbols on the cassette.
4. Insert the cassette with installed batteries to place.
5. Replace the battery cap.



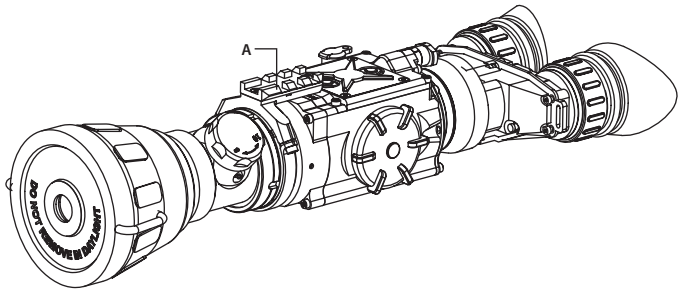
**FIGURE 3-1. BATTERY INSTALLATION**

### 3.1.2 MOUNTING A PLATFORM RING TO THE JANUS

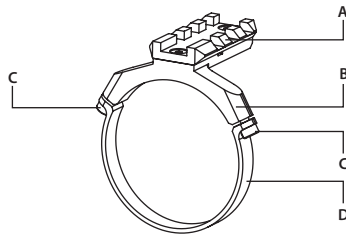
Figure 3-2 shows the Janus with the Platform Ring adapter (A) installed.

To mount the Platform Ring on the Janus, do the following (refer to Figure 3-3):

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 3-2). 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 3-2. THE JANUS FULLY ASSEMBLED WITH THE PLATFORM RING**

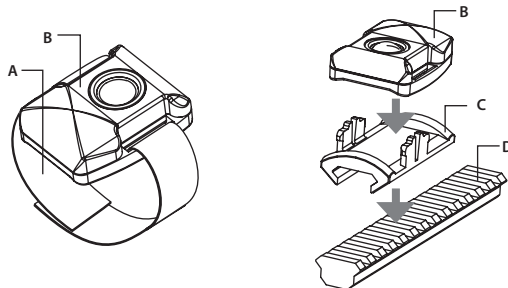


**FIGURE 3-3. PLATFORM RING**

### 3.1.3 FASTENING AN ADVANCED WIRELESS REMOTE CONTROL

Using Velcro tape (A, Figure 3-4), fasten the remote control (B) in an easily accessible place.

If your equipment has a Picatinny or Weaver rail, 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 adaptor. You can also install the Picatinny adaptor onto the Janus side rail or onto the platform ring.



**FIGURE 3-4. ADVANCED WIRELESS REMOTE CONTROL**

### 3.1.4 INSTALLING ADDITIONAL EQUIPMENT ON THE JANUS

Use the side Picatinny/Weaver rail to install any additional equipment, such as the Armasight DT digital video recorder (see Figure 3-5) or an external battery power supply.

Use the Platform Ring adapter to install any additional equipment, such as the long-range IR illuminator. For adapter mounting procedures, see Part 3.1.2.

### 3.1.5 CONNECTING ADDITIONAL EQUIPMENT TO THE JANUS

**CAUTION:**

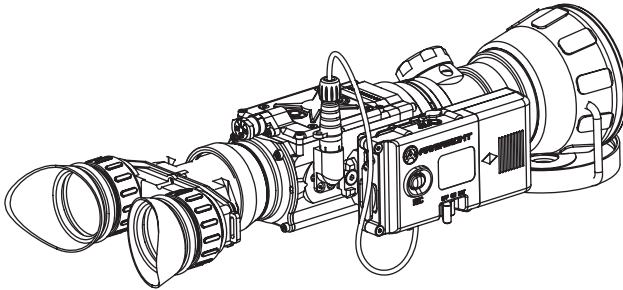
Turn off the Janus before you begin connecting/disconnecting any external equipment and before removing the batteries.

Remove the batteries before you connect any external power source.

Remove the connector protective cap.

Connect a cable of the digital video recorder, external battery power supply, or AMRF2200 laser range finder to the Janus connector.

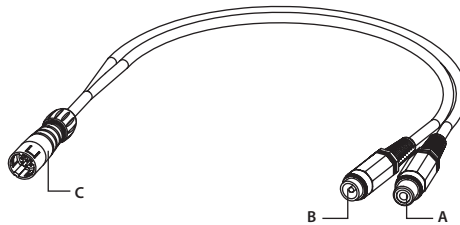
When the AMRF2200 is connected to the Janus, the results of distance measurement will be displayed in the FOV of the bi-ocular.



**FIGURE 3-5. ARMASIGHT DT DIGITAL RECORDER INSTALLATION**

Use the plug A of a video cable to connect an external video recorder/ monitor/ TV to the Janus. Connect the plug C of a video cable to the Janus connector.

Use the plug B of a video cable to connect an external power source (6 VDC / 600 mA) to the Janus. Connect the plug C of a video cable to the Janus connector.



**FIGURE 3-6. VIDEO CABLE**

**NOTE:**

The external power supply must have a standard 6mm OD double-pole socket with a positive center contact.

**CAUTION:**

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

### 3.1.6 INSTALLING THE IR ILLUMINATOR ON THE JANUS

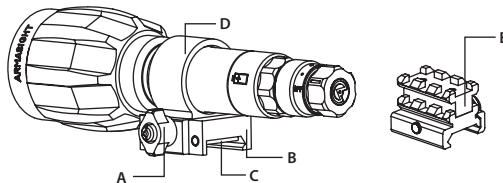
Armasight long range IR illuminators are delivered with a dedicated mount, to be installed on the Picatinny/Weaver rail.

To mount an IR illuminator on the Janus, do the following (refer to Figure 3-7):

1. With the nut (A) loosened, install the mount (B) on the rail of riser (E) so that the stop (C) slides into one of the transverse slots of the rail.
2. Tighten the nut (A).

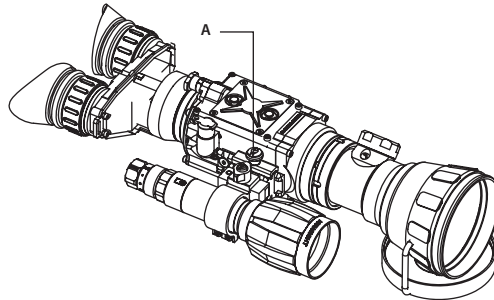
**NOTE:**

The mount clamp (D) has a spherical hinge that allows the IR illuminator to be aligned with the field of view of the Janus for maximum effectiveness.



**FIGURE 3-7. IR ILLUMINATOR**

3. With the nut of riser (Figure 3-8, A) loosened, install the illuminator on the Weaver rail so that the recoil stop of riser slides into one of the transverse slots of the rail.
4. Tighten the nut of riser (A).

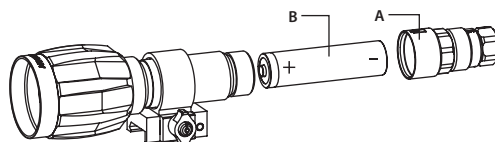


**FIGURE 3-8. XLR-IR850 ILLUMINATOR INSTALLATION**

Fully charge the 18650 rechargeable battery before installing. Insert the battery into charger, aligning the polarity symbols on the battery with the polarity symbols on the charger. Never install the battery backwards.

Connect the power cord to an appropriate power source. An indicator light will flash red when a battery is charging, and will change to green when battery has been fully charged. Remove the battery promptly after charging has been completed.

Install the battery as follows (refer to Figure 3-9):



**FIGURE 3-9. XLR-IR850 ILLUMINATOR. BATTERY INSTALLATION**

**CAUTION:**

Ensure that the IR Illuminator is off before installing the battery.

1. Unscrew the battery cap (A).
2. Install the fully charged 18650 rechargeable battery (B) into the battery compartment. Align the polarity symbols on the battery with those on the cap face.
3. Replace the battery cap (A).

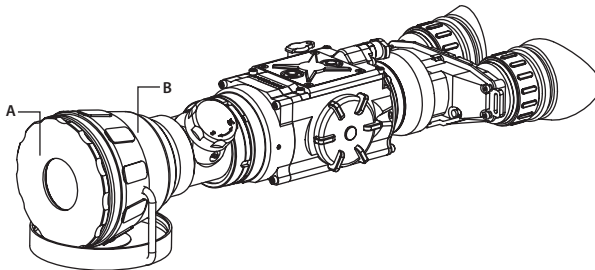
### 3.1.7 INSTALLING COLOR (DAY TIME) FILTER TO THE JANUS

The Color (Day Time) filter (Figure 3-10, A) is designed to improve color reproduction when using digital devices during daylight.

To install the filter, screw it into the thread in front of the objective lens (Figure 3-10, B) of the digital device.

**NOTE:**

The Color filter partially cuts off infrared emission. Therefore it is recommended to remove the filter when the equipment is used at dark.



**FIGURE 3-10. COLOR (DAY TIME) FILTER**

### 3.1.8 INSTALLING THE JANUS ON A TRIPOD

The Janus can be installed to a tripod. To mount the tripod with the Janus device, screw the tripod into the 1/4" threaded socket located on the Janus's bottom side.

**CAUTION:**

The unit may be badly damaged if the tripod collapses or falls over. Remove the unit from the tripod if it is not within your reach.

## 3.2 CONTROLS AND DISPLAY INDICATIONS

### 3.2.1 JANUS CONTROLS

The Janus controls are shown in Figure 3-11 and are defined in Table 3-1. The ITEM NO. columns of the tables indicate the number used to identify items in the figures.

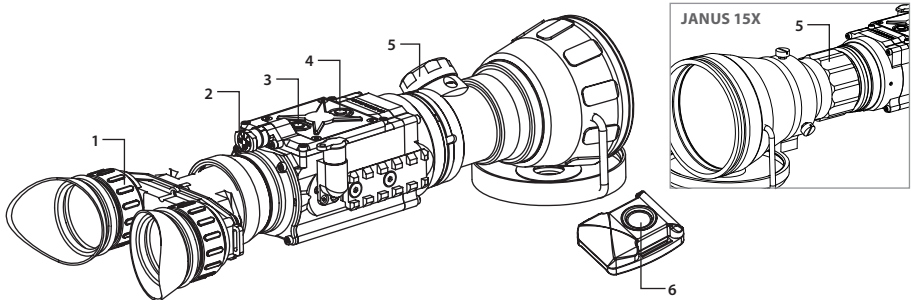


FIGURE 3-11. JANUS CONTROLS

#### CAUTION:

DO NOT force the equipment controls past their stopping points.

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 Janus when turned to ON. <b>NOTE:</b> You must pull the knob before turning in order to activate either ON or STB. Activates standby mode when turned to STB (see note above). Deactivates the Janus when turned to OFF.
3	Display Brightness Decrease Button	Push the button (3) to decrease the screen brightness.
4	Display Brightness Increase Button	Push the button (4) to increase the screen brightness.
5	Objective Focus Knob (Janus 10x) / Objective Focus Ring (Janus 15x)	Focuses the objective lens. Adjusts for sharpest view of the scene.
6	Remote Control Button	Activates/ deactivates the Janus in standby mode. To turn the unit on, press button once. Press it again to turn the unit off.
—	Battery Status Indicator (Battery icon in the bottom right hand corner 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 Battery Status Indicator not show a correct power level when the external battery or power supply is used.

### 3.2.2 IR ILLUMINATOR CONTROLS

The controls of the optional IR illuminators are shown in Figure 3-12 and defined in Table 3-2. The ITEM NO. column indicates the number used to identify items in Figure 3-12.

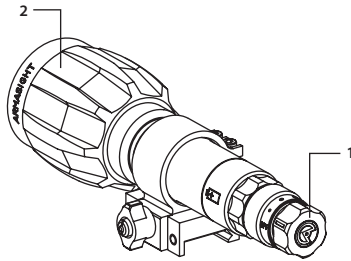


FIGURE 3-12. IR ILLUMINATOR CONTROLS

TABLE 3-2. IR ILLUMINATOR CONTROLS

ITEM NO.	FUNCTION	DESCRIPTION
1	POWER SWITCH	Switches the IR illuminator ON/OFF and adjusts for radiated power. Four ON positions are located between the two OFF positions, and are each marked with a different-sized spot. The larger the spot, the greater the radiated power.
2	LENS FOCUS	Adjusts for IR beam divergence. Adjustment range is covered within approximately one turn of the lens.

## 3.3 OPERATING PROCEDURES

### 3.3.1 OPERATING THE JANUS

**CAUTION:**

DO NOT force the equipment controls past their stopping points.

**CAUTION:**

Although the Janus is highly resistant to damage from light overload, DO NOT point it, either powered or un-powered, directly at the sun or any other source of high intensity light that the unprotected human eye cannot tolerate (such as welding arc). To prevent exposure to these types of sources, never leave the equipment unsupervised with the objective lens cap removed.

Operating procedures are as follows:

1. Remove the Janus from the carrying case.
2. Remove the objective lens cap.
3. Point the equipment at an object.
4. Activate the Janus by turning the turn-pull switch to the ON position. After approximately 3 sec, video of the scene should appear.



- Adjust the Janus for your eyesight by turning the eyepiece focus ring CW up to the stop, and then CCW until the display and symbols are as clear as possible. Bring the object into focus by turning the objective focus knob (ring).

**NOTE:**

The total diopter adjustment range is covered with 2 turns of the eyepiece focus ring.

- Using the buttons on the control panel, 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.
- To operate the Janus with Advanced Wireless Remote Control (AWREC), turn the function switch to the STB position (Standby). After it the Remote Control button can activate/ deactivate the device in two ways:
  - To turn the device on, press the remote control button once, to turn it off – press the button again.
  - To operate the device in short-time activation mode (see note below), press and hold the remote control button down for 1.5+ seconds. Release the remote control button to deactivate the device.

**NOTE:**

Devices manufactured before 2016 do not have the short-time activation mode.

**CAUTION:**

DO NOT leave the equipment activated when it is not in use.

### 3.3.2 OPERATING THE IR ILLUMINATOR

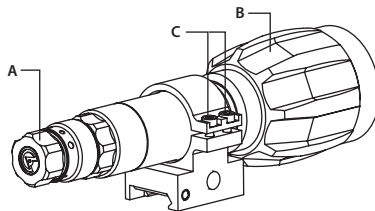
Use an IR illuminator when there is little to no ambient light.

**CAUTION:**

The IR illuminator infrared light will be invisible to the naked eye. The light can, however, be detected by other night vision devices.

**CAUTION:**

DO NOT leave the IR illuminator activated in the ON position if it is not being used.



**FIGURE 3-13. IR ILLUMINATOR ADJUSTMENT**

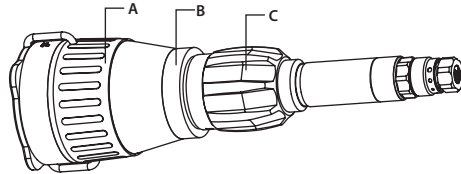
Operate the IR illuminator as follows:

- Turn on the IR illuminator by rotating the power switch (Figure 3-13, A) from OFF position.

2. To change the power level, turn the power switch to one of the spots between the two OFF positions.
3. To adjust IR beam divergence, turn the objective lens of IR illuminator (B).
4. To adjust the IR spot position in the field of view, loosen the two clamp screws (C) and tilt the IR illuminator as required in the spherical clamp hinge. Tighten the screws using a 2.5 mm hex key.

The XLR-IR850 can be used as hand-held long-range IR illuminator with optional Afocal Doubler. Attach the magnifying lens to the XLR-IR850 as follows (refer to Figure 3-14):

1. Screw the Afocal Doubler (A) into the threading adapter (B).
2. Screw the Afocal Doubler with adapter into the threading of the XLR-IR850 objective lens (C) housing. Be careful not to over-tighten the lens.



**FIGURE 3-14. XLR-IR850 ILLUMINATOR WITH AFOCAL DOUBLER**

**NOTE:**

The caution notice **DO NOT REMOVE IN DAYLIGHT** on the front lens cap of this universal magnifying lens is not applicable when using it on the XLR-IR850.

### 3.3.3 JANUS SHUT-DOWN

**NOTE:**

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

Shut-down the Janus as follows:

1. Turn off the Janus.
2. Replace the cap on the objective lens.
3. Disconnect the cable (if applicable).
4. Place the cap on the connector.
5. Remove the batteries.

**CAUTION:**

Do not store the Janus with the batteries still installed.

6. Store the Janus 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 OF 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 OF ITEM TO CHECK/ SERVICE	PROCEDURE	NOT FULLY MISSION CAPABLE IF...
PRE-OPERATION CHECKS			
1	Completeness	Open storage/carrying case and inventory items by comparing them 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	Eyecups	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**

<b>SEQ NO.</b>	<b>LOCATION OF ITEM TO CHECK/ SERVICE</b>	<b>PROCEDURE</b>	<b>NOT FULLY MISSION CAPABLE IF...</b>
6	Battery Compartment, Cap, and, Cassette	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 visibility.
8	Objective Focus Knob (Ring)	Rotate objective focus knob (ring) to ensure it is not too tight or too loose.	Knob (ring) gets stuck, is too loose, or adversely affects the user's ability to properly focus the objective lens.
9	Eyepiece Focus Rings	Rotate eyepiece focus rings to ensure the rings are 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 damage or retainer breaks.	Contacts are damaged or corroded. Cap is damaged. Retainer is broken.
12	Remote Control Unit	Check for damage and missing parts. Check Velcro tape for wear.	Damaged. Missing parts.
14	Color Filter	Inspect the filter lens optical surfaces for cleanliness, scratches, chips or cracks. Clean as required. Check ease of attaching and removal of the lens. Clean as required.	Chipped or cracked. Scratches hinder vision through the equipment. Damaged.
13	Long Range IR Illuminator	Inspect the body of the IR illuminator and mount for damage and missing parts. Check IR Illuminator Power Switch for proper operation. Check IR Illuminator Battery Cap and O-ring for damage. Inspect IR Illuminator lens for cleanliness, scratches, chips or cracks. Clean as required. Check to ensure there is free rotation through the full range of travel (one turn).	Damaged. Missing parts. Switch is inoperative. O-ring is damaged or missing. Lens is chipped or cracked. Lens is sticking or too loose when turned.
14	Platform Ring	Inspect for damage, corrosion, or missing parts. Check for proper operation. Clean as required.	Damaged. Missing parts.
15	Video Cable	Inspect for damage. Inspect the cable connector for corrosion, moisture, and corroded or defective contacts. Clean as required.	Damaged.
<b>OPERATIONAL CHECKS</b>			
16	Turn-Pull Switch	Install the batteries. Remove the objective lens cap. Point the equipment at an object. Turn the equipment on. Look for an image on the display. Look for a flashing battery icon in the eyepiece viewing area.	No image. Battery icon is flashing (indicates a low battery).
19	Focus Knob (Ring)	Turn to the equipment on. Rotate the knob (ring) to ensure it adjusts for focus.	Knob (ring) does not adjust for focus.
20	Eyepiece Focus Rings	Turn the equipment on. Rotate the eyepiece rings to ensure it adjusts the diopter.	Ring does not adjust the diopter.
17	Control Board	Ensure the Janus is responsive to control buttons.	Unresponsive buttons.
18	Remote Control	Turn the equipment to standby. Point the equipment at an object. Press the remote control button. Look for an image on the display. Press the button again. Turn off the equipment.	No image.
19	Video Cable	Connect an external monitor to the Janus. Point the equipment on an object. Turn the equipment on. Look for an image on the monitor. Turn off the Janus. Disconnect the monitor.	No image.
20	Long Range IR Illuminator	Insert the battery. Mount the IR illuminator onto the Janus. Turn the IR illuminator on. Direct the radiated beam at a wall from a distance of about 5 m. Look through the Janus. A square of light should appear on the wall.	No light appears on the wall.

TABLE 4-1. CONTINUED

SEQ NO.	LOCATION OF ITEM TO CHECK/ SERVICE	PROCEDURE	NOT FULLY MISSION CAPABLE IF...
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 Janus. 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 Armsight’s Customer Service center.

TABLE 4-2. OPERATOR TROUBLESHOOTING

MALFUNCTION	PROBABLE CAUSE/ TEST/ INSPECTION	CORRECTIVE ACTION
The Janus 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 battery is dead.	Replace the battery as per Part 4.3.4.
	The equipment is damaged.	Please contact Customer Support.
The Janus is not responsive to control buttons.	The equipment is damaged.	Please contact Customer Support.
Remote control does not work.	Battery is missing or improperly installed.	Insert battery or install correctly.
	Battery is dead.	Replace the battery.
	Battery 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 eyepieces focus.	Refocus.
	Check for fogging or dirt on objective lens and eyepieces.	Clean the lenses as detailed in Part 4.3.2.
	The equipment is damaged.	Please contact Customer Support.
No image	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 Janus 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 Janus 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 Janus 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 surfaces. Clean optical surfaces using circular movements, starting from the center and moving out towards the edge, not touching the lens holder and changing the 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.

### 4.3.4 BATTERY REMOVAL AND REPLACEMENT

Refer to Part 3.1.1 for battery installation procedures.

Refer to Part 3.1.6 for IR illuminator battery installation procedure.

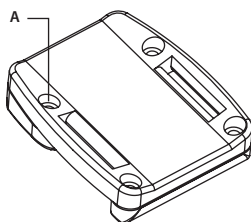


FIGURE 4-1. ADVANCED WIRELESS REMOTE CONTROL BATTERY INSTALLATION

Replace the remote control battery 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 battery with new one (CR2032, 3V). Install the battery, aligning its polarity markings (+/-) with those embossed on the compartment.
3. Replace the cover and tighten the screws (A).

## 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 Janus for service or repair, the following procedures should be followed to prevent any additional damage:

1. Make sure the Janus 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 Janus and accessories in the carrying case.

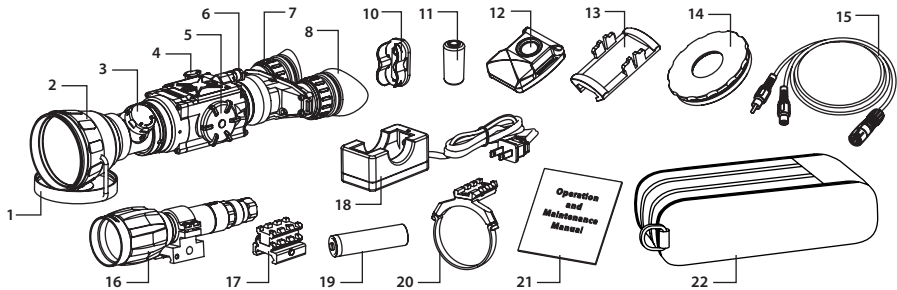
Place the Janus and a copy of the test report or detailed description of the failure in a suitable packing/shipping container. Mark the package with the RMA#. Ship the fastest, traceable, prepaid means to:

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

## A. 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 A-1. DRONE PRO SPARE PARTS LIST**

**TABLE A-1. JANUS SPARE PARTS LIST**

ITEM NO.	DESCRIPTION	PART NO.
1	108mm Objective Lens Cap	ASHLS10OLC
-	145mm Objective Lens Cap	ASHLS15OLC
2	108mm Objective Lens Assembly	ASHLS10OLA
-	145mm Objective Lens Assembly	ASHLS15OLA
3	Objective Focus Knob	ASHLS10OFK
4	Connector Cap	ASHLSCNCP
5	Battery Cap	ASHLSBC
6	Turn-Pull Switch	ASHLSSWT
7	Eyepiece Assembly	ASHLSEPA
8	Eyecup	ASHLSEC
9	Side Picatinny/ Weaver Rail (not shown)	ASHLSPRL
10	Battery Cassette	ASHLSBTC
11	CR123A Lithium Battery	ALT
12	Advanced Wireless Remote Control	ANVR000001
13	Picatinny Adapter for Advanced Wireless Remote Control	ANRA000002



**TABLE A-1. CONTINUED**

ITEM NO.	DESCRIPTION	PART NO.
14	Color (Day Time) Filter for 108mm Lens	ADPCF108
-	Color (Day Time) Filter for 145mm Lens	ADPCF108
15	Video Cable	ATCA000004
16	XLR-IR850 Detachable Long-Range IR Illuminator	IAIR850IR000003
17	Riser for XLR-IR #182	ARSXLR182
18	Charger for 18650 Rechargeable Battery	ALT
19	16650 Rechargeable Battery for XLR-IR850	ALT
20	Platform Ring	ATAM000003
21	Operation and Maintenance Manual	ASHLSOMM
22	Carrying Case	AGSC000009

## B. 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







Armasight Inc.

815 Dubuque Avenue  
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)



**WARNING:**

**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)