

SIONYX

OPSIN

DNVM1

USER MANUAL

SIONYX, LLC

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U.S.A.

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SIONYX, LLC

OPSIN

Made in Indonesia
[SIONYX.com/patents](https://sionyx.com/patents)



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1

WELCOME TO OPSIN

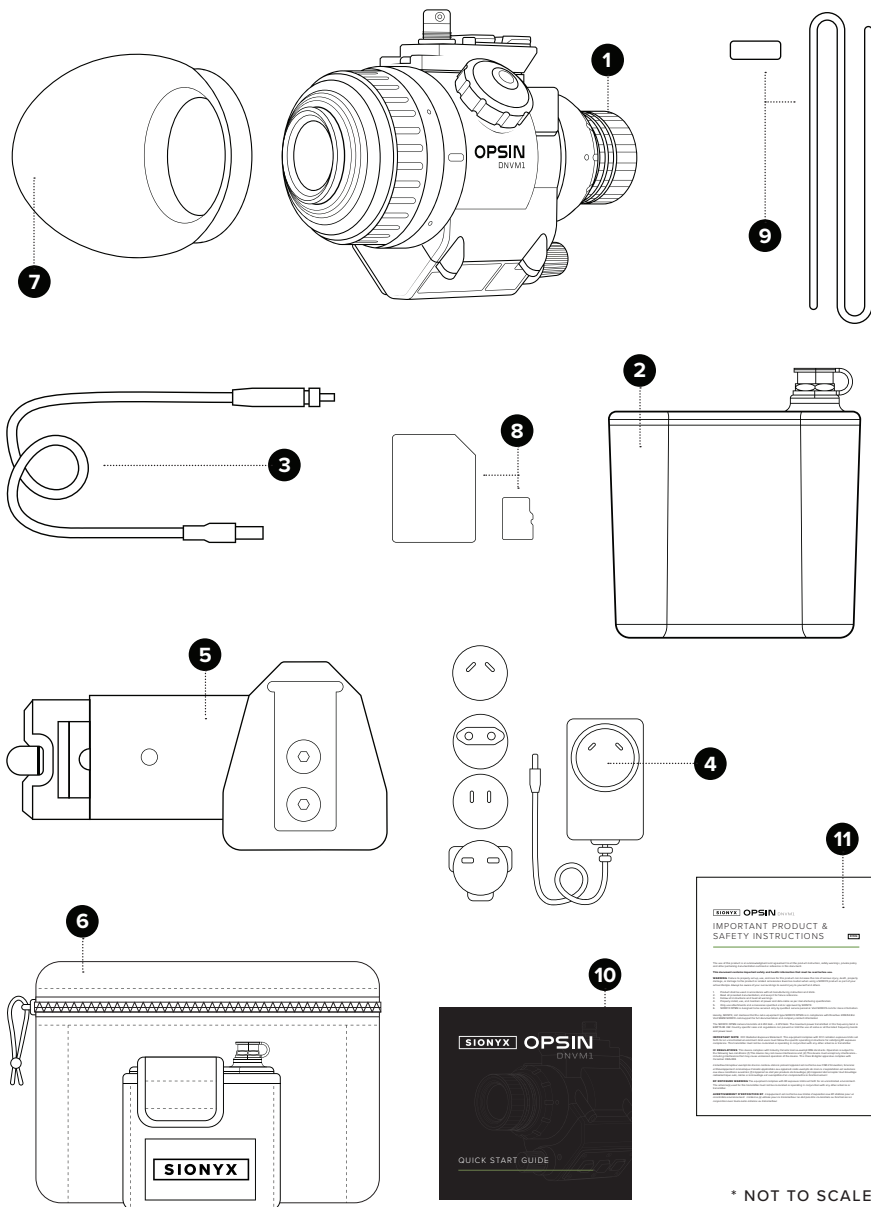
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1.0 WELCOME TO OPSIN

THIS IS SIONYX. We believe that human endeavor should not be limited by daylight. In the darkness of night, greatness is possible. Adventure enabled. And a full sense of all sight achievable, no matter the light.

BOX INCLUDES:

- | | |
|----|----------------------------|
| 1 | OPSIN DNVM1 |
| 2 | BATTERY PACK |
| 3 | BATTERY CABLE |
| 4 | BATTERY CHARGER |
| 5 | HELMET MOUNT QUICK-RELEASE |
| 6 | SOFT CARRY BAG |
| 7 | EYE CUP |
| 8 | MICRO SD CARD + ADAPTER |
| 9 | BUNGEE + BUNGEE CLIP |
| 10 | QUICK START GUIDE |
| 11 | REGULATORY STATEMENT |



* NOT TO SCALE

1.1 GETTING STARTED

To get started, please review the legends on the following pages.

OPSIN:

A-C BUTTONS

D ON/OFF, EXPOSURE
VALUE KNOB

E OBJECTIVE LENS

F LENS FOCUS RING

G EVF Diopter Adjust Ring

H MICROPHONE

I EYE CUP

J ELECTRONIC VIEW FINDER (EVF)

K EVF Diopter Adjust Ring

L POWER CABLE CONNECTOR

M SD CARD COVER

N MINI RAIL

BATTERY + ACCESSORIES:

O BATTERY

P BATTERY LEVEL INDICATOR

Q BATTERY LEVEL BUTTON

R BATTERY TERMINAL
(WATERPROOF)

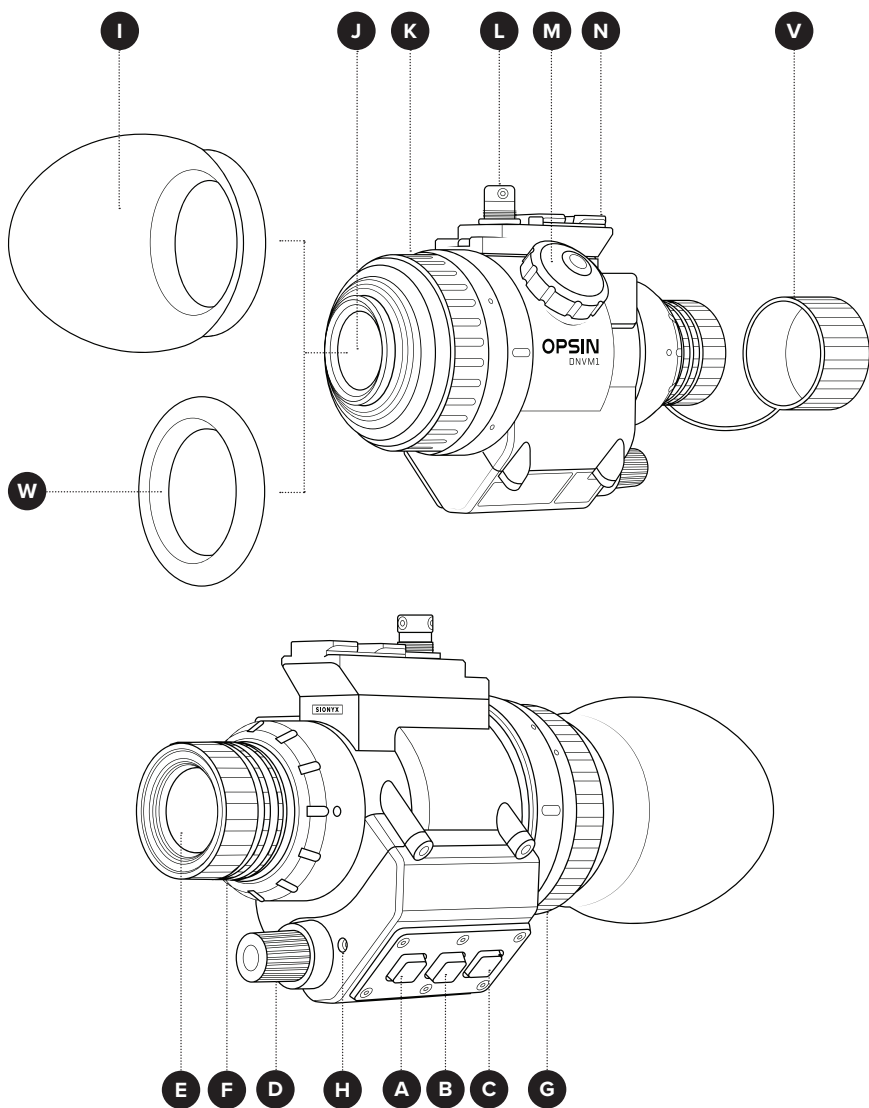
S BATTERY CABLE

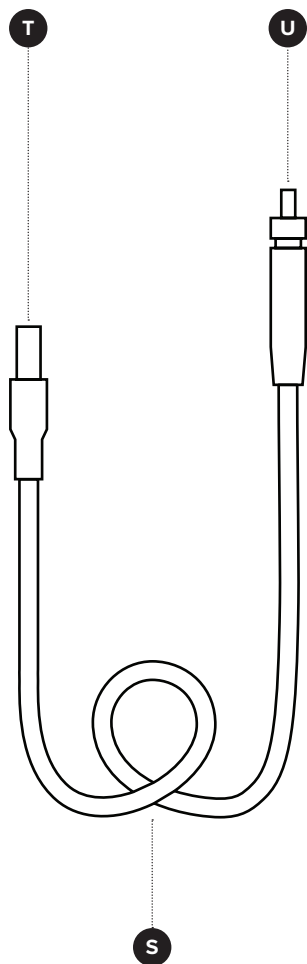
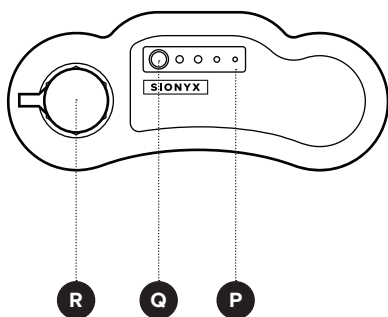
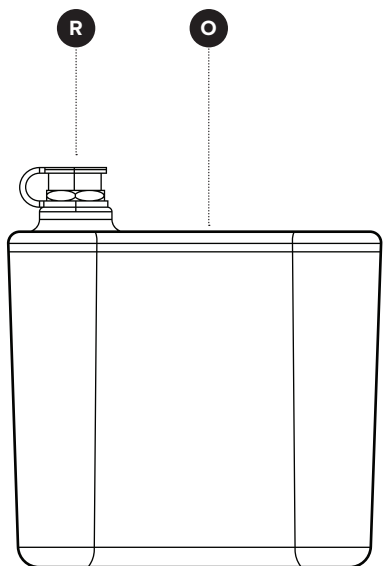
T CAMERA CABLE CONNECTOR

U BATTERY CABLE CONNECTOR

V LENS CAP + TETHER

W RUBBER BUMPER





EYECUP + VIEWFINDER BUMPER

1. OPSIN comes supplied with a protective **RUBBER EYE-CUP** and an optional **RUBBER BUMPER**. See **FIGURE 1**. NOTE: OPSIN ships with the Rubber Bumper installed. If using the eye cup, the rubber bumper will need to be removed prior to installation.
2. Fit either accessory over the end of the viewfinder until the ring grips the retaining ring on the device.
3. If using the eye cup, rotate until it fits in a comfortable position when looking through the **VIEWFINDER**.

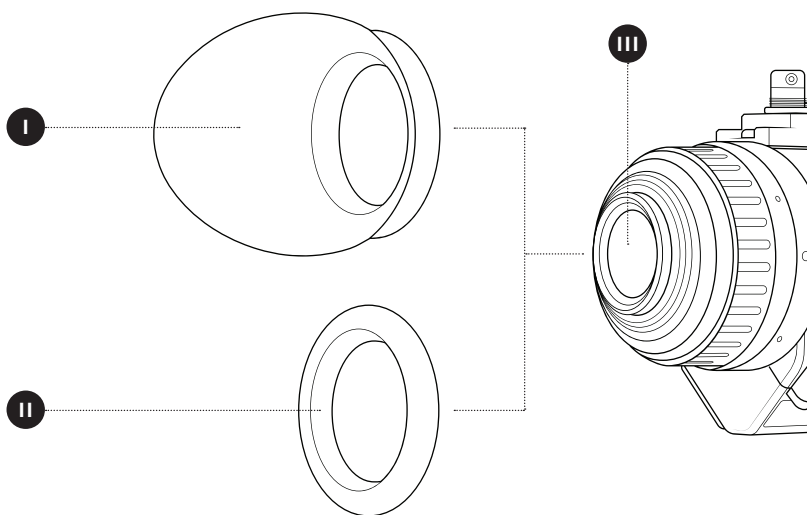


FIGURE 1:

I	RUBBER EYE CUP
II	RUBBER BUMPER
III	ELECTRONIC VIEW FINDER (EVF)

1.2 GETTING CONNECTED

CHARGING THE BATTERY

1. Refer to **FIGURE 2**. Press the **BATTERY LEVEL BUTTON** to determine the battery's level of charge. You may need to press the **BATTERY LEVEL BUTTON** firmly - use a narrow, blunt object if required. A fully charged battery will display 4 green lights in the **BATTERY LEVEL INDICATOR**.
2. To charge the battery, select the correct **AC PLUG** for your region. (OPSIN includes plugs for North America/Japan, EU, UK, S. Korea, and Australia).
3. Install the **AC PLUG** into the **BATTERY CHARGER** AC adapter by:
 - a. Aligning the tabs on the AC plug with the slots on the AC adapter.
 - b. Rotating the AC plug until it locks (there will be an audible "click").
4. Open the **BATTERY TERMINAL COVER**.
5. Plug the charger cable into the battery connector (making sure it is fully engaged).
6. Plug the battery charger AC adapter into an AC power outlet.
7. Keep the battery plugged in until it is fully charged.

NOTE: To maximize battery life, only charge the battery between 0°C and 40°C. Charging outside of this temperature range may cause the battery to leak, generate heat, or result in serious damage. It may also cause a reduction in performance and life.

DETERMINING BATTERY LEVEL

BATTERY LEDs	WHILE CHARGING
1 LED	0% - 25%
2 LED	25% - 50%
3 LED	50% - 75%
4 LED	75% - 100%

CONNECTING TO POWER

1. Refer to **FIGURE 2**. Ensure your **BATTERY** is fully charged before attempting to connect to your device.
2. Open the **BATTERY TERMINAL COVER**.
3. Plug the **BATTERY CABLE CONNECTOR** into the **BATTERY**. Tighten the connector by turning it clockwise until hand-tight. This ensures a water resistant seal between cable and the battery.
4. Refer to **FIGURE 3**. Attach the **CAMERA CABLE CONNECTOR** to OPSIN. To properly make the connection the white dot on the locking connector body should align with the white dot on the **POWER CABLE CONNECTOR** body.
5. Push the halves of the connector together until there is an audible 'click.'

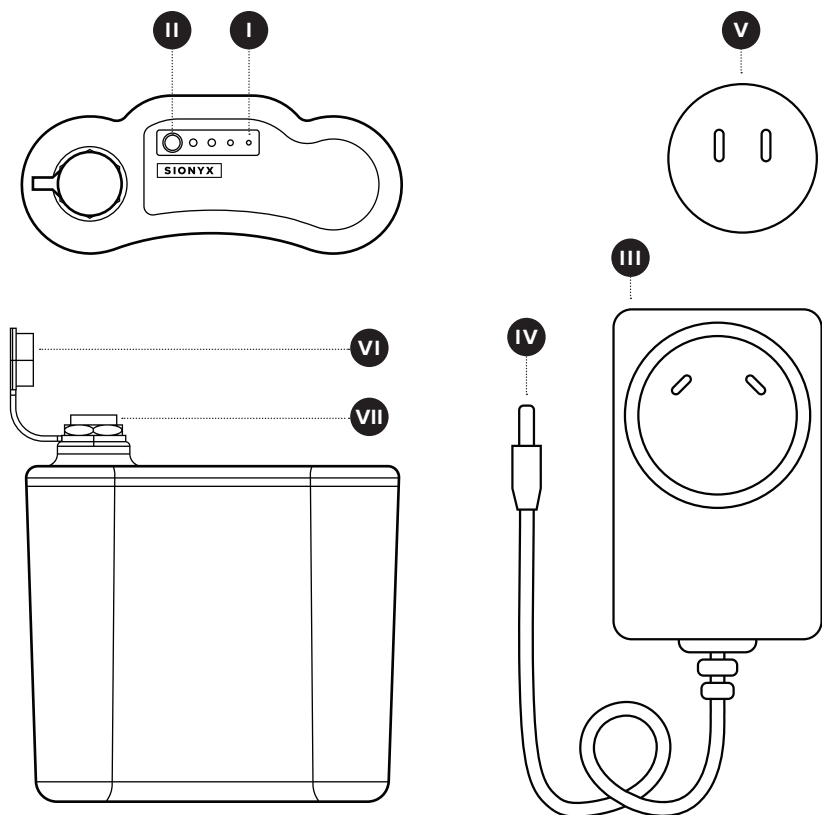


FIGURE 2:

I BATTERY LEVEL INDICATOR

II BATTERY LEVEL BUTTON (FIRM PRESS WITH FINGERNAIL TO SEE LIGHT LEVEL)

III CHARGER

IV CHARGER PLUG

V CHARGER AC PLUG

VI BATTERY TERMINAL COVER

VII BATTERY TERMINAL

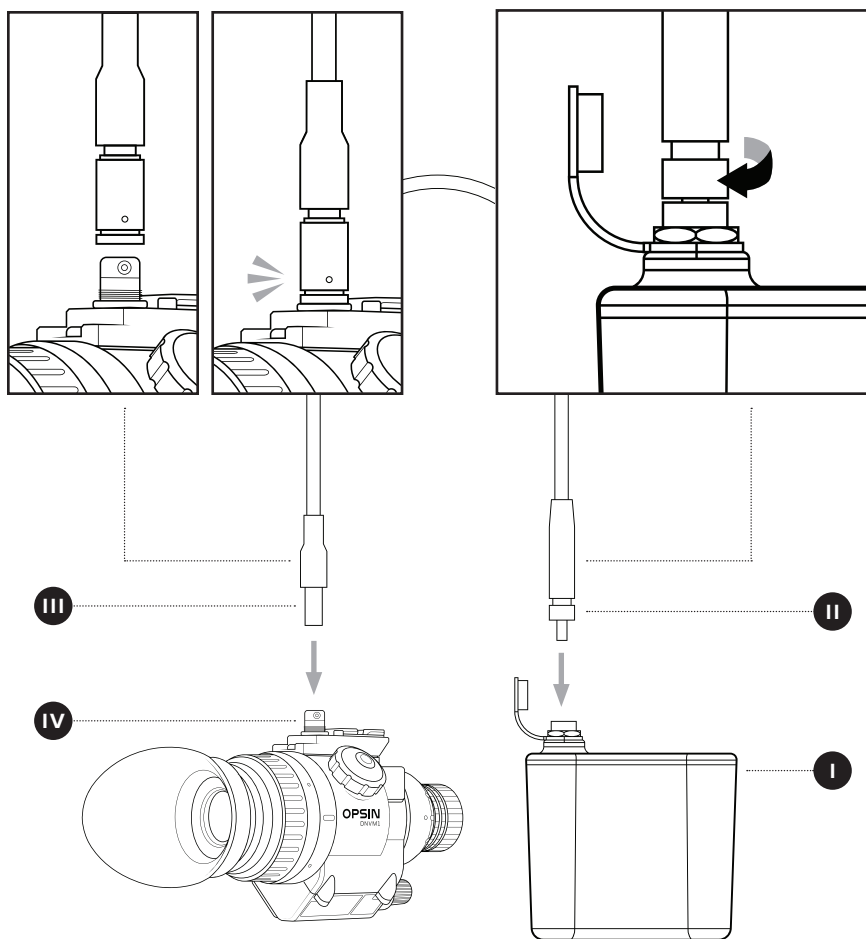


FIGURE 3:

I BATTERY

II BATTERY CABLE CONNECTOR

III CAMERA CABLE CONNECTOR

IV POWER CABLE CONNECTOR

DISCONNECTING THE BATTERY

1. Refer to **FIGURE 4**. With one hand gripping the device, pull the **SLEEVE** on the **CAMERA CABLE CONNECTOR** upwards away from the camera. With the sleeve in the upward position, pull on the **CAMERA CABLE CONNECTOR** until it releases from the device.
2. Unscrew the **BATTERY CONNECTOR CABLE** (turn counter-clockwise) and remove the plug from the battery.
3. Place the battery terminal cover over the battery terminal. This will protect the terminal from damage and debris.
4. Carefully stow the cable and the battery in the battery pouch provided.

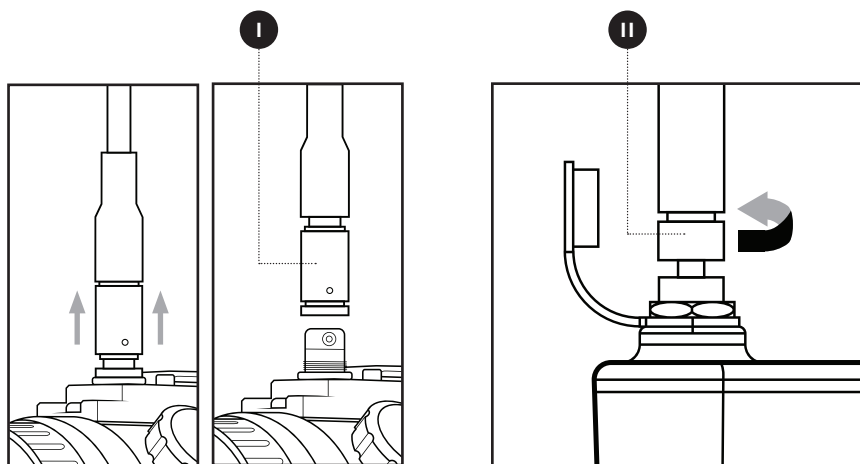


FIGURE 4:

I CAMERA CABLE CONNECTOR SLEEVE

II BATTERY CABLE CONNECTOR

1.3 OPERATING THE CAMERA

NOTE: Instruction and graphics are based on following firmware version

WI-FI	2.3.9	OVERLAY	1.1.4
CORE	206.2	RECOVERY	23.2.1
FIRMWARE	23.2.1		

TURNING ON THE CAMERA

1. Ensure the camera is connected to the battery pack according to the steps in the 'CONNECTING TO POWER' section.
2. Refer to **FIGURE 5**.
3. Remove the Lens Cap.
4. Look through the **EVF** and check that turning the **POWER / EV KNOB** results in an image displayed on the screen. The camera takes several seconds to boot up. Turning the knob adjusts the camera's exposure value (EV). To decrease EV turn the knob clockwise. To increase EV turn the knob counter-clockwise.

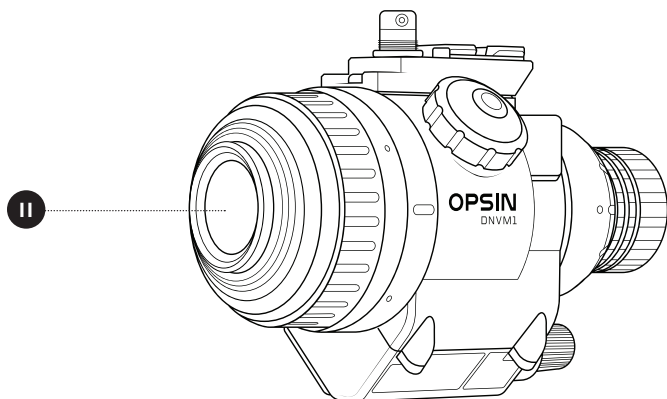
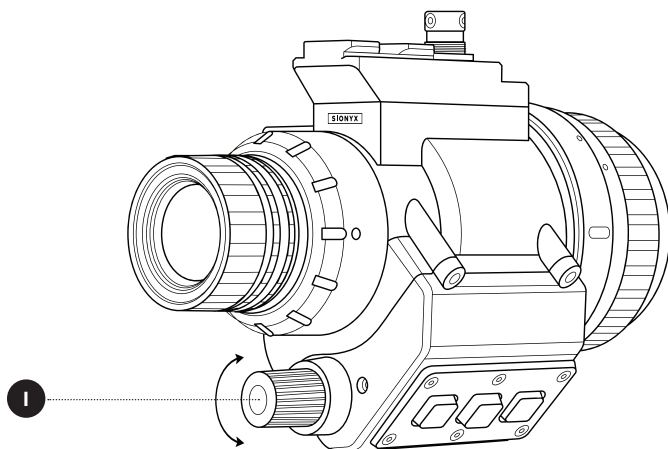
TURNING OFF THE CAMERA

Turn the knob clockwise until the knob clicks. The camera is turned off, however it is safest to disconnect the battery cable and store the battery when not using the camera. **NOTE:** It will take several seconds for the camera to power down.

FIGURE 5:

I ON + OFF / EXPOSURE VALUE [EV] KNOB

II ELECTRONIC VIEWFINDER (EVF)



1.4 ADJUSTING THE OPTICS

FOCUS THE DIOPTER

Refer to **FIGURE 6**. Turn the **EVF DIOPTER ADJUSTMENT RING** clockwise or counter-clockwise to bring the characters on the display into focus. The optimal diopter setting will vary by user.

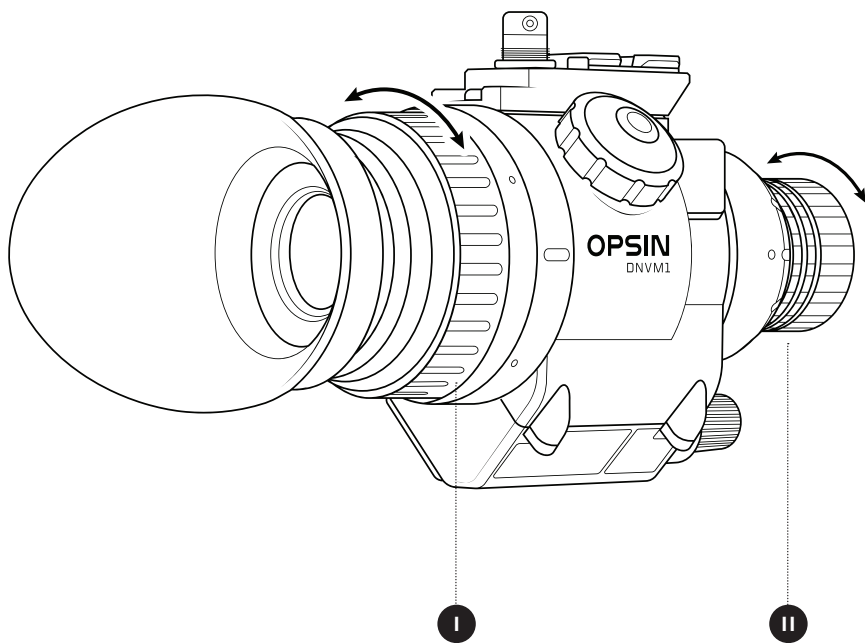
MANUAL FOCUS

Refer to **FIGURE 6**. Focus the lens to the scene by turning the manual lens **FOCUS ADJUSTMENT RING**. Turning the ring clockwise brings closer objects into focus and turning the ring counter-clockwise brings far away objects into focus. Do not rotate the **FOCUS ADJUSTMENT RING** past the point of resistance at either end of its adjustment range. For the best user experience, the diopter focus should be set before adjusting the manual focus. The **DIOPTER ADJUSTMENT RING** is designed to be much stiffer to rotate than the **FOCUS ADJUSTMENT RING**.

FIGURE 6:

I DIOPTER ADJUSTMENT RING

II FOCUS ADJUSTMENT RING



1.5 EVF DISPLAY

1. OPSIN's EVF displays the image seen by the camera. The top of the display shows critical information such as:
 - Non-Uniformity Correction (NUC) Status
 - Exposure Value (EV)
 - Display Frame Rate
 - Zoom Level
 - GPS Coordinates
 - Compass Heading
 - SD Card Status
 - Battery Status
 - Time
 - Number of Satellites
 - Signal Strength
 - GPS Status
 - Brightness Level
 - Number of files on the SD CARD
 - Microphone status
 - Video recording status
 - Recording time
 - Wi-Fi Status
 - Monochromatic / Color
 - Image Noise Status
 - ROI Mode
2. For detailed description of each of the features shown in the viewfinder see the section titled "Using OPSIN" section.

2

USING OPSIN

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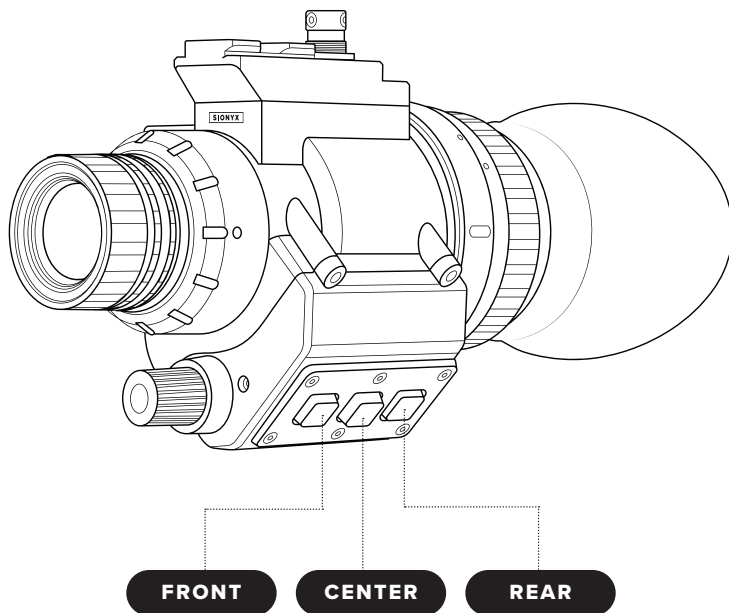
2.0 USING OPSIN

OPSIN offers capabilities beyond the ability to see in the dark. This section provides a summary of the product's features.

2.1 BUTTON FUNCTIONALITY

OPSIN has three buttons used to invoke functions or navigate the internal menu. OPSIN's button layout is shown in **FIGURE 7**.

FIGURE 7:



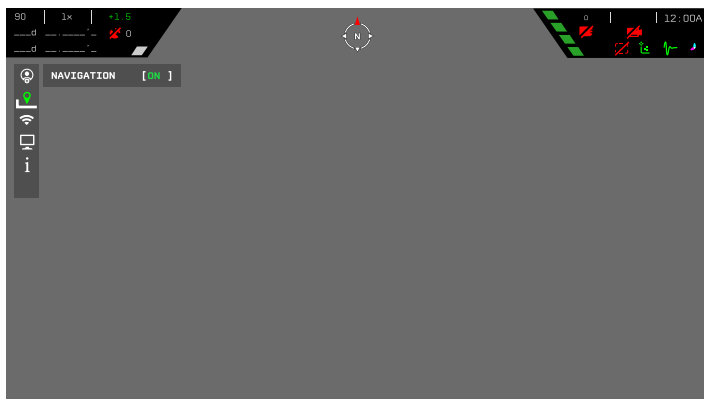
BASIC BUTTON FUNCTIONALITY

BUTTON	SHORT PRESS	LONG PRESS
FRONT	TAKE STILL IMAGE	START + STOP VIDEO RECORDING
CENTER	ZOOM (1X 2X 3X)	ENTER SETTINGS MENU
REAR	USER PROGRAMMABLE (DEFAULT: ROI SELECT)	ADJUST FRAME RATE

MENU BUTTON FUNCTIONALITY

BUTTON	SHORT PRESS	LONG PRESS
FRONT	FOCUS ON PREVIOUS MENU ITEM	N/A
CENTER	IF NO SUBMENU EXISTS; SET CURRENT VALUE IF SUBMENU EXISTS; GO TO NEXT SUBMENU LEVEL	EXIT SETTINGS
REAR	FOCUS ON NEXT MENU ITEM	N/A

2.2 SYSTEM ICONS



____d ____' ____"
____d ____' ____"

GPS COORDINATES

Displays current GPS location when signal is available.



SATELLITE SIGNAL

Displays the strength of the satellite signal and the number of satellite in range.



NO SATELLITE SIGNAL

No satellite signal available.
(Satellite icons are only shown when Navigation is ON)



WEAK SATELLITE SIGNAL

Satellite signal - Weak.
(Less than 2 satellites in range, only time available)



STRONG SATELLITE SIGNAL

Satellite signal - Strong. (3 or more satellites in range)



DIGITAL MAGNETIC COMPASS

Displays direction of travel based on earth magnetic north.

90

SYSTEM REFRESH RATE

Displays the current system refresh rate. (Frames per second)
30 | 60 | 90

1x

DIGITAL MAGNIFICATION

Displays the current system digital magnification.
1X | 2X | 3X

+1.5

IMAGE EXPOSURE VALUE

Displays the current system exposure value



SYSTEM DISPLAY BRIGHTNESS

OLED display brightness
25% | 50% | 75% | 100%



BATTERY LEVEL INDICATOR

Displays the current battery level
Green: 25% | 50% | 75% | 100%
Red: Less than 5% power remaining



SD CARD STATUS [OK]

Displays the SD card status and the number of files currently on it.



SD CARD INSERTED AND FUNCTIONING

SD card is ready for recording.



SD CARD NOT INSERTED

SD card not inserted or inserted incorrectly



SD CARD READ ERROR

SD card inserted, requires formatting prior to use.

**SD CARD FORMATTING**

System formatting SD card.
(Process time varies based on SD card size)

**SD CARD STORAGE AT 90%**

SD card storage at 90% of capacity

**SD CARD STORAGE FULL**

SD card storage at 100% of capacity.

**WI-FI DISABLED**

Wireless services disabled.

**WI-FI ENABLED**

Wi-Fi system is enabled and ready to connect.

**WI-FI CONNECTED**

Wi-Fi system enabled and connected to companion application

**WI-FI STREAMING**

System live streaming via Wi-Fi to companion application

**MICROPHONE DISABLED**

Built-in microphone disabled

**MICROPHONE ENABLED**

Build in microphone enabled and ready
to record audio when recording video.

**ROI MODE DISABLED**

Region Of Interest filter disabled. (See ROI filter section)

**WIDE ROI MODE ENABLED (50%)**

Region Of Interest filter enabled in wide area mode.
(See ROI filter section)

**NARROW ROI MODE ENABLED (30%)**

Region Of Interest filter enabled in narrow area mode.
(See ROI filter section)

**2D NOISE FILTER DISABLED**

2D temporal noise filter disabled. (See 2D noise filter section)

**2D NOISE FILTER ENABLED**

2D temporal noise filter enabled. (See 2D noise filter section)

**NUC MODE DISABLED**

Non Uniformity Correction algorithm disabled. (See NUC section)

**NUC MODE ENABLED**

Non Uniformity Correction algorithm enabled. (See NUC section)

**VIDEO RECORDING DISABLED**

Recording to SD card is disabled

**VIDEO RECORDING ENABLED**

Unit actively recording to SD card

**PHOTO CAPTURED**

Single image captured and saved to SD card

**MEDIA SAVING ACTIVE**

System actively saving media to SD card
(Removing power in this state may corrupt the file being recorded.)



CHROMATIC MODE ENABLED

Scene processed in full color. (A full color image may not be available in very low light scenarios).



MONOCHROMATIC MODE ENABLED

Scene processed in monochrome (grayscale) only, regardless of light level.

INTERNAL MENU ICONS



PROFILE MENU



SYSTEM MENU



**SYSTEM
INFORMATION**



EXIT



**NAVIGATION SYSTEM
DISABLED**



**NAVIGATION SYSTEM
ENABLED**



**WI-FI SYSTEM
DISABLED**



**WI-FI SYSTEM
ENABLED**

WARNING ICONS



OPSIN'S TEMPERATURE IS ELEVATED

Continued use of OPSIN may result in a high temperature shutdown. Turning off GPS, Wi-Fi streaming, or recording is recommended to avoid further increase of OPSIN's temperature.



OPSIN'S TEMPERATURE IS APPROACHING CRITICAL LEVEL

Approaching OPSIN's temperature limit, continued use of OPSIN may result in a high temperature shutdown. Turning off GPS, Wi-Fi streaming, or recording is recommended to avoid further increase of OPSIN's temperature.



OPSIN HAS REACHED ITS TEMPERATURE LIMIT AND WILL SHUT DOWN

When OPSIN reaches its temperature limit it will automatically shut down. OPSIN should remain powered down until it returns to its normal operating temperature range.



OPSIN HAS BOOTED INTO SAFE MODE

Perform multiple hard power cycles by disconnecting the battery cable from OPSIN. If OPSIN remains in SAFE mode, the camera's firmware will need to be updated. Go to www.sionyx.com/firmware for update instructions.

2.3 EXPOSURE VALUE

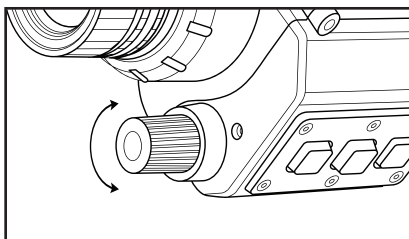
The exposure value is the result of an internal algorithm, using sensor analog gain, digital gain and exposure time to adjust the image's perceived brightness. EV adjustments are based on a scale of -2.5 to +1.5 with 0.5 steps. Image brightness in system performance is subjective. Note: Image brightness is different than display brightness (which can be adjusted using the SYSTEM / BRIGHTNESS Menu.)

In general, a low EV value will provide best results when used in a bright scene with high dynamic range, providing a dampening effect to high brightness areas of the image. Using a low EV setting allows the user to better see a region in the image that is too bright.

A high EV value is best used in a low light scene with a low dynamic range. The high EV value will boost the signal and increase low light sensitivity. Using a high EV setting will allow the user to better see a region in the image that is too dark. In a very low light scene, the higher EV value will also increase scene noise, therefore its best to find a balance between low light performance and signal to noise ratio.

EV is adjusted by rotating OPSIN's on/off switch. The current EV setting is displayed in the upper left hand corner of the OPSIN display.

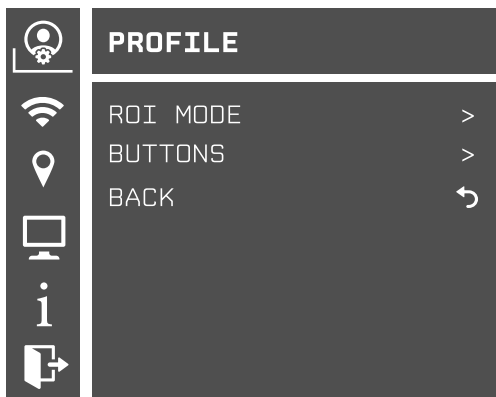
-2.5 > -2.0 > -1.5 > -1.0 > -0.5 > 0.0 > +0.5 > +1.0 > +1.5



2.4 MENU NAVIGATION

OPSIN has a menu that allows the user to change camera settings. To access the menu:

- Press and hold the center button to invoke the internal menu.
- Use the front and rear button to navigate up and down.
- The cursor will cycle between the menu options.
- To access sub-menus (if available), perform a short press of the center button to navigate down a level. The cursor will now point at the first of one or more available choices.
- Holding the center button at any menu level will exit to live view. The image below shows the main menu options:



3

PROFILE

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3.1 ROI MODE

OPSIN 2.0 firmware update adds a Region Of Interest filter [ROI] allowing OPSIN to handle higher dynamic scenes such as those including lasers and or high output IR illumination. Operators have up to 3 options for the ROI filter to fit any situation [Wide / Narrow / OFF]. OPSIN will modulate the Auto Gain Control [AGC] to provide the best image for the situation.

Narrow mode is best used in longer range engagement with more focused illumination source and/or laser pointers. In narrow mode, OPSIN will balance the light level based on the center 30% of the field of view allowing for better visualization of high power illumination or lasers. A narrow ROI mode is also best when looking through reflex sights [Red dot] or other optics.

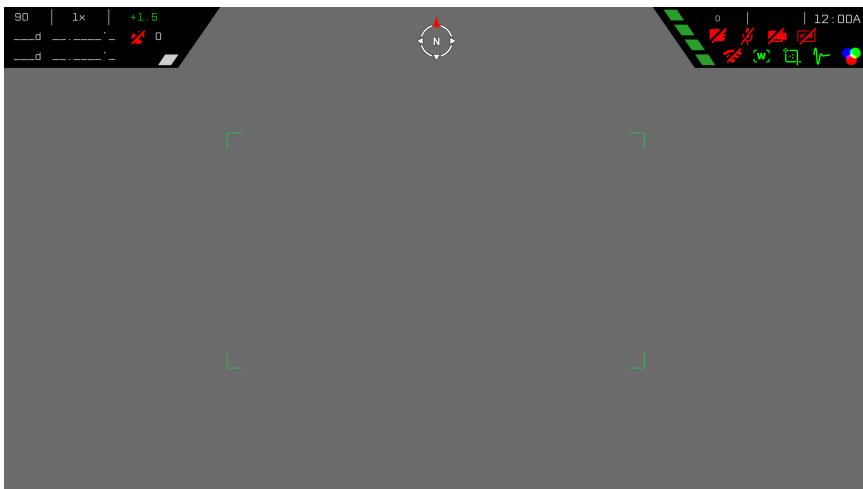
Wide mode is best used in a close quarter environment where there are multiple points of illumination or a flood illumination source. In Wide mode, OPSIN will balance the light levels based on the center 50% area of the field of view, thus compensating for wider or multiple illumination sources.

Turning off the ROI filter is best for navigation or general observation. With the ROI off, OPSIN will provide higher details for the full field of view.

The size of the Region of Interest is designated by 4 green corner marks on the display. OPSIN will automatically adjust the image AGC based on the light level within the marks.

From the PROFILE menu, move the cursor to highlight ROI MODE. Press the center button to enter the sub-menu.

There are 4 options available. Move the cursor to the desired option and press the center button to update. See Region of Interest (ROI) mode for details on the feature's functionality.



30 DEGREE

This will put OPSIN into Narrow ROI mode.
When in narrow ROI mode the icon to the left will display.



50 DEGREE

This will put OPSIN into Wide ROI mode.
When in narrow ROI mode the icon to the left will display.



OFF

This will disable ROI mode. This is the default setting.
When ROI mode is disabled the icon to the left will display.

BACK

This will return to the PROFILE menu.



30 DEGREE
Narrow ROI Mode



50 DEGREE
Wide ROI Mode



OFF
ROI Mode Disabled

3.2 BUTTONS

From the PROFILE menu, move the cursor to highlight BUTTONS. Press the center button to enter the sub-menu.

The BUTTONS menu allows the user to customize the functionality of a short press on the rear button. There are 5 options available. Move the cursor to the desired option and press the center button to update.

Default settings are bolded below:

ROI MODE	Cycles through ROI MODE settings. [30 DEGREE 50 DEGREE OFF]
BRIGHTNESS	Cycles through BRIGHTNESS settings. [5% 25% 50% 75% 100%]
MONOCHROMATIC	Cycle through MONOCHROMATIC settings. [OFF ON]
2D NOISE	Cycle through 2D NOISE settings. [ON OFF]
BACK	This will return to the PROFILE menu.

3.3 WI-FI

The WIRELESS menu allows OPSIN's Wi-Fi to be turned on or off. The default setting is off. To update OPSIN's Wi-Fi setting:

1. From OPSIN's main menu, navigate to the WIRELESS submenu.
2. To update current setting press the center button. This will toggle between turning Wi-Fi OFF/ON.



WI-FI DISABLED

When Wi-Fi is disabled this icon will be displayed.



WI-FI ENABLED

When Wi-Fi is enabled this icon will be displayed.

WI-FI SYSTEM ENABLED



WI-FI SYSTEM DISABLED



3.4 NAVIGATION

OPSIN is equipped with an internal GPS receiver, used to acquire the camera's position. The camera must be outdoors and away from large structures that may obstruct satellite signals.

When the GPS feature is active, a set of coordinates will appear in the top left corner of the screen. If OPSIN has not acquired a satellite a series of dashed lines will appear in place of the coordinates.

The NAVIGATION menu allows OPSIN's GPS to be turned on or off. The default setting is off. To update OPSIN's NAVIGATION setting:

1. From OPSIN's main menu, navigate to the NAVIGATION submenu.
2. To update current setting press the center button. This will toggle between turning NAVIGATION OFF/ON.

____d ____' ____'
____d ____' ____'

GPS COORDINATES

Displays current GPS location when signal is available.



SATELLITE SIGNAL

Displays the strength of the satellite signal and the number of satellite in range.



NO SATELLITE SIGNAL

No satellite signal available.
(Satellite icons are only shown when Navigation is ON)



WEAK SATELLITE SIGNAL

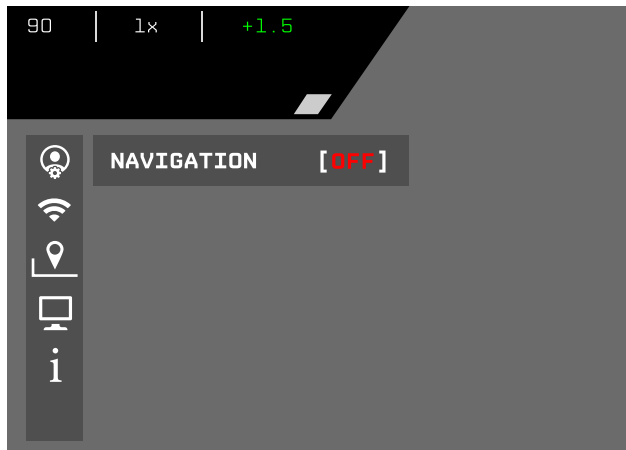
Satellite signal - Weak.
(Less than 2 satellites in range, only time available)



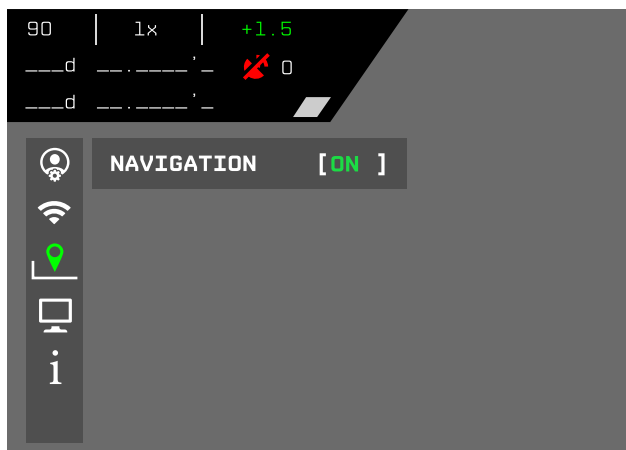
STRONG SATELLITE SIGNAL

Satellite signal - Strong. (3 or more satellites in range)

When NAVIGATION is disabled there will be no location information shown in the upper left corner of OPSIN's display:



When NAVIGATION is enabled location information (GPS coordinates, satellite acquisition information, etc) will be shown in the upper left corner of OPSIN's display:



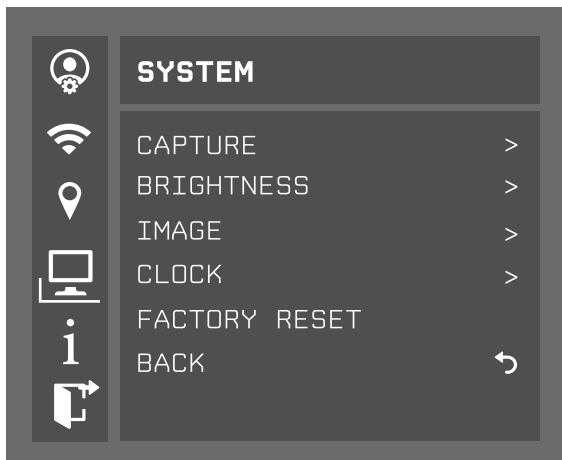
4

SYSTEM

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4.0 SYSTEM

The SYSTEM menu allows the user to change camera settings. There are 4 sub-menus available: CAPTURE, BRIGHTNESS, IMAGE, CLOCK, and FACTORY RESET.

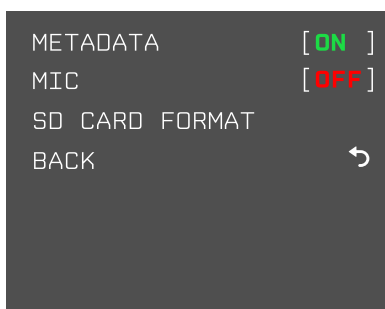
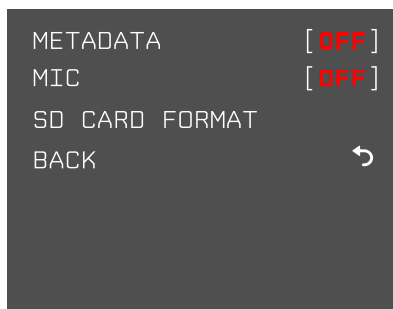


4.1 CAPTURE

The capture menu allows the user to make changes to how OPSIN captures images and records video. There are 3 sub-menus available: METADATA, MIC, and SD CARD format.

METADATA

The METADATA menu allows OPSIN to turn on or off metadata in captured images and videos. The default setting is ON.



Once the METADATA sub-menu is highlighted the setting can be updated by pressing the center button. This will toggle between turning METADATA ON/OFF.

IMAGES

Metadata information for images is included in the tables below.
Items in **BOLD** are fixed.

DESCRIPTION

TITLE	OPSIN
SUBJECT	-
RATING	UNRATED
TAGS	-
COMMENTS	-

FILE

NAME	-	Name of file
ITEM TYPE	JPG FILE	
FOLDER PATH	-	Path to folder on PC
DATE CREATED	MM/DD/YYYY HH:MM	Displays date and time image was captured Note: Accuracy requires GPS to be active and time zone to be set.
DATE MODIFIED	MM/DD/YYYY HH:MM	Displays date and time image was last modified
SIZE	- kb	Image size in kb
ATTRIBUTES	A	
AVAILABILITY	-	
OFFLINE STATUS	-	
SHARED WITH	-	
OWNER	EVERYONE	
COMPUTER	-	Displays name of computer being used to view SD card

IMAGE

IMAGE ID	-
DIMENSIONS	1280 X 720 PIXELS
WIDTH	1280 PIXELS
HEIGHT	720 PIXELS
HORIZONTAL RESOLUTION	96 DPI
VERTICAL RESOLUTION	96 DPI
BIT DEPTH	24
COMPRESSION	-
RESOLUTION UNIT	-
COLOR REPRESENTATION	sRGB
COMPRESSED BITS / PIXEL	-

ORIGIN

AUTHORS	-	
DATE TAKEN	MM/DD/YYYY HH:MM	Displays date and time image was captured. Note: Accuracy requires GPS to be active and time zone to be set.
PROGRAM NAME	XX.X.X	Displays OPSIN's FW version
DATE ACQUIRED	-	
COPYRIGHT	-	

CAMERA

CAMERA MAKER	SIONYX	
CAMERA MODEL	MDV-400C	
F-STOP	F / 1.3	
EXPOSURE TIME	X / XX SECONDS	Image exposure time in seconds
ISO SPEED	ISO-XXXX	
EXPOSURE BIAS	+/- X.X STEP	OPSIN's exposure value (EV) setting at the time of image capture (-2.5 to +1.5)
FOCAL LENGTH	-	
MAX APERTURE	-	
METERING MODE	-	
SUBJECT DISTANCE	-	
FLASH MODE	NO FLASH FUNCTION	
FLASH ENERGY	-	
35MM FOCAL LENGTH	-	

GPS

LATITUDE	° ' " "	Value in minutes, degrees, seconds
LONGITUDE	° ' " "	Value in minutes, degrees, seconds
ALTITUDE	X METERS	Value in meters

ADVANCED PHOTO

LENS MAKER	-
LENS MODEL	-
FLASH MAKER	-
FLASH MODEL	-
CAMERA SERIAL NUMBER	-
CONTRAST	-
BRIGHTNESS	-
LIGHT SOURCE	UNKNOWN
EXPOSURE PROGRAM	-
SATURATION	-
SHARPNESS	NORMAL
WHITE BALANCE	-
PHOTOMETRIC INTERPRETATION	-
DIGITAL ZOOM	-
EXIF VERSION	XXXX

VIDEOS

Metadata information for images is included in the tables below.
Items in **BOLD** are fixed.

DESCRIPTION

TITLE	-
SUBTITLE	-
RATING	UNRATED
TAGS	-
COMMENTS	-

VIDEO

LENGTH	HH:MM:SS	Recording length in hours / minutes / seconds
FRAME WIDTH	1280 PIXELS	
FRAME HEIGHT	720 PIXELS	
DATE RATE	- KBPS	
TOTAL BITRATE	- KBPS	
FRAME RATE	XX.XX FRAMES / SEC	

AUDIO

BIT RATE	-
CHANNELS	-
AUDIO SAMPLE RATE	-

ORIGIN

DIRECTORS	-
PRODUCERS	-
WRITERS	-
PUBLISHER	-
CONTENT PROVIDER	-
MEDIA CREATED	-
ENCODED BY	-
AUTHOR URL	-
PROMOTION URL	-
COPYRIGHT	-

CONTENT

PARENTAL RATING	-
PARENTAL RATING REASON	-
COMPOSERS	-
CONDUCTORS	-
PERIOD	-
MOOD	-
PART OF SET	-
INITIAL KEY	-
BEATS-PER-MINUTE	-
PROTECTED	NO

MEDIA

CONTRIBUTING ARTISTS	-
YEAR	-
GENRE	-

FILE

NAME	Name of file	
ITEM TYPE	JPG FILE	
FOLDER PATH	Path to folder on PC	
DATE CREATED	MM/DD/YYYY HH:MM	Displays date and time image was captured Note: Accuracy requires GPS to be active and time zone to be set.
DATE MODIFIED	MM/DD/YYYY HH:MM	Displays date and time image was last modified
SIZE	XX.X MB	
ATTRIBUTES	A	
AVAILABILITY	-	
OFFLINE STATUS	-	
SHARED WITH	-	
OWNER	EVERYONE	
COMPUTER	Displays name of computer being used to view SD card	

MICROPHONE

OPSIN is equipped with a built-in microphone [MIC] to record the audio track for videos. The MIC is located on the front face of OPSIN next to the ON/OFF/Brightness switch. The MIC is IP67 and can operate in any type of weather. The audio recording feature of a video can be disabled by turning the MIC ON or OFF. The default setting for the MIC is OFF.

Once the MIC sub-menu is highlighted the setting can be updated by pressing the center button. This will toggle between turning the microphone ON/OFF.



MICROPHONE ENABLED

If the MIC is turned ON, this icon will be displayed.



MICROPHONE DISABLED

If the MIC is turned OFF, this icon will be displayed,

NOTE: The MIC must be turned on before starting video recording to capture audio. The status of this setting cannot be changed during recording.

SD CARD: INSERTING AND FORMATTING

The SD CARD FORMAT menu can be used to format an SD card for use with OPSIN.

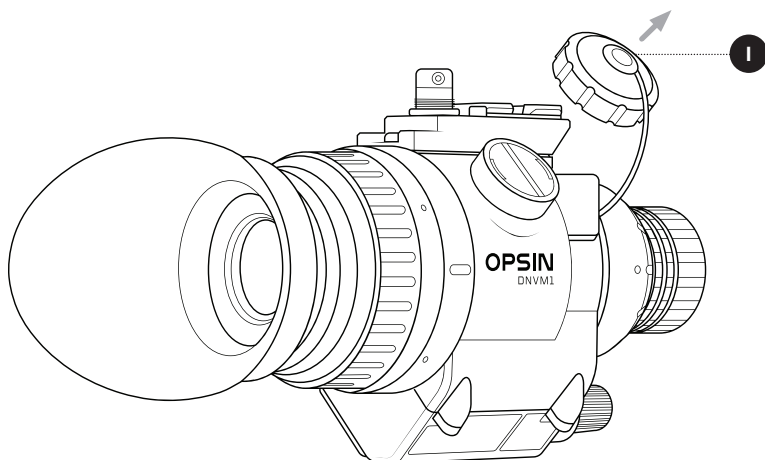
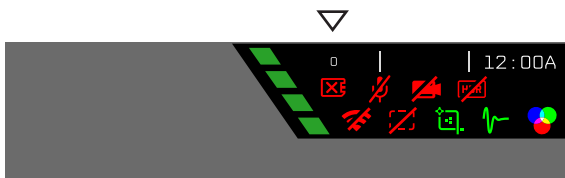


FIGURE 8:

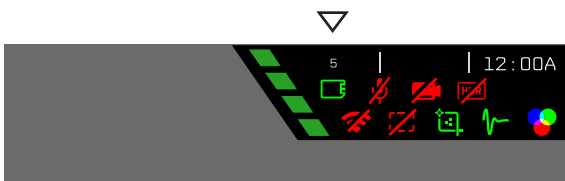
I SD CARD COVER

1. Remove the **SD CARD COVER** by rotating counter-clockwise. Refer to **FIGURE 8**.
2. Insert a micro-SD Card (up to 256 GB) into the SD Card slot. SIONYX recommends using a micro-SD card with a Video Speed Class of at least V30. A micro-SD card and SD card adapter (to allow transfer of captured images and video to a PC) are included with OPSIN.
3. Reattach the SD Card cover and properly tighten (approx. 1/8 turn clockwise) to maintain the IP rating of the device.
4. If a micro-SD card is installed in OPSIN (prior to boot) the micro-SD card icon on the display will appear.

5. To use the micro-SD card to capture images and videos it needs to be formatted in OPSIN. **NOTE:** A micro-SD card that has been previously formatted on another device will need to be re-formatted on OPSIN.
- A. If a card is not formatted, the micro-SD card icon will appear on the display with no number.

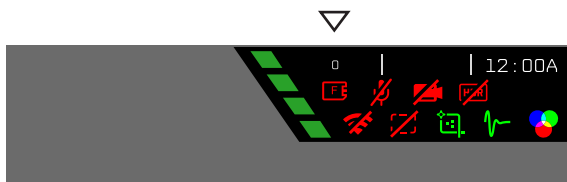


- B. If a card has been formatted, the micro-SD card icon will appear on the display with a number next to it. The number indicates the number of files saved on the card.



6. To format the SD card, bring up the main menu by pressing and holding the center button.
7. Navigate to SYSTEM > CAPTURE > SD CARD FORMAT and press the center button.
8. Navigate to SD CARD FORMAT and press the center button.
9. Select “YES” and press the center button to format the SD card.
- NOTE:** This will erase all existing content on the SD card.

10. OPSIN will format the micro-SD card for use on the device. During formatting a red micro-SD card icon will appear on the display.



11. Stopping the SD card recording can take up to 20 seconds to close the file, during this time the icon will remain red. Don't remove the power during this operation.
12. Formatting the SDCARD can take up to 20 seconds for SDCARDS of 256GB.

4.2 BRIGHTNESS

The brightness menu allows the brightness of the EVF to be adjusted. When the brightness menu has been entered a center press of the button will cycle through the available options.

Brightness options are: [5% | 25% | 50% | 75% | 100%]

The default setting is 25%.

4.3 IMAGE

The image menu allows the user to change settings related to image performance. There are 3 sub-menus available: NUC, 2D NOISE, and MONOCHROMATIC.

NUC (NON-UNIFORMITY CORRECTION)

Non-uniformity correction is a common digital sensor signal processing step to reduce noise and improve signal quality. All digital image sensors have an inherent pixel noise level that is unique from sensor to sensor. The pixel noise level is affected by multiple aspects of the sensor and processing system. Pixel noise creates a Fixed Pattern Noise (FPN) that can be seen in low light scenes while panning. FPN appears in the form of ‘noisy’ pixels that stay in the same position as the camera pans across a scene. It resembles looking through a screen door.

OPSIN has a built in Non-Uniform Correction [NUC] function designed to improve image quality in low light situations.

To change the camera’s NUC setting, perform the following navigation:

1. Menu > System >Image > NUC.
2. A press of the center button will toggle NUC ON/OFF.



NUC MODE ENABLED

If NUC is enabled, the green icon will be displayed in the EVF.
NUC is enabled by default.



NUC MODE DISABLED

If NUC is disabled, the red icon will be displayed in the EVF.

2D NOISE FILTER

OPSIN 2.0 adds a 2 Dimensional image noise filter to the operator's toolbox. This filter is best used in an outdoor environment with moderately busy scenes. The filter smooths out sharp transitions and lowers the overall noise level providing a more natural image to the user.



30 FPS | 2D NOISE OFF



30 FPS | 2D NOISE ON

To change the camera's 2D Noise Filter setting, perform the following navigation:

1. Menu > System > Image > 2D NOISE
2. A press of the center button will toggle 2D NOISE ON/OFF.



2D NOISE REDUCTION ENABLED

If 2D Noise Reduction is enabled, the green icon will be displayed in the EVF. 2D Noise Reduction is enabled by default.

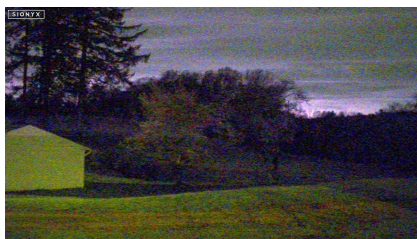


2D NOISE REDUCTION DISABLED

If 2D Noise Reduction is disabled, the red icon will be displayed in the EVF.

MONOCHROME

For extremely low light level scenes, a monochrome image provides a better user experience. OPSIN includes the option to run the system in Monochrome mode, reducing random color noise level and providing a better user experience by making the image look ‘less busy’.



30 FPS | MONOCHROME OFF



30 FPS | MONOCHROME ON

To change the camera’s MONOCHROMATIC setting, perform the following navigation:

1. Menu > System > Image > MONOCHROMATIC
2. A press of the center button will toggle MONOCHROMATIC OFF/ON



MONOCHROME DISABLED

If MONOCHROMATIC is disabled, the icon below will be displayed in the EVF. MONOCHROMATIC mode is disabled by default.



MONOCHROMATIC ENABLED

If MONOCHROMATIC is enabled, the icon below will be displayed in the EVF.

4.4 CLOCK

OPSIN uses the onboard GPS receiver to acquire date and time. To assure proper time localization, a time zone must be set. The time zone is based on an offset from the UTC time. Date and time will only be available when a GPS signal is present.

FORMAT

OPSIN allows time be displayed in 12 hour or 24 hour formats. To change the clock's FORMAT setting, perform the following navigation:

1. Menu > System > Clock > FORMAT
 2. A press of the center button will toggle between 12H and 24H format.
- 12H is enabled by default.

SOURCE

OPSIN has 2 options for displaying time, NONE and GPS.

To change the clock's SOURCE setting:

1. Menu > System > Clock > SOURCE
2. A press of the center button will toggle between NONE and GPS.

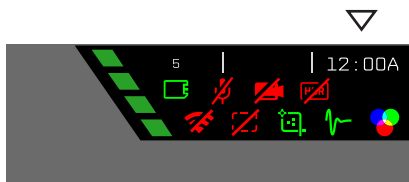
NONE is enabled by default. If NONE is selected, the clock will display the elapsed time since OPSIN has been powered on starting at 12:00.

If GPS is selected, the time will be acquired via the GPS. It may take several minutes to obtain a GPS fix and the proper time to be displayed. **NOTE:** The time zone will need to be manually set. See TIME ZONE for details.

TIMEZONE

To set the time zone, perform the following navigation:

1. Menu > System > Clock > Time Zone
2. Use the front and rear button to set the time offset from UTC, then press the center button to set and exit.



It may take several minutes to obtain a GPS fix and the proper time to be displayed.

4.5 FACTORY RESET

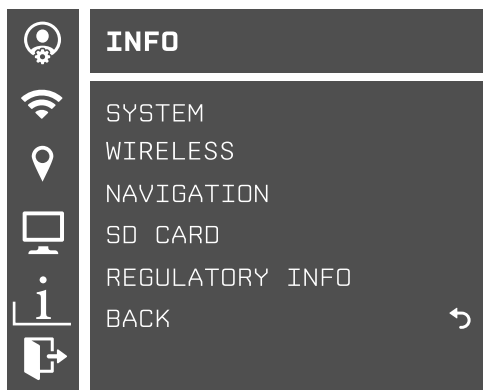
To return OPSIN to its factory settings, perform the following navigation:

1. Menu > System > Factory Reset

NOTE: Press the center button while YES is selected in the confirmation dialog box to initiate a factory reset.

INFO

The INFO menu allows the user to view additional information about OPSIN. To access a submenu, highlight the submenu and perform a short press of the center button. Another short press of the center button will return the user to the INFO menu.



The submenus are shown in the table below:

SYSTEM	ISP VERSION	WI-FI	MAC ADDRESS
	WI-FI VERSION		SSID
	FPGA VERSION		WI-FI VERSION
	GPS VERSION <i>(will only display with GPS on)</i>		
	OVERLAY VERSION	SD CARD	STATE
	FIRMWARE VERSION		LABEL
	RECOVERY VERSION		SERIAL
	SERIAL NUMBER		FILES
NAVIGATION	STATE		DISK SIZE
	LATITUDE		AVAILABLE
	LONGITUDE		USED
	ALTITUDE MSL	REGULATORY INFO	FCC STATEMENT
	SATELLITE		IC STATEMENT
	DATE / TIME STATE		ISED STATEMENT
	TIME		CE
	DATE		

5

FUNCTIONALITY

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5.1 ADJUSTABLE REFRESH RATE

OPSIN can display the live camera image at 30, 60 or 90 frames per second (FPS). Using a higher frame rate reduces motion blur. Lower frame rates result in improved image quality and may be necessary in ultra low light situations. The default setting is 90 FPS.

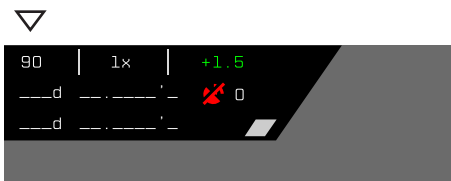
30Hz refresh rate provides highest sensitivity in lowest light scenarios. This is best used in Surveillance and Reconnaissance in extreme low light situation with minimal dynamic movement.

60Hz Middle of the road solution balancing good low light performance with minimal latency and motion blur. Mixed used scenarios like hunting or some tactical scenarios can be conducted at 60Hz with the need to change refresh rate mid-operation.

90Hz refresh rate minimizes latency and motion blur in more dynamic scenarios. Any scenarios involving rapid head movement, walking, running or tracking on a moving target are better addressed by the faster refresh rate (90Hz).

REFRESH RATE	FULL FRAME	ROLLING SHUTTER (1/16 FRAME)
30Hz	33.3 ms	2.1 ms
60Hz	16.6 ms	1.0 ms
90Hz	11.1 ms	0.7 ms

To change the refresh rate, press and hold the rear button. Each subsequent press and hold of the button cycles through the available frame rate options.



5.2 LATERAL HEAD MOVEMENT AND MOTION BLUR

Motion blur occurs when the head is moved rapidly from left to right or when objects in the screen are moving rapidly because a digital image sensor integrates photons over a period of time.

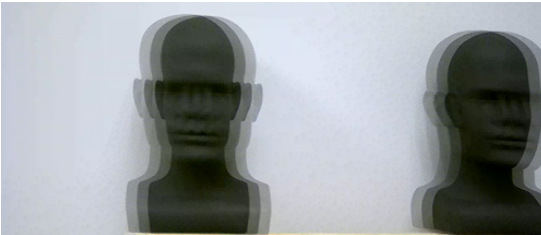
- In instances where the operator needs to snap his head rapidly to the left or right to address threats motion blur may occur, however the blur will only be present in 1 frame, for reference 1 frame = 11.1 milliseconds.
- The increased field of view that OPSIN provides helps reduce the amount of head movement needed to identify and engage targets.
- To reduce motion blur, operate OPSIN at a fast frame rate (90FPS).
- Any motion blur experienced will have resolved itself by the time the head is still, and the operator begins to identify the threat.
- OPSIN's image correction time is measured in milliseconds, so target engagement will not be affected.



1 OBSERVING



2 SLOW MOVEMENT



3 RAPID MOVEMENT



4 11ms AFTER STOP

5.3 ELECTRONIC ZOOM

A short press of the center button will change OPSIN's electronic zoom. The default setting is 1X.

Each press of the center button will cycle through OPSIN's zoom levels (1X, 2X, 3X)



5.4 IMAGE AND VIDEO

IMAGE CAPTURE

A short press of the front button will capture and save an image to the micro-SD card. **NOTE:** A micro-SD card must be installed prior to powering on OPSIN to capture an image.

A green camera icon will briefly be displayed in the upper right corner of the display and the number next to the micro-SD card icon will increment by one.

NOTE: Images can be captured while recording video by performing a short press on the front button.

NOTE: OPSIN will not recognize an SD card if it is inserted after the camera is powered on.

VIDEO RECORDING

Performing a press and hold of the front button will start video recording.

NOTE: A micro-SD card must be installed prior to powering on OPSIN to record video.

The video recording icon will be displayed in the upper left corner of the display and the number next to the micro-SD card icon will increment by one.

To stop video recording, perform another press and hold of the front button.

NOTE: The size of video recordings will vary depending on variables including camera settings and environmental factors. In extreme low light situations, recordings can consume as much as 20GB/hour of video. OPSIN will record video up to 30 minutes in length or 4 GB file size, whichever happens first. Recording will continue indefinitely until SD card capacity is exhausted. To ensure that long recordings are captured without interruption, SIONYX recommends using a V30 (or better) 256GB micro-SD card.

NOTE: For video recordings with large file sizes or that capture recordings for an extended period, the front button may need to be held for longer to stop the recording (up to a maximum of about 5 seconds). As the video file is being written, the Media Saving icon will be visible. Users should wait until the icons disappear before powering off OPSIN.

NOTE: Stop the recording before removing power to avoid loss of data.

NOTE: Do not remove the SD Card while recording.

NOTE: When stopping SD Card recording, it can take up to 20 seconds to close the file. During this time the SD Card icon will remain red. Do not remove power during this operation.

NOTE: If power is removed from OPSIN prior to completing the video recording, the recording will not save to the SD Card.

VIEWING IMAGES AND VIDEOS

OPSIN is not equipped with playback capability. To view images/recorded videos, remove the micro-SD Card. The SD Card adapter included with OPSIN can be used to access the files on another device (e.g. PC). The files can be viewed, saved, or edited on the PC.

NOTE: For proper functionality insert or remove the SD Card with OPSIN powered OFF.

5.5 DIGITAL COMPASS

OPSIN has an electronic compass that provides navigation assist information. The compass provides approximate heading information once it is properly calibrated. If OPSIN is powered, it will gather calibration information.

If OPSIN's compass requires calibration, an infinity sign will be shown in the top center of the display. To calibrate the compass move OPSIN in a figure 8 motion.



Once the compass has been calibrated, the compass heading will be displayed in the top center of the display.



5.6 OPSIN FIRMWARE UPDATES

Ensure OPSIN is operating at its highest capability with the latest firmware. OPSIN can be updated either via the SD card or with the companion mobile application.

For up to date firmware and installation instructions, download the SIONYX mobile application or visit <http://sionyx.com/firmware>.

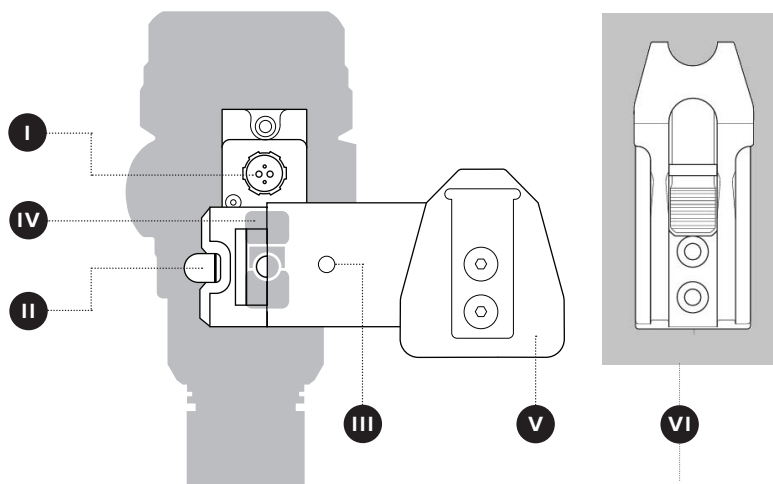
6

HELMET INSTALLATION

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6.1 ACCESSORIES TO ATTACH TO HELMET

1. Refer to **FIGURES 9 & 10**. Assemble an appropriate flip-style helmet mount if necessary. Cables must be routed correctly, to maximize performance and prolong cable life. **NOTE:** DO NOT BEND CABLES EXCESSIVELY.



BAYONET (RHNO) ADAPTER (SOLD SEPARATELY). For the use with Bayonet Mounts (SOLD SEPARATELY).

FIGURE 9:

I POWER CABLE CONNECTOR

II QUICK RELEASE BUTTON

III ADJUSTMENT SCREW

IV MINI RAIL

V DOVETAIL ADAPTER

VI BAYONET (RHNO) ADAPTER
(SOLD SEPARATELY)

This **SET SCREW** locks rail into dovetail adapter. Make sure it is backed out fully to allow **LOCKING LEVER** to depress fully to clear rail during insertion. Once rail is inserted into dovetail adapter, turn **SET SCREW** in fully to lock the lever.

NOTE: Periodically check all fasteners for proper tightness.

NOTE: Tighten dovetail mounting screws to 1.4 N-m.

NOTE: Users working in extreme vibration or temperature environments, can apply low or medium strength thread locker to assure long term reliability of the helmet mount screw fasteners. We recommend Loctite 222 (Purple, low strength) or 243 (Blue, medium strength) or equivalent.

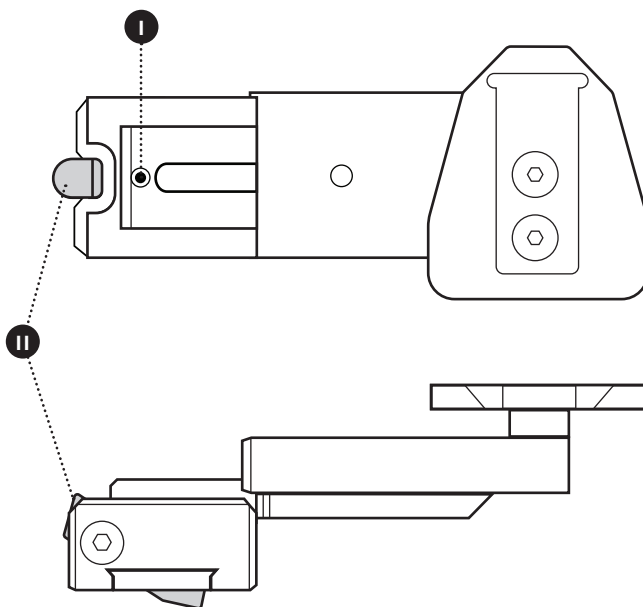
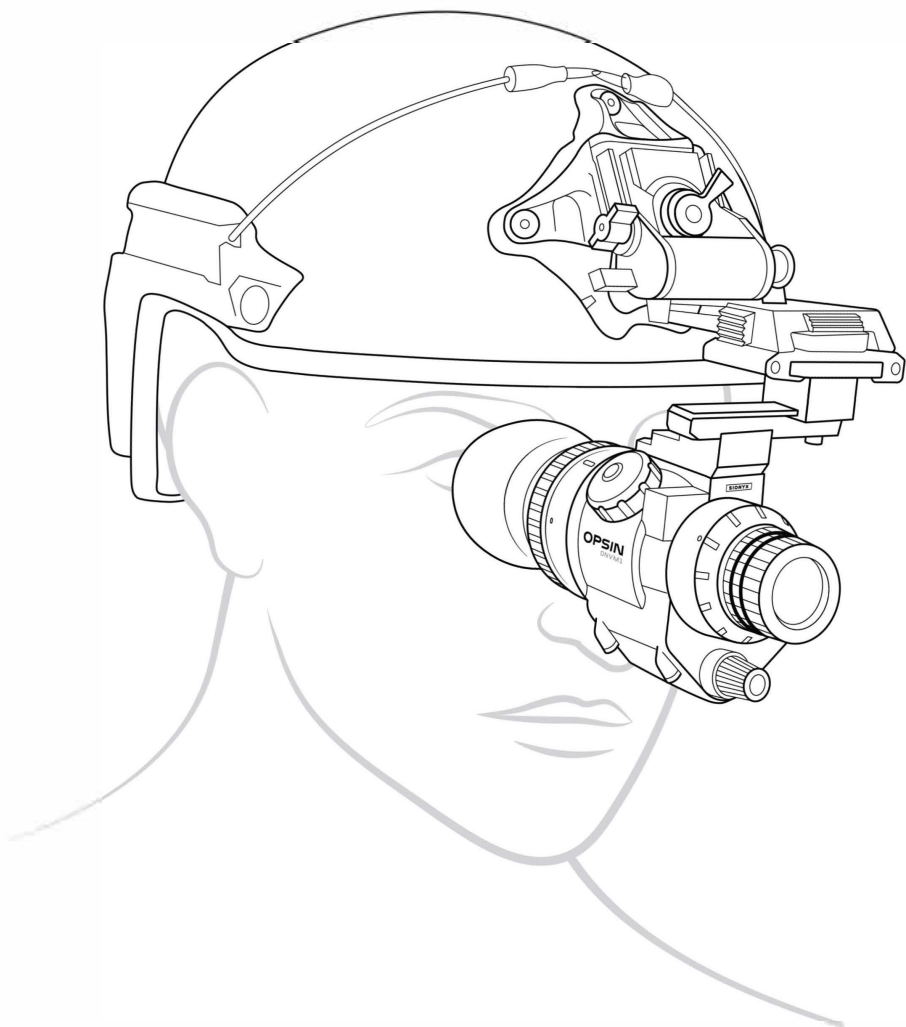


FIGURE 10:

I SET SCREW

II LOCKING LEVER



USING THE DOVETAIL ADAPTER AND SWING ARM

1. Assemble an appropriate flip-style helmet mount if necessary. Cables must be routed correctly, to maximize performance and prolong cable life.
NOTE: DO NOT BEND CABLES EXCESSIVELY.
2. Align mini rail receiver of swing arm to mini rail on OPSIN and slide straight back until locking arm clicks into place (see **FIGURE 11**). This may require loosening set screw - see guidance above (**FIGURE 10**).
3. Adjust interpupillary distance as needed by loosening the adjustment screw (see **FIGURE 9**), and sliding the swing arm towards or away from the mid-line of the camera. When the camera is positioned in front of one or other eye correctly, tighten the adjustment screw.
4. The swing arm and dovetail adapter are reversible for left and right eye operation.
5. To remove swing arm from OPSIN, press the quick release button and slide swing arm out.
6. OPSIN includes 1.5mm and 2.5mm Allen wrenches for adjustments.

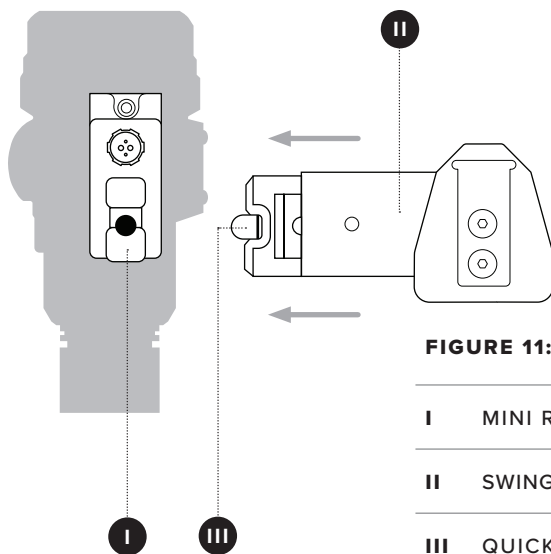


FIGURE 11:

I MINI RAIL

II SWING ARM

III QUICK RELEASE BUTTON

USING BAYONET (RHNO) ADAPTER (SOLD SEPARATELY)

1. Refer to **FIGURE 12**. Using the supplied 2mm hex key, remove the two (2) countersunk M3 **SCREWS** holding the **DOVETAIL ADAPTER** to the **SWING ARM**. Set the dovetail adapter and the screws aside.
2. Align the holes in the **BAYONET (RHINO) ADAPTER** with the tapped holes on the **SWING ARM**.
3. Place the previously removed **SCREWS** into the aligned holes and fasten the screws to a torque of 1.4 N-m.

NOTE: Users working in extreme vibration or temperature environments, can apply low or medium strength thread locker to assure long term reliability of the helmet mount screw fasteners. We recommend Loctite 222 (Purple, low strength) or 243 (Blue, medium strength) or equivalent.

FIGURE 12:

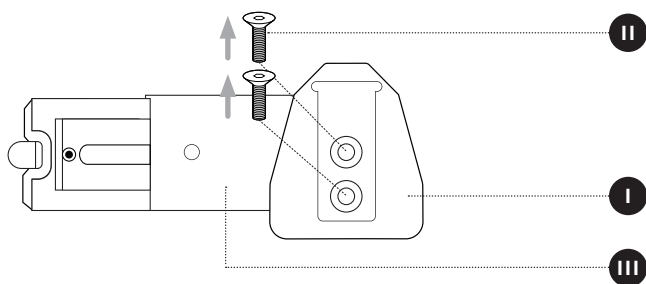
I DOVETAIL ADAPTER

II SCREWS

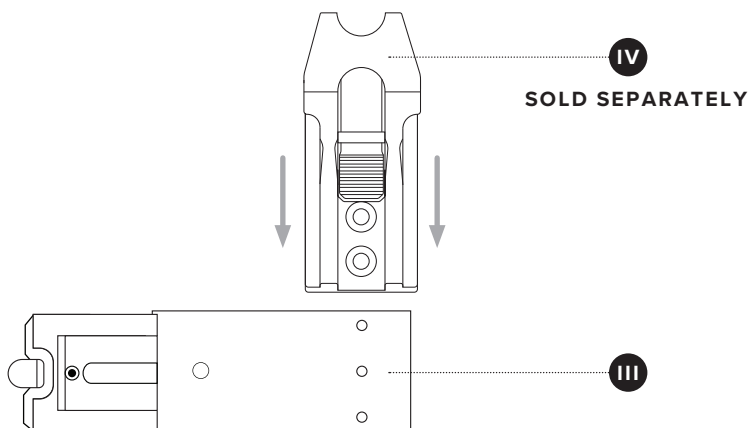
III SWING ARM

IV BAYONET (RHNO) ADAPTER
(SOLD SEPARATELY)

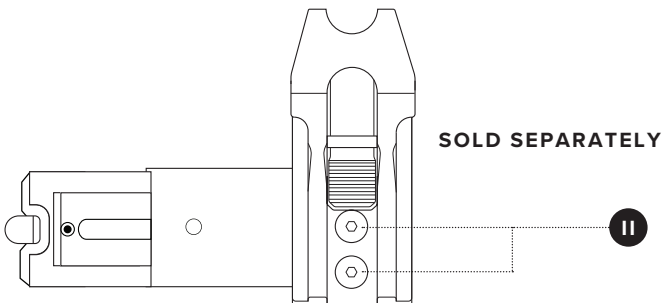
FIGURE 12:
STEP 1



STEP 2



STEP 3



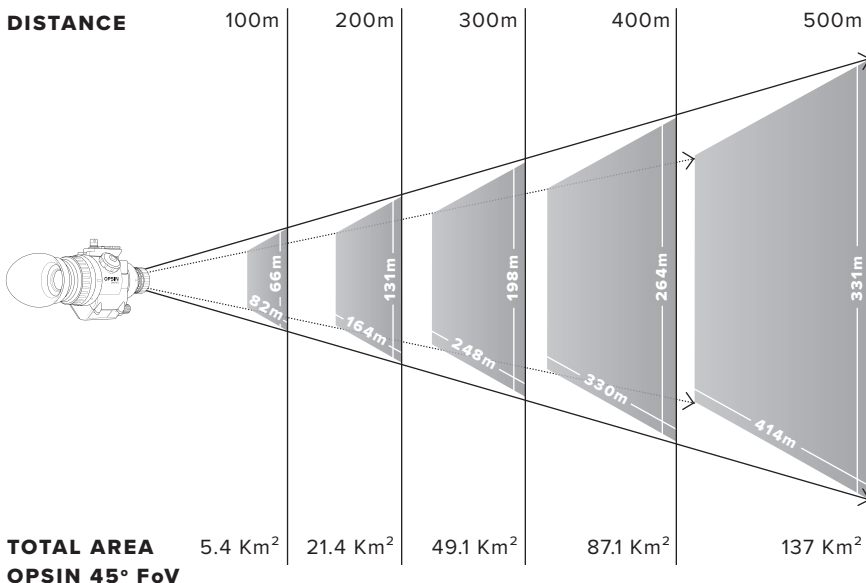
7

ADDITIONAL INFORMATION

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7.1 OPSIN FIELD OF VIEW AND AREA OF VIEW

The graphic shows what the visible area at different distances with OPSIN.



OPSIN's wide horizontal FoV:

- Reduces the amount of head movement necessary to observe object of interest
- Improves threat identification and engagement
- Reduces operator eye strain and overall fatigue

7.2 TACTICAL & BATTERY BEST PRACTICES

BATTERY BEST PRACTICES

SIONYX LI-ION BATTERY PACK

OPERATION TIME	UP TO 10 HOURS	UP TO 16 HOURS
REFRESH RATE	90	30
DISPLAY BRIGHTNESS	HIGH	LOW
LOCATION SERVICES	ON	OFF
RECORDING	ON	OFF
WIRELESS SERVICES	ON	OFF

ENVIRONMENTAL LIGHT LEVEL: MOONLESS STARLIGHT (~1mLUX)

SCENARIO: DIRECT ACTION

RANGE	SHORT	MEDIUM	LONG
REFRESH RATE	90	90	90
ROI	NARROW	WIDE	OPTIONAL
2D NOISE FILTER	ON	OPTIONAL	OFF
MONOCHROME MODE	ON	ON	ON
1050nm ILLUMINATION	ON	ON	ON

SCENARIO: SURVEILLANCE AND RECONNAISSANCE

RANGE	SHORT	MEDIUM	LONG
REFRESH RATE	30 / 60	30 / 60	30
ROI	WIDE	NARROW/WIDE	NARROW
2D NOISE FILTER	ON	OPTIONAL	OFF
MONOCHROME MODE	ON	ON	ON
1050nm ILLUMINATION	ON	ON	ON

SCENARIO: TACTICAL MOBILITY

RANGE	SHORT / MEDIUM
REFRESH RATE	90
ROI	WIDE
2D NOISE FILTER	ON
MONOCHROME MODE	ON
1050nm ILLUMINATION	ON

ENVIRONMENTAL LIGHT LEVEL: 1/4 MOON (~5mLUX)

SCENARIO: DIRECT ACTION

RANGE	SHORT	MEDIUM	LONG
REFRESH RATE	90	90	90
ROI	NARROW	WIDE	OPTIONAL
2D NOISE FILTER	OPTIONAL	OPTIONAL	OPTIONAL
MONOCHROME MODE	OFF	OFF	OFF
1050nm ILLUMINATION	OPTIONAL	OPTIONAL	OPTIONAL

SCENARIO: SURVEILLANCE AND RECONNAISSANCE

RANGE	SHORT	MEDIUM	LONG
REFRESH RATE	30 / 60	30 / 60	30
ROI	WIDE	NARROW/WIDE	NARROW
2D NOISE FILTER	OPTIONAL	OPTIONAL	OPTIONAL
MONOCHROME MODE	OFF	OFF	OFF
1050nm ILLUMINATION	OPTIONAL	OPTIONAL	OPTIONAL

SCENARIO: TACTICAL MOBILITY

RANGE	SHORT / MEDIUM
REFRESH RATE	90
ROI	WIDE
2D NOISE FILTER	OPTIONAL
MONOCHROME MODE	OFF
1050nm ILLUMINATION	OPTIONAL

7.3 SAFETY

IMPORTANT PRODUCT AND SAFETY INSTRUCTIONS

The use of this product is an acknowledgment and agreement to all the product instruction, safety warnings, private policy and other pertaining documentation outlined or reference in this document.

THIS DOCUMENT CONTAINS IMPORTANT SAFETY AND HEALTH INFORMATION THAT MUST BE READ BEFORE USE.

WARNING

Failure to properly set up, use, and care for this product can increase the risk of serious injury, death, property damage, or damage to the product or related accessories. Exercise caution when using a SIONYX product as part of your active lifestyle. Always be aware of your surroundings to avoid injury to yourself and others.

1. Product shall be used in accordance with all manufacturing instructions and limits.
2. Read all provided documentation, and keep it for future reference.
3. Follow all instructions and heed all warnings.
4. Properly install, use, and maintain all power and data cable as per manufacturing specification.
5. Only use attachments and accessories specified and/or approved by SIONYX.
6. Do not mount the camera directly or via any accessories to a firearm/ weapon of any caliber or style (i.e., rifle, shotgun, crossbow, pistol, etc.)

7. The use of a helmet flip mount with breakaway feature is highly recommended.
8. Do not leave OPSIN installed on helmet when not needed for immediate use.
9. Do not expose MUM rail to more than 2G of force in any direction.
 - a. The use of a strap around the camera and the mount are highly recommended in a non-consumer application (i.e., military deployment, HRT/SWAT application etc.)
 - b. Be sure to loosen the set screw before attempting to remove the swing arm from the mini rail.
10. Do not carry, store, drop, or throw helmet with OPSIN attached.
11. With the OPSIN attached in the flipped-up position, do not flick the system down by shaking the helmet. This places significant stress on the helmet mount.
12. Do not use OPSIN as a handle to put on or take off a helmet when the system is attached.
13. Do not use excessive force when installing or uninstalling the swing arm to OPSIN or to the helmet mount.
14. Periodically check all screws and fasteners for proper tightness.
15. SIONYX OPSIN is designed to be serviced only by qualified service personnel. Visit [SIONYX.com](http://www.SIONYX.com) for more information.

Hereby, SIONYX, LLC declares that the radio equipment type SIONYX OPSIN is in compliance with Directive 2014/53/EU. Visit <http://www.SIONYX.com/support> for full documentation and company contact information.

The SIONYX OPSIN camera transmits at 2.412 GHz – 2.472 GHz. The maximum power transmitted in this frequency band is EIRP 15.83 mW. Country specific rules and regulations can prevent or limit the use of some or all the listed frequency bands and power level.

WARNING

Failure to take the following precautions can result in serious injury or death from electric shock, fire, or damage to your SIONYX camera or powered accessories:

- Do not drop, disassemble, open, crush, bend, deform, puncture, shred, microwave, incinerate or paint the camera or powered accessories.
- Do not insert foreign objects into any opening on the camera.
- Do not use the camera if it has been damaged—for example, if cracked, punctured or harmed by water.
- Do not dry the camera with an external heat source such as a microwave oven or hair dryer.
- Do not place naked flame sources, such as lighted candles, on or near the product.
- Should the glass lens cover break, care should be taken to avoid injury.
- Keep out of reach of children.
- Contact SIONYX Customer Support at www.SIONYX.com/support



2AU49-DA16600MC



25650-DA16600MC



CAN ISED-003(B)
NMB-003(B)



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAMERA TEMPERATURE

Extreme low or high temperature conditions may temporarily prevent the camera working properly if the camera's internal high temperature limit is exceeded. The temperature icon may appear when the camera exterior reaches a temperature which is considered unsafe. Turn off the camera to allow it to cool down before continuing use.

PRIVACY + SAFE USE

Abide by all local laws and safety requirements when using your SIONYX OPSIN and related mounts and accessories, including all privacy laws, which may restrict recording in certain areas.

ACCESSING ADDITIONAL REGULATORY INFORMATION

1. Additional regulatory information is stored in the camera system and can be displayed by using the camera settings menu.
2. The information is reached by selecting “Info” and then “Regulatory Info” from the camera settings menu.

BATTERY SAFETY

- Use caution as misusing or mishandling the battery may cause a FIRE or EXPLOSION which may result in personal injury, property damage, or death. The user must have an appropriate understanding of the potential dangers of LITHIUM ION BATTERIES before purchase and usage.
- BATTERY IS ONLY FOR USE IN PROTECTED BATTERY PACKS.
- WHEN NOT IN USE, ALWAYS STORE LITHIUM ION BATTERIES IN THE PROTECTIVE CASE/BOX IN WHICH BATTERIES WERE DELIVERED.
- Misusing or mishandling lithium ion batteries can pose a SERIOUS RISK of PERSONAL INJURY, PROPERTY DAMAGE, OR DEATH.
- BATTERIES MAY EXPLODE, BURN, OR CAUSE A FIRE IF MISUSED OR MISHANDLED.
- Usage of batteries is AT YOUR OWN RISK!
- DO NOT intentionally short circuit.
- KEEP AWAY from metal/conductive objects to prevent short circuiting.
- DO NOT use if PVC wrapper or terminal insulator is damaged or torn.
- DO NOT use if battery is damaged in any way.
- DO NOT over-charge or charge above the maximum voltage rating.
- DO NOT over-discharge or exceed the continuous discharge rating.
- DO NOT modify, disassemble, puncture, cut, crush, or incinerate.
- DO NOT expose to liquids or high temperatures.
- DO NOT solder onto battery.
- DO NOT use force to install or install in reverse/backwards.
- ONLY use within manufacturer's specification.
- KEEP AWAY from pets and children.

- ALWAYS charge in or on a fire-proof surface and never leave batteries charging unattended. ONLY use a smart charger designed for this specific type of battery.
- STOP immediately if while charging/storing/using the battery it emits an unusual smell, feels hot, changes color or shape, or appears abnormal in any way.
- It is your responsibility to determine that your charger or device is functioning properly.
- To prevent inadvertent battery discharge during storage, the battery should be disconnected from OPSIN.
- When the battery is not in use, the battery terminal cover should be closed. This will ensure that the battery's IP rating is maintained and will prevent moisture and/or debris from damaging the battery connector.

IMPORTANT NOTE

LOCATION OF ADDITIONAL REGULATORY INFORMATION

FCC RADIATION EXPOSURE STATEMENT:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.

The provided power cables must be used with this unit to ensure compliance with the class B FCC limits.

IC REGULATIONS

This device complies with Industry Canada license-exempt RSS standards. Operation is subject to the following two conditions: (1) This device may not cause interference and; (2) This device must accept any interference—including interference that may cause undesired operation of the device. This Class B digital apparatus complies with Canadian ICES-003.

RF EXPOSURE WARNING

The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

SAFETY CONTINUED

FCC RF RADIATION EXPOSURE STATEMENT:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects.
3. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research.
4. OPSIN has been tested and found to comply with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines.

FCC RF RADIATION EXPOSURE STATEMENT:

This device has been designed and manufactured to comply with the limits for exposure to RF energy set by the Federal Communications Commission (FCC) of the United States, Industry Canada (IC) and the European Union and other countries. The exposure standards for wireless devices employ a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC/IC is 1.6W/kg averaged over 1 gram of tissue. The SAR limit recommended by The Council of the European Union is 2.0W/kg averaged over any 10 grams of tissue.

The FCC and IC have granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC and IC RF exposure guidelines. SAR information on this device is on file with the FCC and IC and can be found under the Display Grant section of www.fcc.gov/oet/ea/fccid after searching on FCC ID: 2AOI7-CDV18A and under the Industry Canada Radio Equipment List database <http://www.ic.gc.ca/app/sitt/reltel/srch/nwRdSrch.do?lang=eng> after searching Certification Number 23556-CDV18A.

This device is in compliance with SAR for general population/uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and has been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C.

IMPORTANT NOTE

WARNING

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

SAFETY CONTINUED

DISPOSAL

Electronics donation and recycling is a great way to help conserve resources and natural materials. It is important to make sure you are donating and/or recycling electronics safely and correctly.

The Waste Electrical and Electronic Equipment (WEEE) Directive requires the recycling of waste electrical and electronic equipment which contains materials, components and substances that may be hazardous and present a risk to human health and the environment when WEEE is not handled correctly.

Equipment marked with the crossed-out wheeled bin symbol indicates that the equipment should not be disposed of in unsorted household waste.

Local authorities in many regions have established collection schemes under which residents can dispose of waste electrical and electronic equipment at a recycling center or other collection point.

SAFETY CONTINUED

MAINTENANCE

The camera housing and lens will require occasional cleaning. You should clean the lens when image quality degradation is noticed or excessive contaminant build up is seen.

- Do NOT wipe the lens window with a dry cloth, or with abrasive materials such as paper or scrub brushes, as this could scratch the coating.
- Do NOT use acid or ammonia based products.
- Do NOT pressure wash.

Particular care should be taken when cleaning the lens window, this has a protective anti-reflective coating which may be damaged by improper cleaning.

1. Switch off the power to the unit.
2. Clean the camera body with a clean, soft cotton cloth. You can moisten the cloth and use a mild detergent if required.
3. Clean the camera lens.

7.4 ADDITIONAL RESOURCES

WARRANTY

Click here for full product warranty or visit: <http://sionyx.com/pages/warranty>

ADDITIONAL RESOURCES & SUPPORT

Click here for additional resources and support: <http://sionyx.com/support>

FIRMWARE UPDATE

Click here for up to date firmware: <http://sionyx.com/firmware>

DOWNLOAD THE APP

Scan for more information on Google Play / App Store:



SIONYX, LLC

100 Cummings Center
Suite 303B
Beverly, MA 01915
U.S.A.

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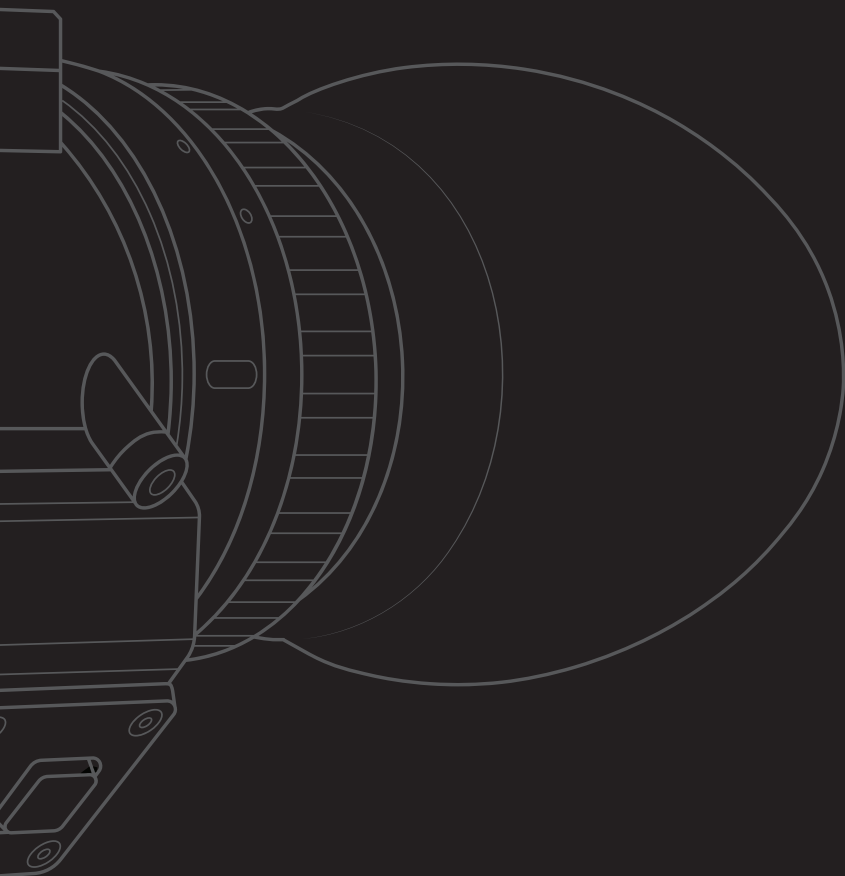


NEED HELP?

SUBMIT A TICKET	sionyx.com/contact
SUPPORT	sionyx.com/support
CALL	(866) 827-8237

Register your device and stay up to date by visiting the URL or scanning the QR code below.





SIONYX

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