NIGHTWAVE® DIGITAL

Installation Guide

Rev C

SIONYX

1 WARNINGS / DISCLAIMERS

By using this product, you acknowledge and agree to follow all product instructions, safety warnings, privacy policies, and documentation referenced in this manual.

GENERAL WARNING

Failure to properly set up, use and maintain this product can increase the risk of serious injury, death, property damage, or damage to the product or accessories. Always be aware of your surroundings when using SIONYX products.

1. Product shall be used in accordance with all manufacturing instructions and limits.
2. Read all the documentation provided and keep it for future reference.
3. Follow all instructions and heed all warnings.
4. Properly install, use, and maintain all cables as per specifications.
5. Only use attachments and accessories specified and/or approved by SIONYX.
6. SIONYX Nightwave is designed to be serviced only by qualified service personnel.

SAFETY WARNING

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

1. Do not drop, crush, bend, puncture, disassemble, shred or incinerate the camera or accessories.
2. Do not insert foreign objects into any openings.
3. Do not use the camera if damaged.
4. Do not dry with external heat sources.
5. Keep away from open flame sources.
6. Handle broken lens glass with care.
7. Keep out of reach of children.

ENVIRONMENTAL GUIDANCE

Extreme low or high temperatures may affect camera performance. For example, if the device is covered in ice, or if internal high temperature limits are exceeded, functionality may be limited. Abide by local laws, including privacy regulations and maritime safety rules when using this product.

ENVIRONMENTAL ELETROMAGNETIC NOTICE

CAUTION: This product may emit radio frequency energy that can interfere with marine radio or navigation equipment. Ensure proper installation and separation distance from such devices. Power off the camera when operation is restricted or when interference may occur.

COMPASS SAFE DISTANCE

SIONYX NIGHTWAVE DIGITAL devices may affect compass readings due to electromagnetic interference. Maintain the minimum distance from your compass as specified in the installation manual.

FCC & IC COMPLIANCE STATEMENTS

FCC Radiation Exposure Statement

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

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following 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.

Class B Digital Device Notice

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

IC Regulations (Canada)

This device complies with Innovation, Science and Economic Development Canada’s 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. This Class B digital apparatus complies with Canadian ICES-003.

Déclaration d’exposition aux RF – Canada

L’équipement est conforme aux limites d’exposition aux RF établies pour un

environnement non contrôlé. L’antenne utilisée pour ce transmetteur ne doit pas être située au même endroit qu’une autre antenne ou utilisée en conjonction avec une autre antenne ou transmetteur.

L’émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d’ISDE Canada applicables.
L’exploitation est autorisée aux deux conditions suivantes :
(1) L’appareil ne doit pas produire de brouillage, et
(2) L’appareil doit accepter tout brouillage, y compris celui pouvant nuire à son fonctionnement.

2 LIMITED WARRANTY

This limited warranty gives you specific legal rights and you may also have other rights, which vary from state to state. For the full details of the limited warranty, navigate to: https://www.sionyx.com/pages/warranty-and-return-policy.

SIONYX, LLC ("SIONYX" or "we") warrants to the original end-user/purchaser ("you") of the product (referred to in this section as the "Goods") that for a period of two (2) years from date of purchase of the Goods ("Warranty Period") such Goods will be free from material defects in material and workmanship. SIONYX warrants to you that accessories included with the Goods and Accessory Kits sold separately from the Goods under a distinct product SKU will be free from material defects in material and workmanship for a period of ninety (90) days from date of purchase.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Other limitations. The limited warranty does not apply to consumable parts, such as batteries or protective coatings that are designed to diminish over time, unless failure has occurred due to a defect in materials or workmanship; (ii) to cosmetic damage, including but not limited to scratches (including to lenses), dents and broken plastic on ports; (iii) to damage caused by use with another product; (iv) to damage caused by accident, abuse, misuse, tampering, liquid (beyond the Good's certification), grit, impact, fire, lack of proper care or maintenance, earthquake, or other external cause; (v) to damage caused by operating the Goods outside SIONYX's published guidelines; (vi) to damage caused by unauthorized parts or by service (including upgrades and expansions) performed by anyone who is not a representative of SIONYX; (vii) to Goods that have been modified to alter functionality or capability without the written permission of SIONYX; (viii) to defects caused by normal wear and tear or otherwise due to the normal aging of the Goods; or (ix) if any serial number has been removed or defaced from the Goods.

WARRANTY CLAIMS

a. All claims under the limited warranty will require a Return Material Authorization (RMA) number. To discuss a warranty claim and acquire an RMA number, please contact SIONYX Customer

Service: support@SIONYX.com (http://support@sionyx.com/). You will be required to furnish a sales receipt/proof of purchase to indicate date of purchase, amount paid and place of purchase.

b. If your warranty claim is received within the Warranty Period, SIONYX Customer Service will conduct a phone evaluation to determine whether the failure is covered under the limited warranty
c. If SIONYX Customer Service determines that the failure is covered under the limited warranty, SIONYX will, at its sole discretion, to either:
    - repair or replace the Goods; or
    - repair or replace the defective parts; or
    - credit or refund the purchase price of the Goods.

RETURNS AND EXCHANGES

30-Day No Questions Asked returns and exchanges. You may return the Goods for a full refund of the product price, or exchange the Goods for another SIONYX product, as long as you obtain an RMA within thirty (30) days of receipt of the Goods. Returns initiated after thirty (30) days of receipt of the Goods are subject to a 15% restocking fee. You are responsible for paying all return shipping fees.

Returns of defective Goods will be processed as a Warranty Claim and subject to SIONYX's Limited Warranty.

You can obtain an RMA number by contacting SIONYX Customer Service at (support@sionyx.com).

3 CUSTOMER SUPPORT

For full regulatory and safety information and instructions visit SIONYX.com/support.

To submit a ticket to customer support:

SIONYX.com/contact.

To contact support via e-mail:

support@SIONYX.com

To speak directly to customer support call:

+1 866-827-8237

(Please leave a message outside of Eastern US business hours.)

Support Contact customer support by filling out a support ticket, calling us directly or scheduling a time for us to call you, or to ask a “frequently asked question.” Scan the QR code or go to support.sionyx.com	
Registration Register your device and stay up to date by visiting the URL or scanning the QR code. Sionyx.com/register	
Update To keep your device up to date and download NIGHTWAVE DIGITAL Firmware, scan QR code or go to sionyx.com/pages/nightwave-digital-firmware	

4 Revision History

Revision	Date	Comments
A	5/2/2025	Initial release
B	12/16/2025	Minor changes
C	01/12/2026	Added NightIQ™ reference and description

5 Table of Contents

6 Table of Figures

7 List of Tables

8 WELCOME TO NIGHTWAVE DIGITAL

8.1 Purpose of Document

The purpose of this document is to provide clear and comprehensive instructions on how to properly install the NIGHTWAVE DIGITAL device. This instruction guide will have step-by-step instructions to carefully read and follow, from the moment you open your boxed device through understanding which items are required before installation, to troubleshooting and ensuring that your device is working effectively once it has been installed.

8.2 Overview

NIGHTWAVE DIGITAL delivers unmatched clarity—even in moonless starlight—thanks to the enhanced IP (PoE) digital connectivity and advanced Black Silicon CMOS sensor, outshining traditional thermal cameras. NIGHTWAVE DIGITAL is powered by NightIQ™, SIONYX's image-optimization technology that adapts how low-light video is displayed for real-world marine conditions while providing higher resolution, greater reliability, and seamless integration with networked MFD systems. With flexible mounting options and an intuitive setup, it's built for captains who want safety without complexity. Less guesswork, more peace of mind. Whether cruising, fishing, or docking after dark, NIGHTWAVE DIGITAL helps you stay safe—and enjoy every moment on the water.

We are committed to enhancing visibility, safety and performance in low-light environments, empowering professionals and adventurers with cutting-edge digital night vision technology.

8.3 Features

- Seamless integration with all major brand MFDs.
- Network (PoE) compatibility.
- Engineered for large screens (higher resolution).
- Camera configuration is available via the SIONYX mobile app (Wi-Fi) or web (MFD web panels).
- The camera is powered by the IP67 PoE injector (PoE output voltage is 48 V DC). The PoE is typically powered from the boat's battery, with an

input range from 9 to 36 V DC. **NOTE:** When installing the PoE into its own breaker or a panel switch, use a 2 A fuse.

8.4 Cable Recommendations

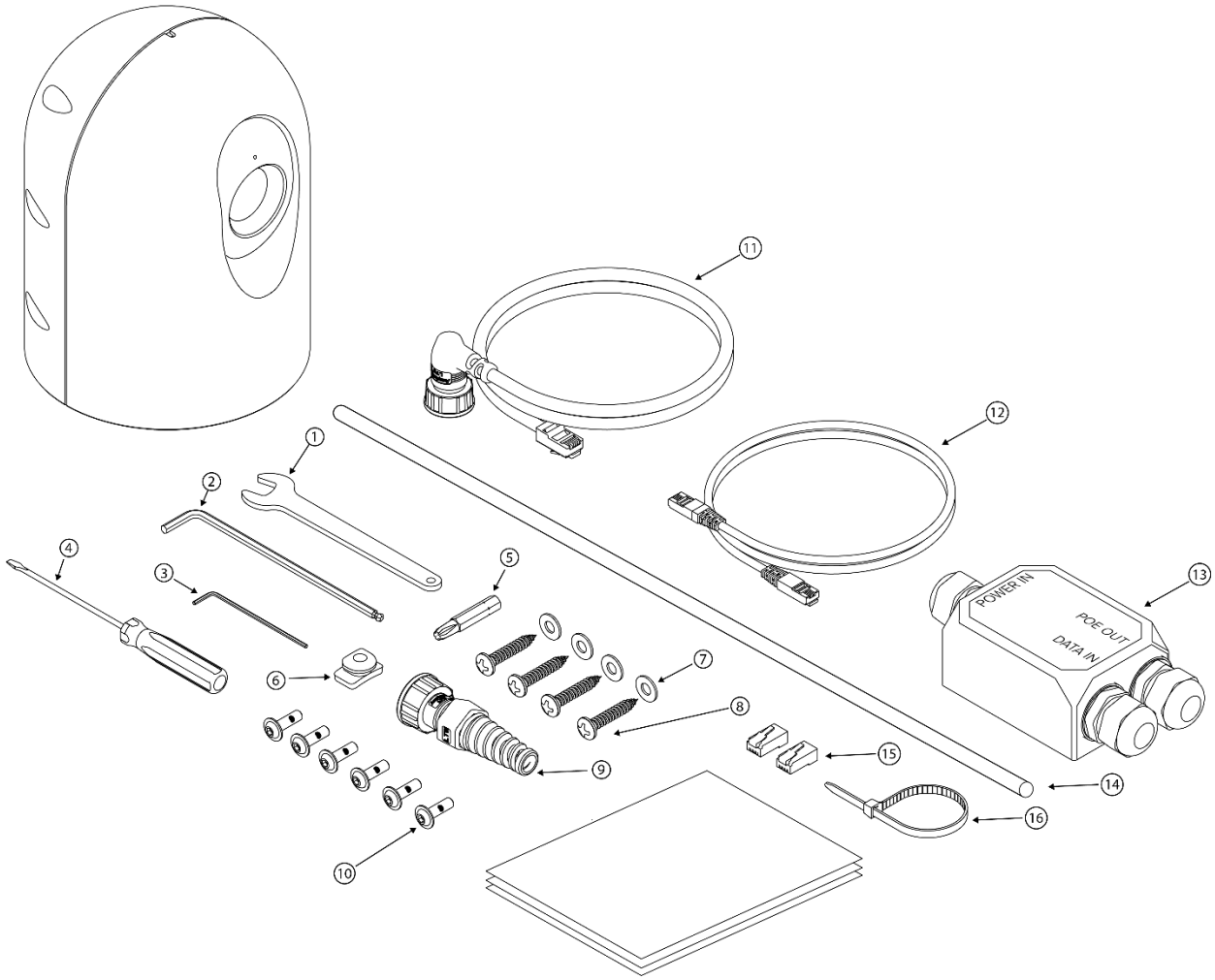
- Power cable for the PoE injector suggested 18 AWG/2 Duplex DC Wire and should be less than 6 ft in length (3m).

Figure 1: 18 AWG/2 Duplex DC Wire

- Ethernet is a CAT5e cable Shielded UTP/SFTP Straight-through/Type B pinout (T-568B.

Figure 2: CAT5e cable shielded UTP/SFTP

9 What's in the box?



Item	Description	Qty	Notes
1	open end wrench	1	7/16-inch
2	hex key (large)	1	3/16-inch
3	hex key (small)	1	2 mm
4	screwdriver	1	3/32-inch
5	#3 Phillips bit	1	1/4-inch hex shank
6	Ethernet cable grommet (side exit)	1	
7	#12 flat washer	4	#12 Flat Washer, 0.234" ID x 0.50" OD x 0.025–0.055" Thick, 316 SS
8	#12 mounting screw	4	#12 x 1.25" Phillips Pan Head Thread-Forming Screw, Type AB, 316 Stainless Steel
9	RJ45 DIY camera connector	1	AMPHENOL RCP-00AMMA-SLM7001
10	cover screw	6	M3x0.5x10mm cover screw
11	Camera cable	32 ft (10m)	AMPHENOL RCP5SM-SPG06M-SR7B10
12	Network ethernet cable	5 ft (1.5m)	Cat5e Shielded UTP/STP
13	PoE injector	1	IP67 , 9-36 V DC input , 47 V DC output
14	Power cable 18 AWG/2	5 ft (1.5m)	18 AWG Tinned Pure Copper Sheathed Double conductor Marine Wire
15	RJ45 terminals	2	CAT5e Shield
16	Cable zip tie	1	
17	Camera	1	NIGHTWAVE DIGITAL CRV-800D
18	Documentation	1	Mounting template, Safety warning, Quick install guide, lens removal warning

Table 1: NIGHTWAVE DIGITAL What's in the Box Contents

10 IMPORTANT: Read before Installation

10.1 For Optimal Results

For best results and to ensure proper installation of this device, installation by a professional installer is recommended. If professional installation is not possible, exercise caution with cable routing and power connections to avoid injury or damage. Use a 2 A fuse and connect the system to a dedicated circuit breaker or panel switch. Suggested length for the PoE injector power cable is less than 6 ft (3m). Before beginning the installation process, please read the following sections carefully.

10.1.1 Determine the Best installation location

1. Minimize obstructions to the camera's field of view.
2. Place the device at the highest possible location for optimal use.
3. Ensure that the device is placed more than 1m from any interference source (i.e. magnetic compass, radio, generator, motor).
4. We recommend testing the camera function in the proposed location/s before any holes are drilled. By connecting the NIGHTWAVE DIGITAL to your intended display/s via the PoE injector, you can confirm operation and evaluate placement before running any cable. This enables the field of view to be checked and any possible interference (e.g. from radar) to be eliminated before committing to placement.

NOTE: Image Optimization Behavior: Nightwave Digital uses NightIQ™ image-optimization software that adapts to lighting conditions in real time. Final image appearance may vary based on camera placement, field of view, and surrounding light sources. For best results, always test the camera in its proposed location before final installation.

NOTE: It is recommended to place the Nightwave out of the line of radar emissions, which sometimes can be achieved by elevating the radar and positioning the Nightwave close to the pedestal.

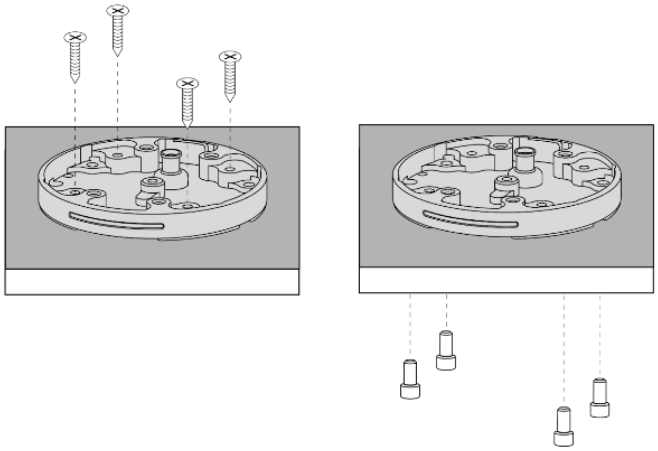


Figure 3: Mounting Options - Screws Orientation

10.1.2 Mounting Options

a. There are two options for base plate installation: (1) screw from under surface into base plate above OR (2) through base plate onto surface (see Figure 3).
b. There are two options on the device orientation: (1) install right-side-up OR (2) upside-down (see Figure 4).

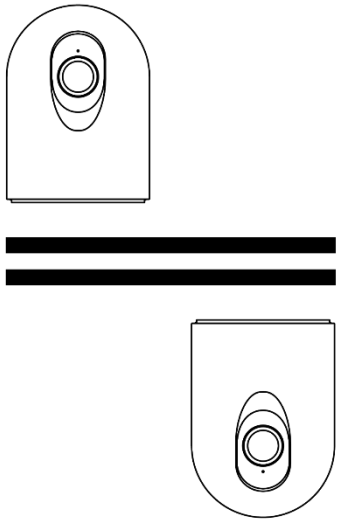


Figure 4: Camera Installation Options

10.2 Cable Routing Options

a. When routing the Ethernet cable, there are two options: (1) route cable vertically through baseplate and surface, OR (2) exit from the edge of the device, across the surface.
b. Ensure cable length and routing is adequate for installation location and free from interference (from radios, radar, generators, motors, etc.).

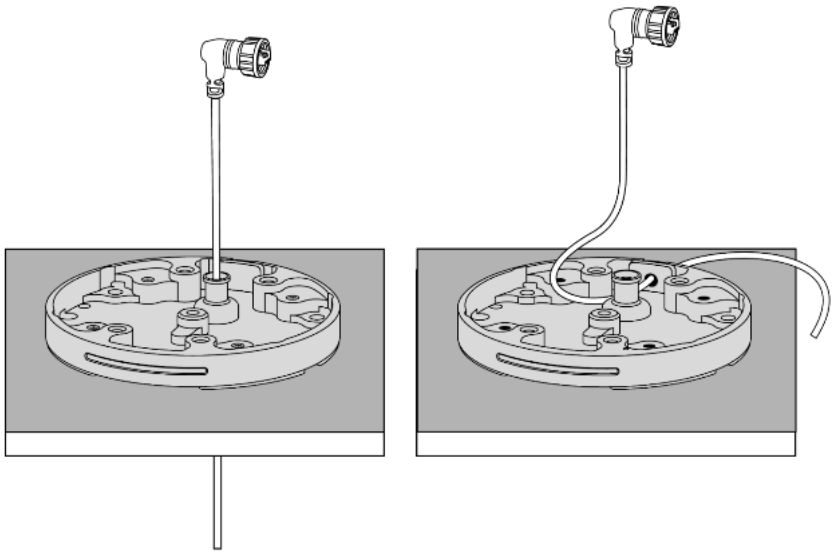


Figure 5: Cable Routing Options

11 Wiring Overview Diagram

The NIGHTWAVE DIGITAL is powered by an (IP67-rated) PoE injector. This has a voltage input range from 9 to 36 V DC, and a PoE output voltage of 48V DC.

The suggested power input cable for the PoE injector is 18 AWG/2 Duplex DC Wire. When installing the camera, ensure to install the camera into its own breaker or a panel switch using a 2 A fuse.

Lastly, check the network and power requirements of your display. Also note that an isolation coupler is required with some Garmin and other displays.

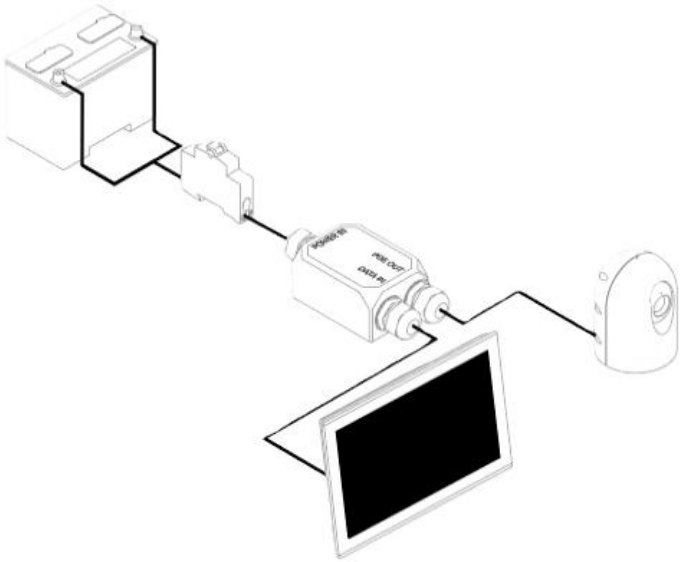


Figure 6: Wiring Overview Diagram

Figure 7: PoE Model I - Connection Diagram

NOTE: Please note that there is an "**X**" icon over the "AT" in Figure 7 and Figure 8. This is to highlight that it is normal for "AT" to not be lit.

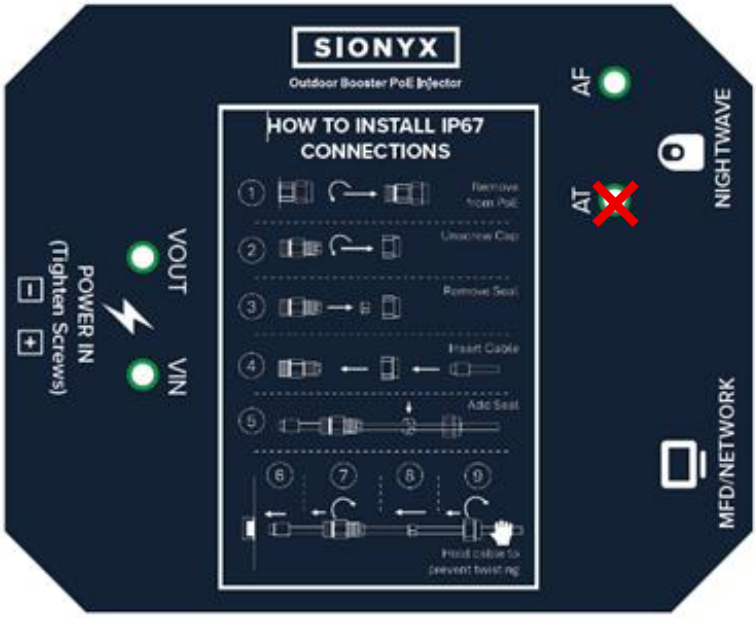


Figure 8: PoE Model II - Connection Diagram

12 Installation Instructions

12.1 Separate camera from base plate

1. Use the small Hex Key (3) to remove front and rear cover.

NOTE: There are 2 screws holding together for shipping. 6 additional screws included in box for final installation.

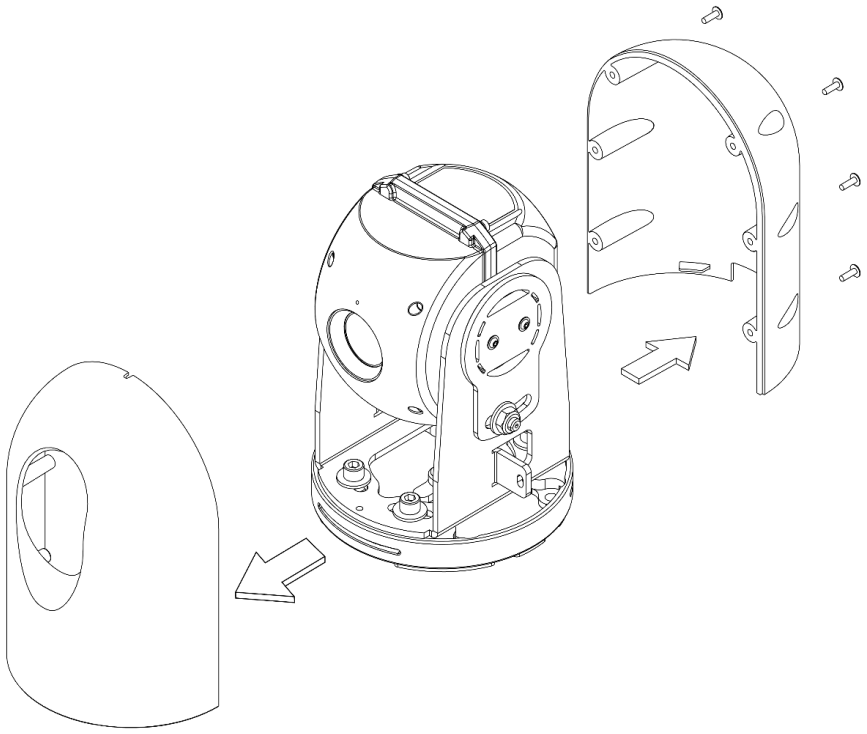


Figure 9: How to Remove Cover

2. Use Hex Key (2) to remove the base from the camera assembly.

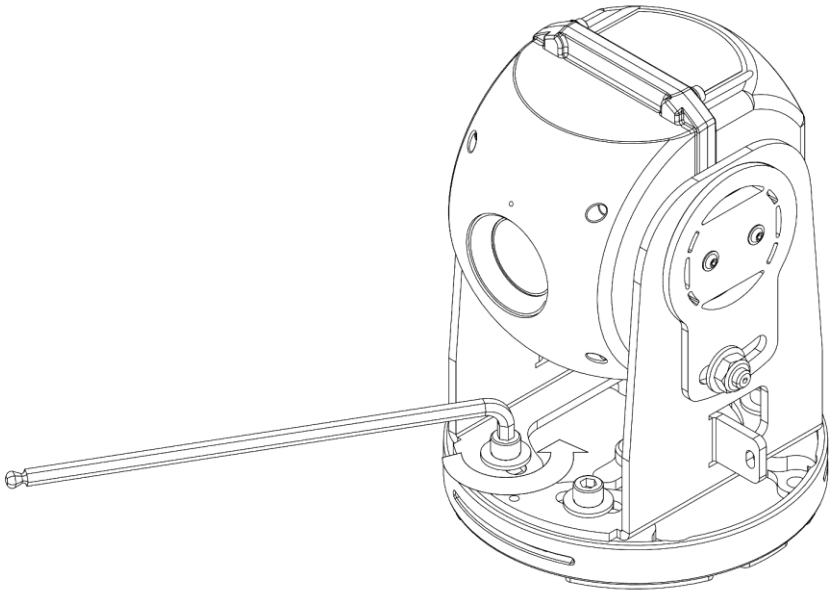


Figure 10: How to Remove Camera from Base

3. Through the completion of this process, you will have:

- The base of the camera with gasket and cable seals.
- The camera body with mounting washers and bolts.
- The covers with the cover screws.

12.2 Install base plate and route camera cable

Please read the “IMPORTANT: Read before Installation” section for placement selection and mounting recommendations.

1. Find a flat surface where the camera is going to be mounted and use the “mounting template” to mark where the holes or screws will go. This template can be found in the box or call 866-827-8237 if you need another template.
2. Regardless of the mounting screws used, it is important to route the camera cable correctly.

NOTE: The diagram below shows base mounting by screwing down into the structure of the vessel, with the camera’s network cable routed vertically down

into the boat (this could alternatively be routed horizontally out the side of the base).

CAUTION: that the base plate has a gasket that allows any water in the base to drain radially outwards from the camera. Therefore, DO NOT use sealant or caulk around the perimeter of the base.

There is also a cable seal that fits around the cable and within the large hole in the base.

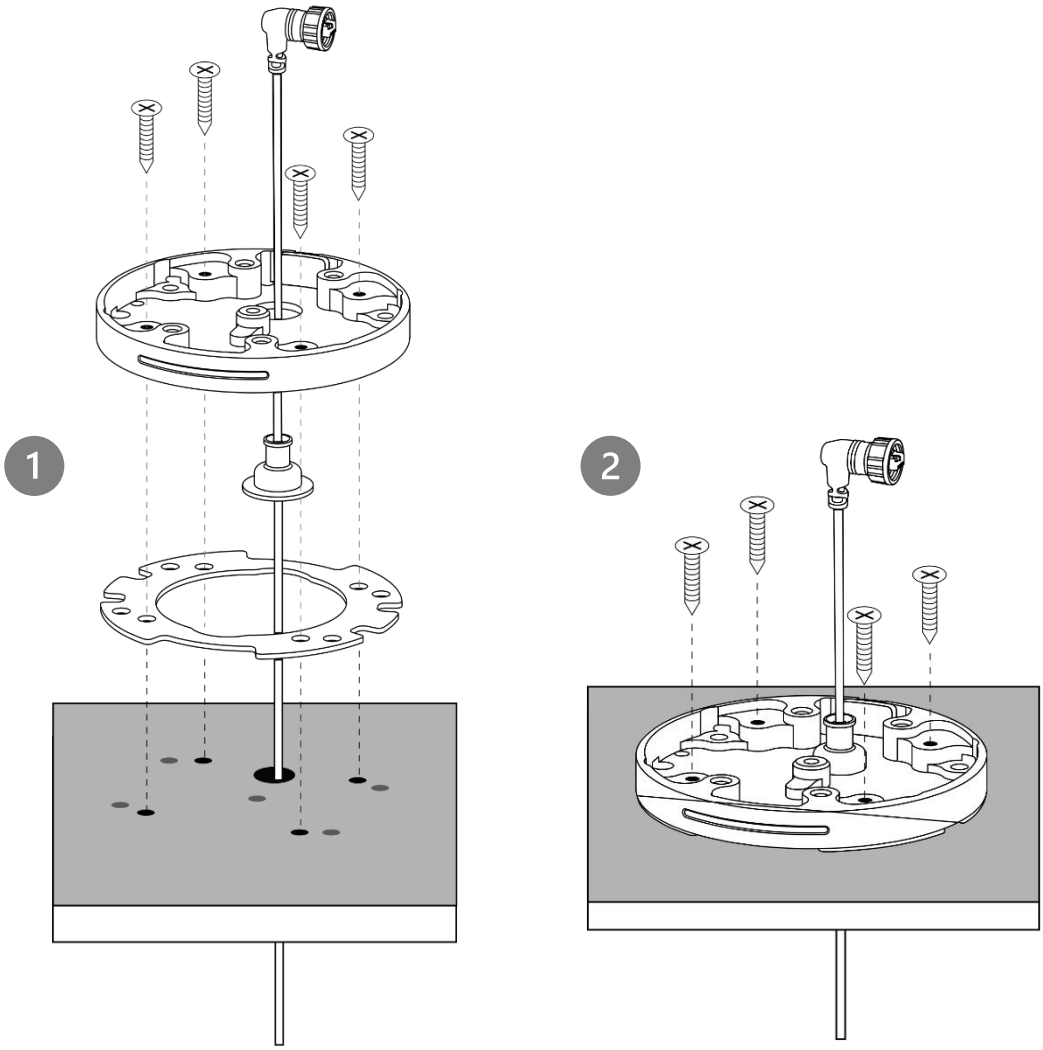


Figure 11: Organization of Installation Components. 1) Before 2) After

NOTICE: Before screwing the base of the camera into the surface, it is important to route the camera cable first.

4. Ensure that the NIGHTWAVE DIGITAL cable is a 10m length with one RJ45 connector at one end and a waterproof boot over the RJ45 plug at the other end.

NOTE: SIONYX suggests routing the cable from the waterproof side to the PoE injector, as shown in Figure 12. If the RJ45 makes it difficult to go through the holes, it can be cut and crimped after the routing has been completed.

5. Running the cable from the “top” means the cable goes through the base hole, ethernet seal, grommet, gasket, mounting surface or any mounting adapter.

Figure 12: Power Cable

6. Once the cable is routed, the base can be mounted as shown in Figure 13.

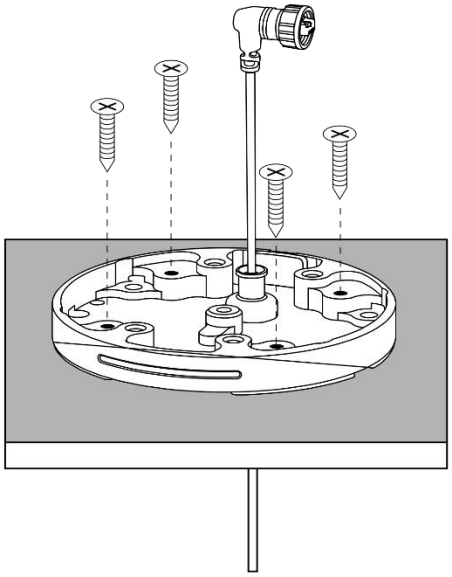


Figure 13: Completed Base Install

Figure 14: Installation Example of using a Plastic Adapter

NOTE: If there are elements blocking the field of view of the camera, like a light bar, consider raising the camera by using a pedestal or mounting raiser, as demonstrated in Figure 15, below.

Figure 15: Mounting Device on Raiser

12.3 Mount the camera assembly on the base

1. Mount the camera assembly into the base using the washer and screws from before.

NOTE: Do not lock the screws yet, since the field of view should be adjusted for the horizontal and vertical (tilt) angles. Do not install the covers yet.

2. The camera cable (with waterproof boot) goes through the inner part of the camera assembly. Make sure that when it is screwed to the base, the camera cable has already been routed properly. See Figure 16: Camera Cable Routing.

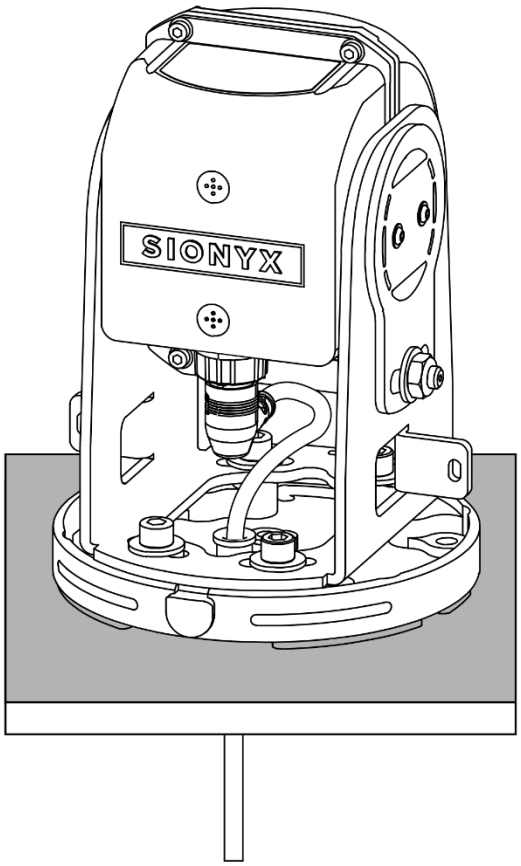


Figure 16: Camera Cable Routing Diagram

Figure 17: Camera Cable Routing Example

12.4 Power Over Ethernet (PoE) Injector Installation

The PoE injector is the power supply of the camera. The PoE is IP67 but it is convenient to install it in a dry area. If the boat already has a PoE, the camera cable can be directly connected to it. Skip this section if that is the case.

NOTE: Check the network and power requirements of your display. An isolation coupler is required with some Garmin and other displays.

12.4.1 Input/Output

- The 18 AVG/2 power cable connects the PoE injector to the boat battery or power distribution. The recommendation is to use a 2 A fuse and connect the PoE injector to a breaker or panel switch.
- The camera cable RJ45 end plugs into PoE OUT or TO CAMERA port.
- The Boat's network cable goes to DATA IN or to MDF port.

Figure 18: PoE Injector Installation Diagram

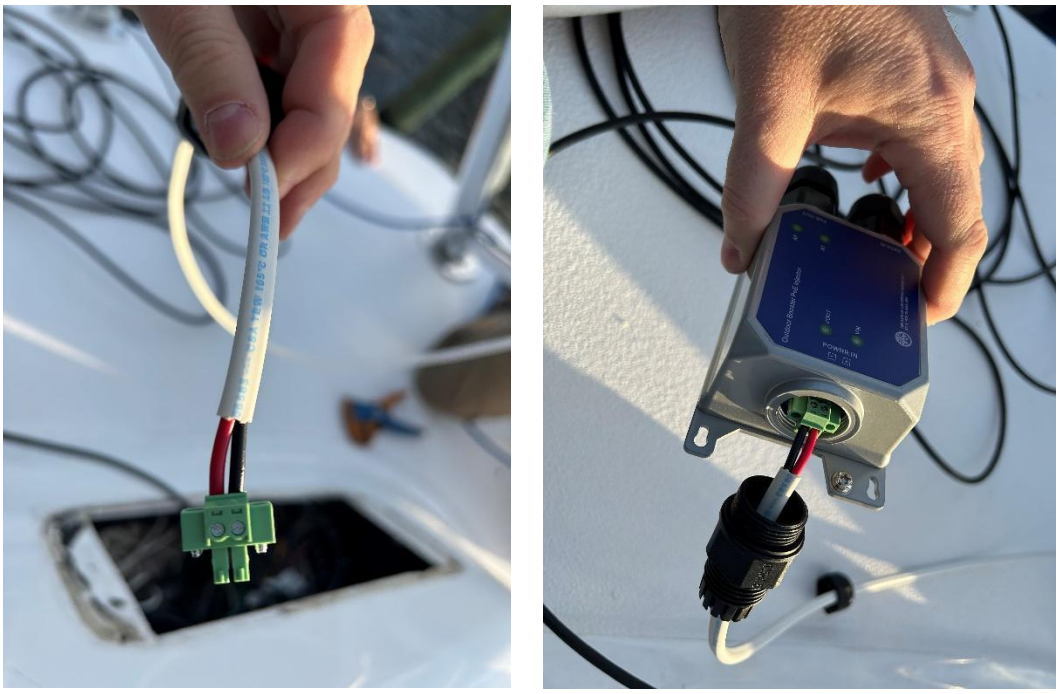


Figure 19: Example of a Final Layout of Installation

12.5 Connecting to Video

The Camera's video feed can be accessed through the SIONYX mobile app or a compatible boat multifunction display (MFD). Refer to the User Manual for detailed, step-by-step instructions.

1. After installation, there will be a "SIONYX" Icon on the MFD.
2. Click the SIONYX icon. This brings you to the Tool-Panel

Figure 20: Accessing Camera Settings using SIMRAD MFD

Figure 21: SIMRAD Camera's Tool Panel

3. In the Tool-Panel, navigate to the “settings” and select “Image>Orientation” to make the necessary changes.

If the camera has been installed up-side-down or facing backwards, use the following controls to re-adjust the orientation of the video.

In the tool panel, navigate to the “settings (wrench)” and use the controls available.

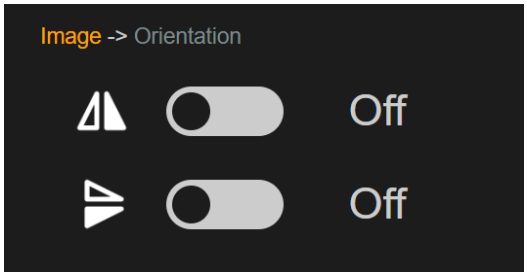


Figure 22: Tool Panel Settings: Image - Orientation

4. **Find the live view** through the MFD Video Source (not the SIONYX icon on the main page). Different MFDs use different icons, and some require manual camera setup prior to use. Refer to the MFD user manual for instructions on how to connect IP cameras. The NIGHTWAVE DIGITAL User Manual also includes some examples of configurations for reference.

Figure 23: Accessing Video Feed Using Garmin MFD

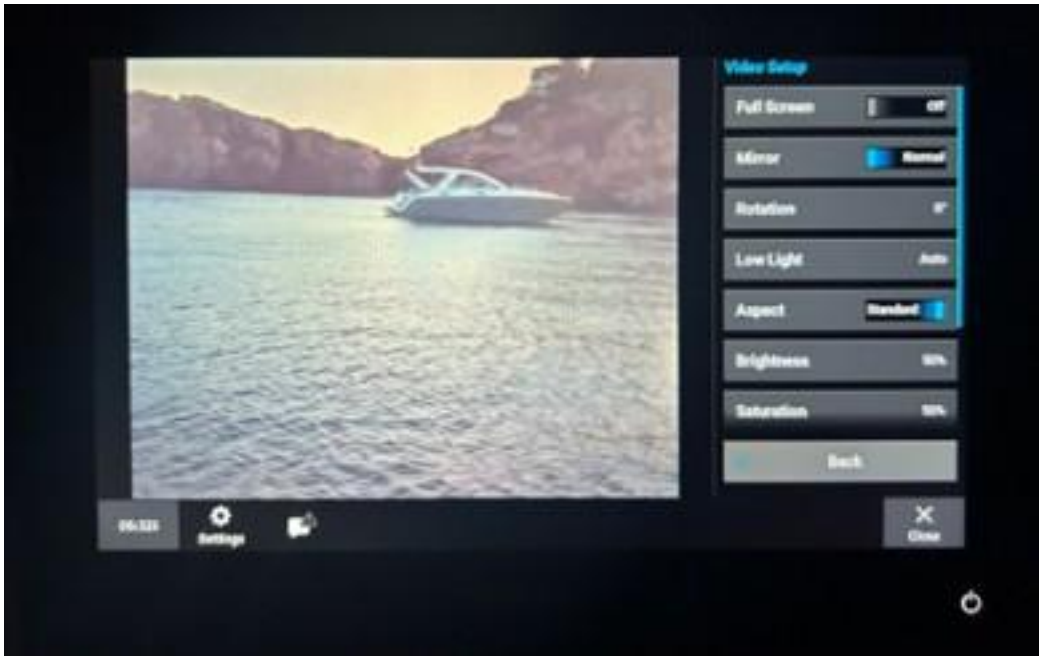


Figure 24: Accessing Video Feed using GARMIN MFD

12.6 Manual Set TILT/PAN

Once the video is running, perform the field of view adjustments.

12.6.1 Set TILT

1. Adjust the vertical angle of the camera. See Figure 26.
2. Lock the position by tightening the locking-nuts at both sides of the camera body. See Figure 27.

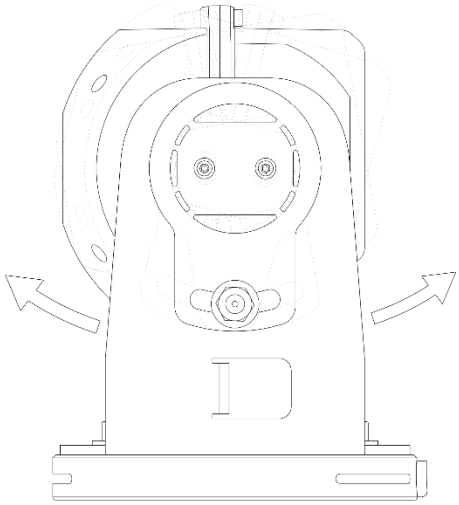


Figure 26: Tilt Adjustment

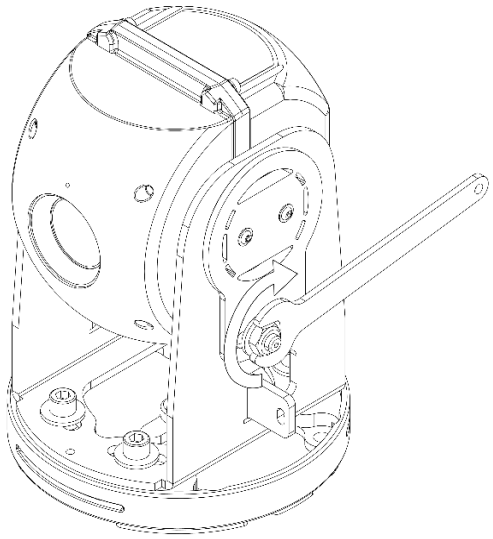


Figure 27: Tightening TILT Base Nuts

NOTE: A recommended position displays a small portion of your bow, to serve as a reference later.

12.6.2 Set PAN

1. Adjust the horizontal angle of the camera.
2. Lock the position by tightening the base nuts as shown in Figure 28.

NOTE: It is suggested that the horizontal center of the video is aligned with the center of the bow.

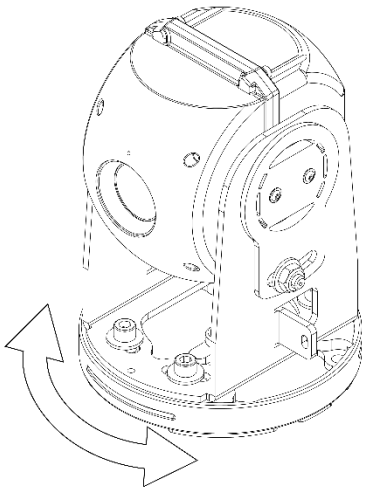


Figure 28: Tightening PAN Base Nuts

12.7 Secure with Cable Tie

When routing the camera cable vertically through the base use the cable tie to seal the ethernet cable grommet. This cable tie will avoid potential water seepage, the cable into the dry area of the boat. See picture below:

Figure 29: Cable Zip Tie Installation

12.8 Installing Covers

Once the unit has been properly oriented and tested, it is time to put the covers back onto the device. Before installing the covers, check that all screws and bolts are tight and secure (locked).

Use the “cover screw” (item 10) to install the covers. See Figure 30.

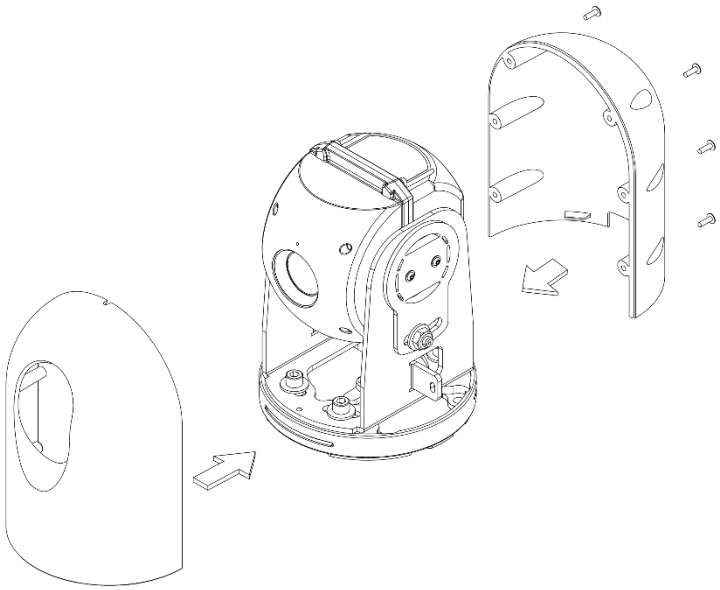


Figure 30: Cover Screws Diagram

13 Dimensions

13.1 Camera Size

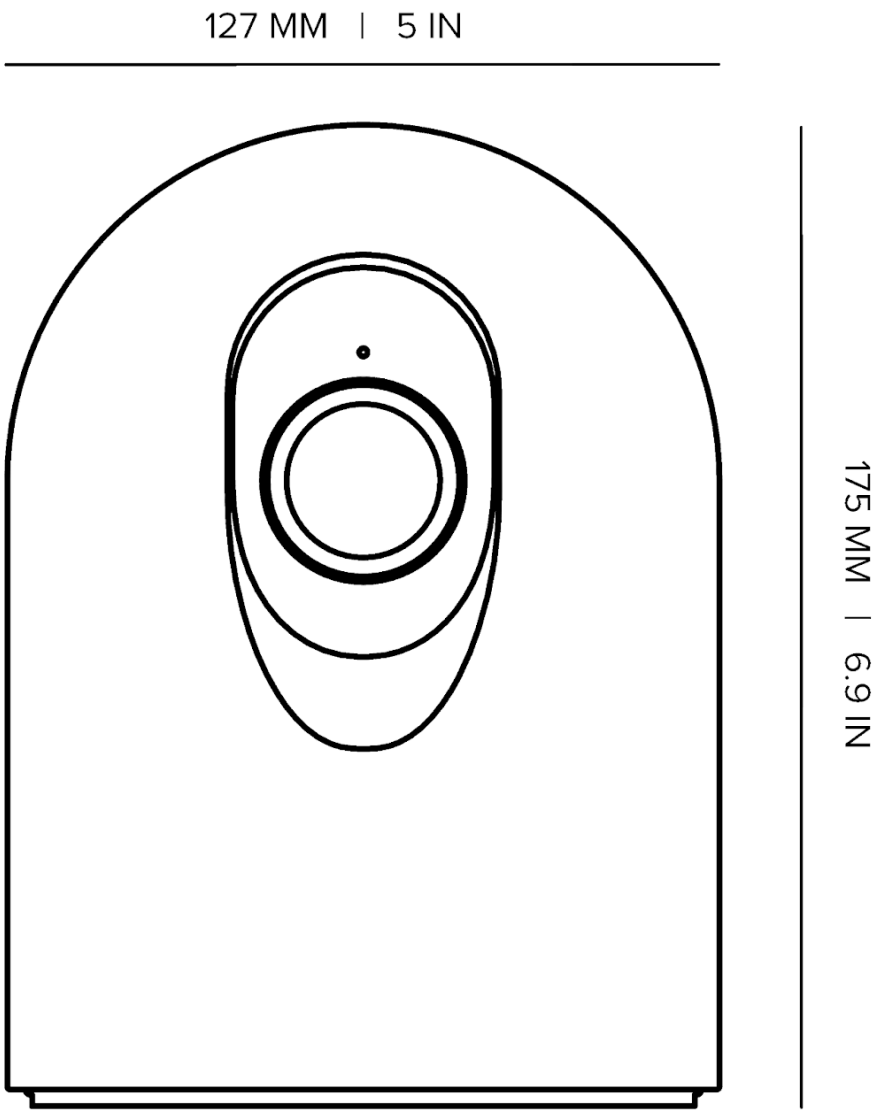


Figure 31: Camera Size and Dimensions

13.2 Mounting Holes Dimensions

13.2.1 BOLT UP FROM FLOOR DIAGRAM

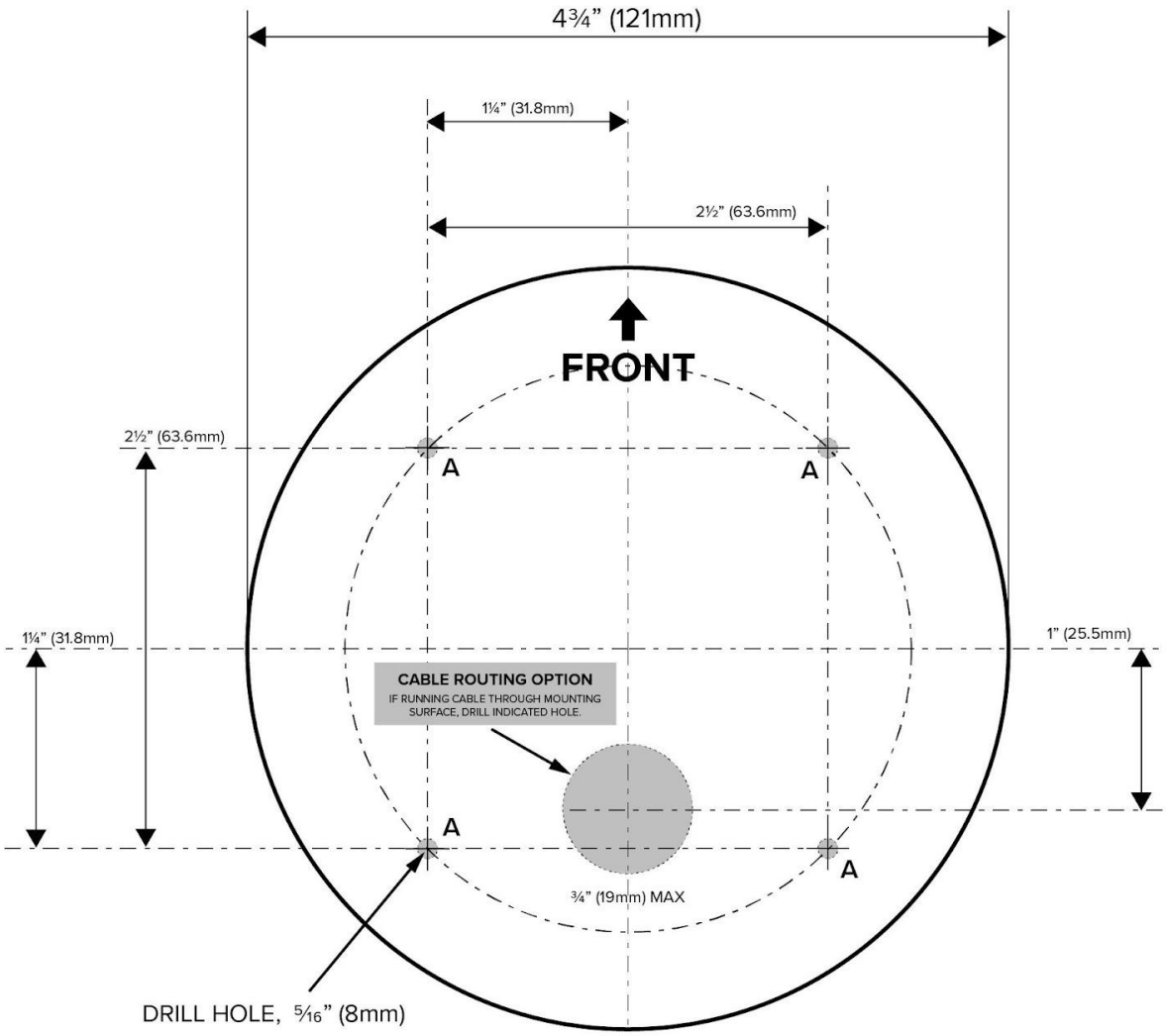


Figure 32: Mounting Hole Dimensions - Bolting up from Floor Diagram

13.2.2 SCREW INTO FLOOR DIAGRAM

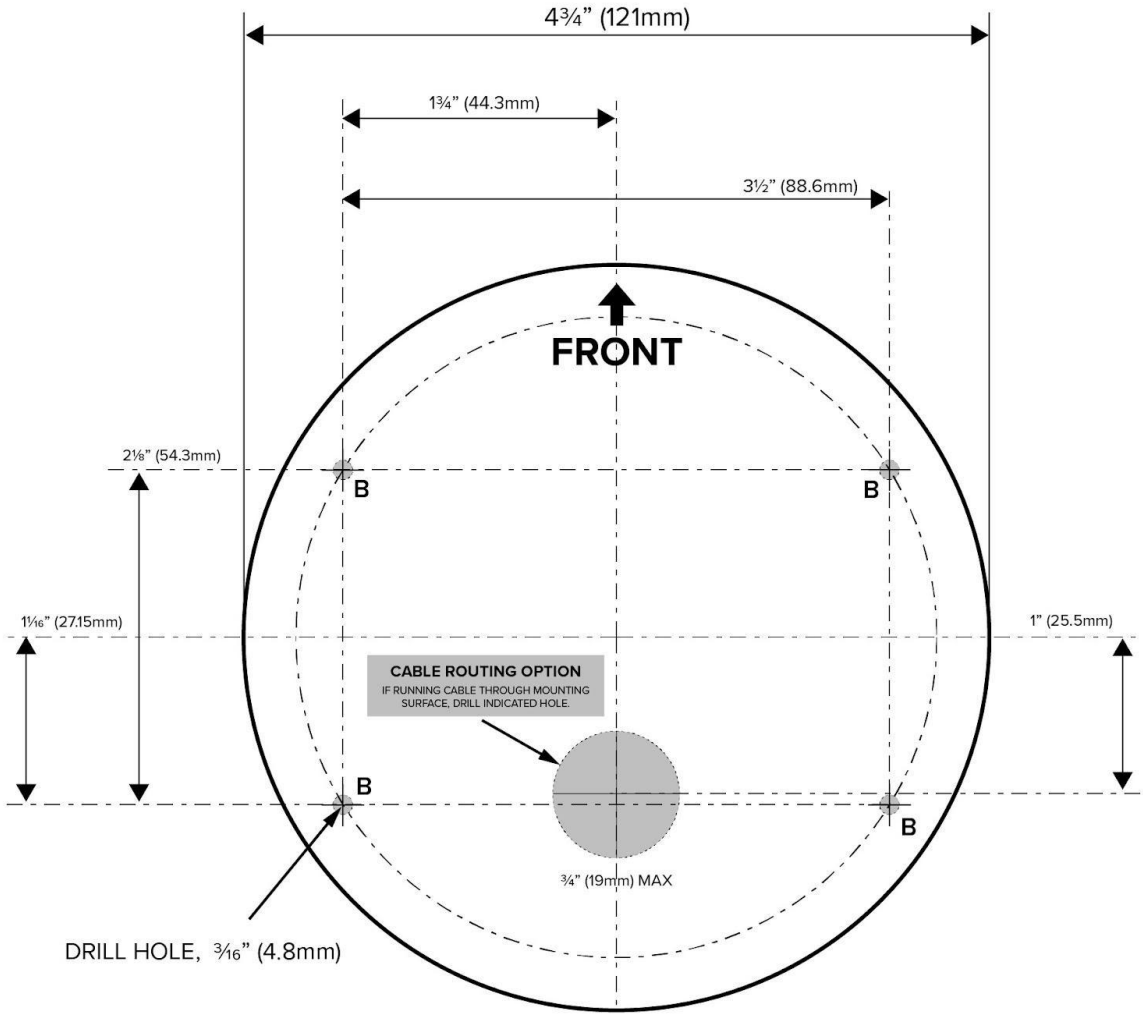


Figure 33: Mounting Hole Dimensions- Screwing into Floor Diagram

14 LED Color Code

Color	Status
Purple	Camera starting
Blinking Red	Camera is waiting for the wired network
Solid Red	Camera is ready
Blue	Camera is streaming video
Blinking Blue/Red	Camera is upgrading

Table 2: LED Color Code and Status

15 Service Label

In the documentation package there are two stickers that have the Serial Number, MAC address and the Wi-Fi password (see Figure 34). It is convenient to keep them in a safe place for the future.

Figure 34: Example of Service Label