

SEA.AI 

SENTRY

INSTALLATION MANUAL



SEA.AI Professional Services

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1 Introduction

1.1 System Overview and Specifications



Specifications	
Thermal Camera, Far Distance	640 x 512 px, 8° HFOV 55 mm Lens
Thermal Camera, Near Distance	640 x 512 px, 32° HFOV 14 mm Lens
RGB Camera, Far Distance	2560 x 1944 px, 9.3° HFOV 35 mm Lens
RGB Camera, Near Distance	2560 x 1944 px, 39.2° HFOV 8 mm Lens
Pan, Tilt	360°, ±20°
Dimensions (L x W x H)	366mm x 257mm x 226mm
Weight	6.14 kg
Power	24 Vdc and 60W

1.2 Product Registration

SEA.AI systems require periodic updates to maintain optimal performance. To ensure your new system operates reliably, please register it online before initial use. Visit www.sea.ai/start-sentry and follow the provided instructions to initialize the Sentry and maximize its productivity.

Note: Product registration is mandatory before the first startup.

1.3 Parts Included

F06123 Basic Installation Kit

F06100	Sentry Unit
A02871	DC-DC Converter 24/24-12
A02233	Power Cable Sentry Gen2
A02232	Data Cable Sentry Gen2
A02873	Spare Fuse
A00630	Ethernet Coupler
Document	Sentry User Manual

F06124 Professional Installation Kit

F06100	Sentry Unit
A02871	DC-DC Converter 24/24-12
A02233	Power Cable Sentry Gen2
A02232	Data Cable Sentry Gen2
A02873	Spare Fuse
A00630	Ethernet Coupler
Document	Sentry User Manual
F07503	N2K Ethernet Gateway
F06130	Joystick
A03040	NMEA Backbone 4 Drop
A03041	NMEA Resistor Male
A03042	NMEA Resistor Female
A03043	NMEA Power Cable with Fuse
A03044	NMEA 2000 Drop Cable 3m (m/f)

1.4 Tools and Equipment Needed

- Mounting screws (4X) – Refer to Chapter 2.4 for more details.
- Power drill with appropriate drill bit
- Pen
- Tape Measure or ruler
- Leveler
- Computer
- Ethernet Router

2 Installation

2.1 Mounting Guidelines

Optimal Mounting Position:

- Choose a mounting location with the most unobstructed field of view possible. Obstructions such as boat structures, antennas, radars, and flags will reduce Sentry's field of view and performance.

Elevation:

- Mount Sentry as high as possible on stable and rigid support. The higher the installation, the further the camera can detect objects and better predict distances. The minimum height should be 5 meters (17 feet).

Thermal Detection:

- Avoid placing Sentry where hot surfaces (e.g., exhaust pipes) are within its direct field of view to prevent interference with thermal detection.

Vibration Considerations:

- Select a mounting position free from strong vibrations, such as those caused by engine vibrations, to ensure stable performance.

Handling:

- Do not tilt or turn the Sentry unit by hand.

Mounting Orientation:

- Mount Sentry only in an upright position on a flat and horizontal surface.

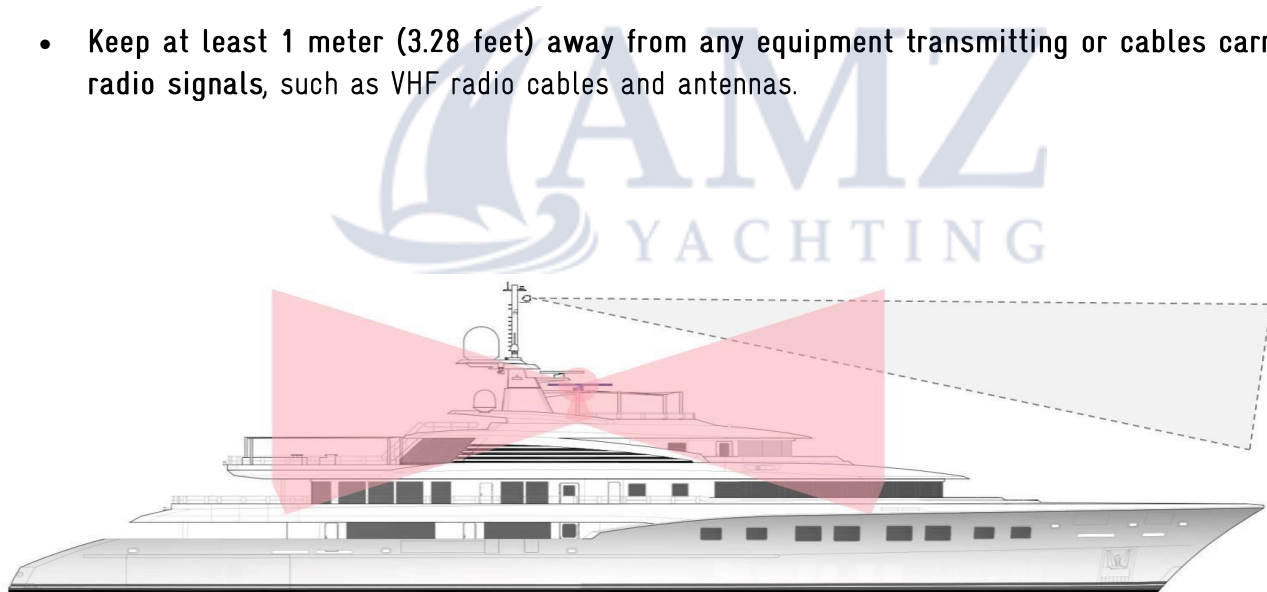
2.2 EMC Installation Guidelines

SEA.AI Sentry complies with relevant Electromagnetic Compatibility (EMC) regulations to minimize both the emission of electromagnetic interference and its impact on system performance. Proper installation is essential to maintain optimal EMC performance.

In areas with high levels of electromagnetic interference, minor disruptions may occasionally occur. If this happens, a notification will appear as a popup message indicating a potential reduction in image quality. To mitigate this, increase the distance between the Sentry product and the source of interference. For additional assistance or alternative mounting options, please contact Support.

Recommended Installation Guidelines for Best EMC Performance:

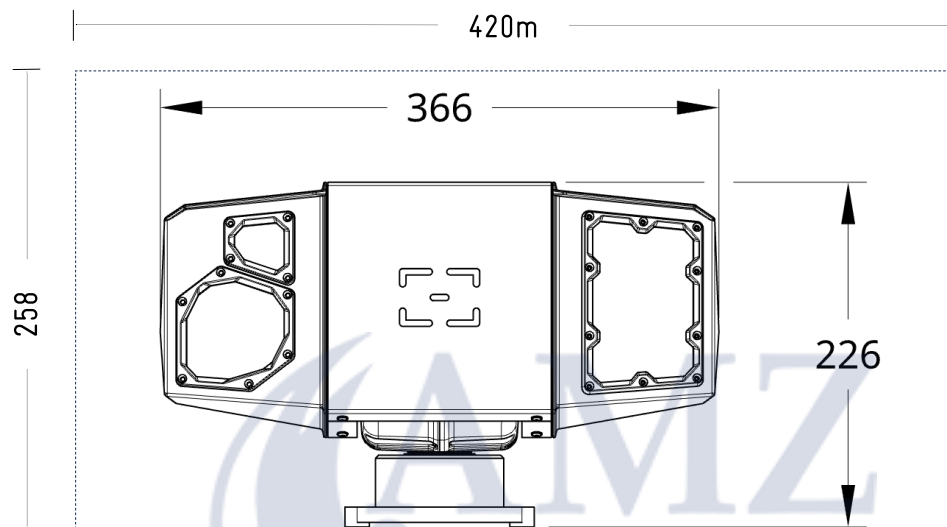
- **Maintain a minimum distance of 1 meter (3.28 feet) from any radiant element of an S-band (or lower frequency) radar.**
- **Ensure at least 2 meters (6.56 feet) of clearance from the path of a radar beam.** Radar beams are assumed to spread **20 degrees above and below** the radiant element.
- **Keep at least 1 meter (3.28 feet) away from any equipment transmitting or cables carrying radio signals, such as VHF radio cables and antennas.**



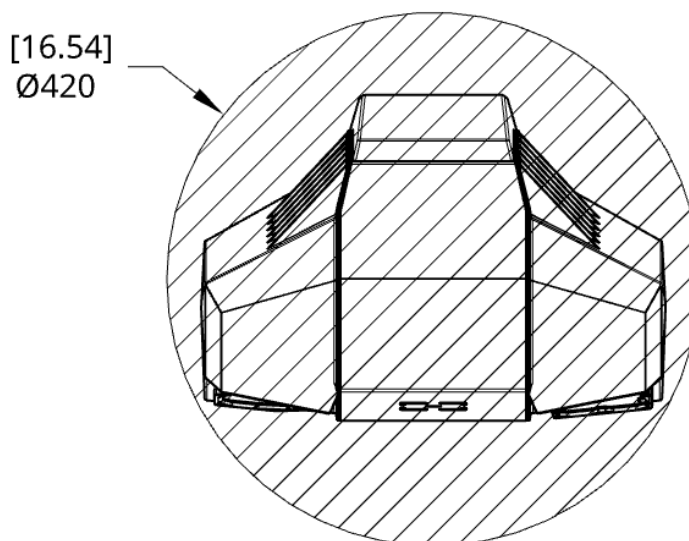
2.3 Clearance

SEA.AI Sentry system is capable of pan and tilt movements, where pan is a horizontal movement and tilt is a vertical movement. The pan movement allows for continuous 360° operation, and the tilt movement allows for a of $\pm 20^\circ$ operation.

Ensure a minimum clearance for movement by providing a cylindrical space with a diameter of 420 mm and a height of 258 mm around the rotation axis. The clearance should be measured from the bottom base surface of the unit.



Installation
Clearance



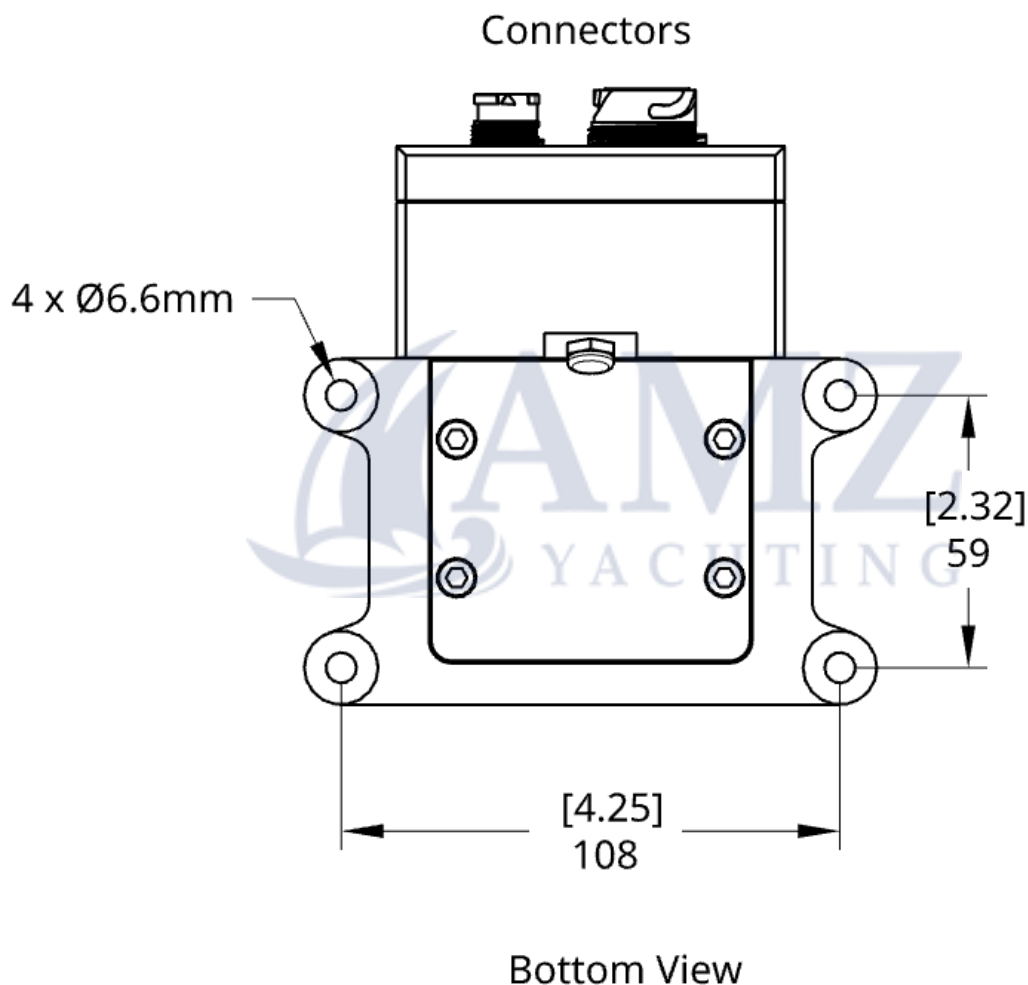
Top View



WARNING: HITTING AN OBSTACLE WHILE THE SENTRY SYSTEM IS IN MOTION COULD CAUSE A MOUNTING OR OTHER STRUCTURAL FAILURE THAT COULD RESULT IN INJURY OR DEATH.

2.4 Mounting and Hole Pattern

The basic mounting pattern uses four screws. The mounting holes are not tapped. All four mounting screws must be used, and the mount must be strong to support the weight of the system as well as any additional forces exerted on it.



3 Wiring

The Sentry system has two harnesses; a power harness and data harness that connect to the back of the unit.

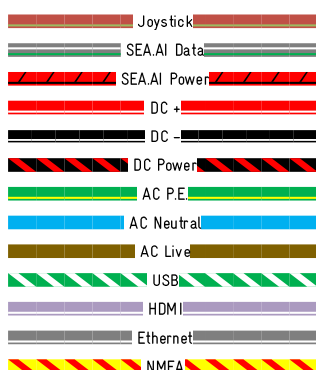
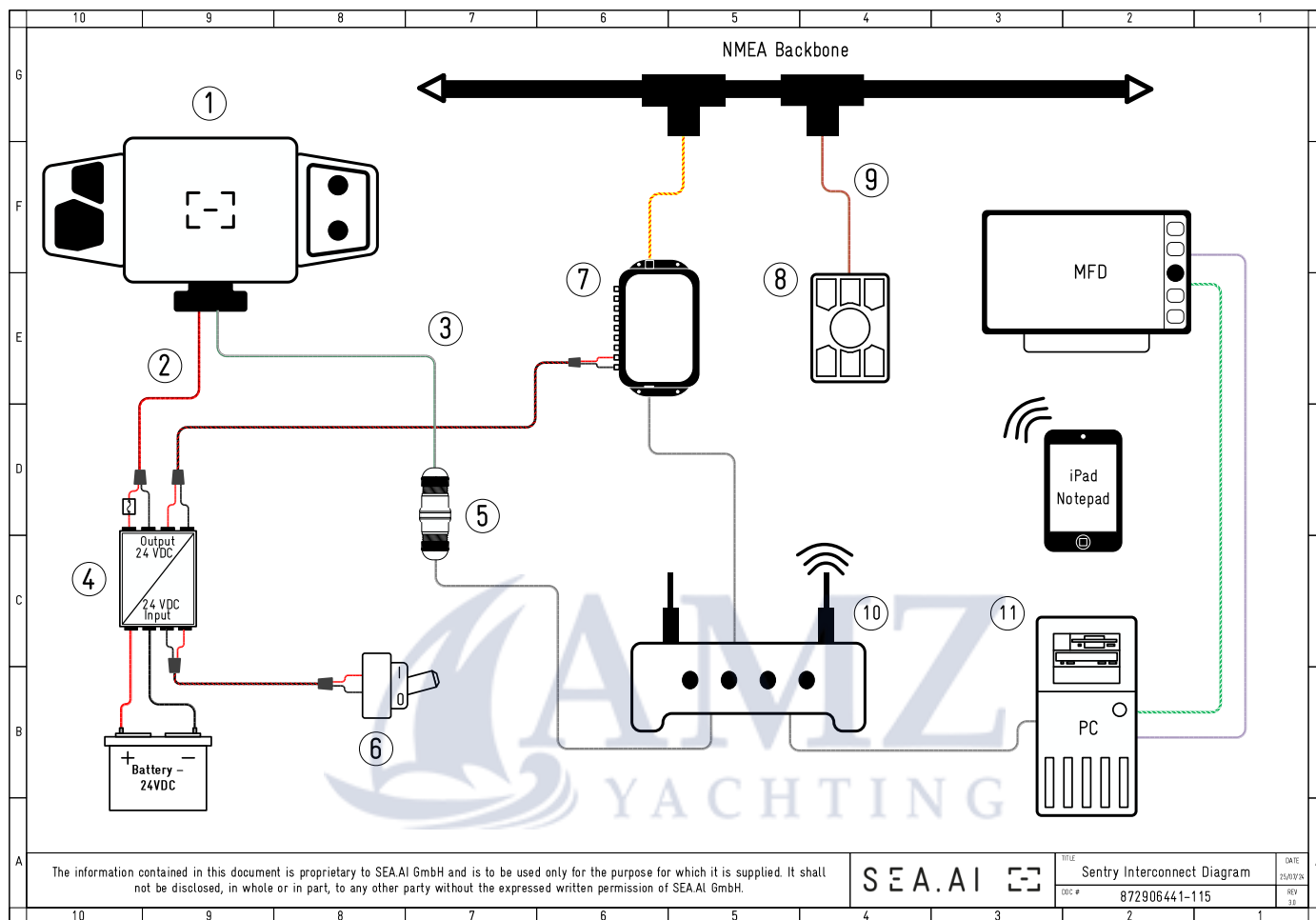
3.1 Wiring Guidelines

- Avoid kinking or over-bending the cables, and do not route cables over sharp edges or burrs.
- Use adequate strain relief to prevent excessive tension on the cables and connectors.
- Install cables in a manner that prevents water from flowing to the connectors.
- Protect the cables from any mechanical interference.
- Secure the cables properly and provide service loops and drip loops.
- Ensure there is enough space around the connectors for easy connection and disconnection of cables.
- Use a dedicated circuit breaker and fuse for Sentry.
- Ensure all electrical connections are properly sealed and waterproof to prevent corrosion and short circuits.
- Use marine-grade cables and connectors that are rated for harsh maritime environment.
- Route cables away from high heat sources and moving parts to prevent damage.
- Regularly inspect cables and connectors for wear, corrosion, and secure connections, especially in high vibration areas.
- Use color-coded and labeled cables for easy identification and troubleshooting.
- Follow all relevant maritime regulations and standards for electrical installations.



WARNING: INCORRECT POLARITY CAN DAMAGE THE SYSTEM. ENSURE THE POWER IS OFF BEFORE STARTING THE INSTALLATION.

3.2 Interconnect Diagram



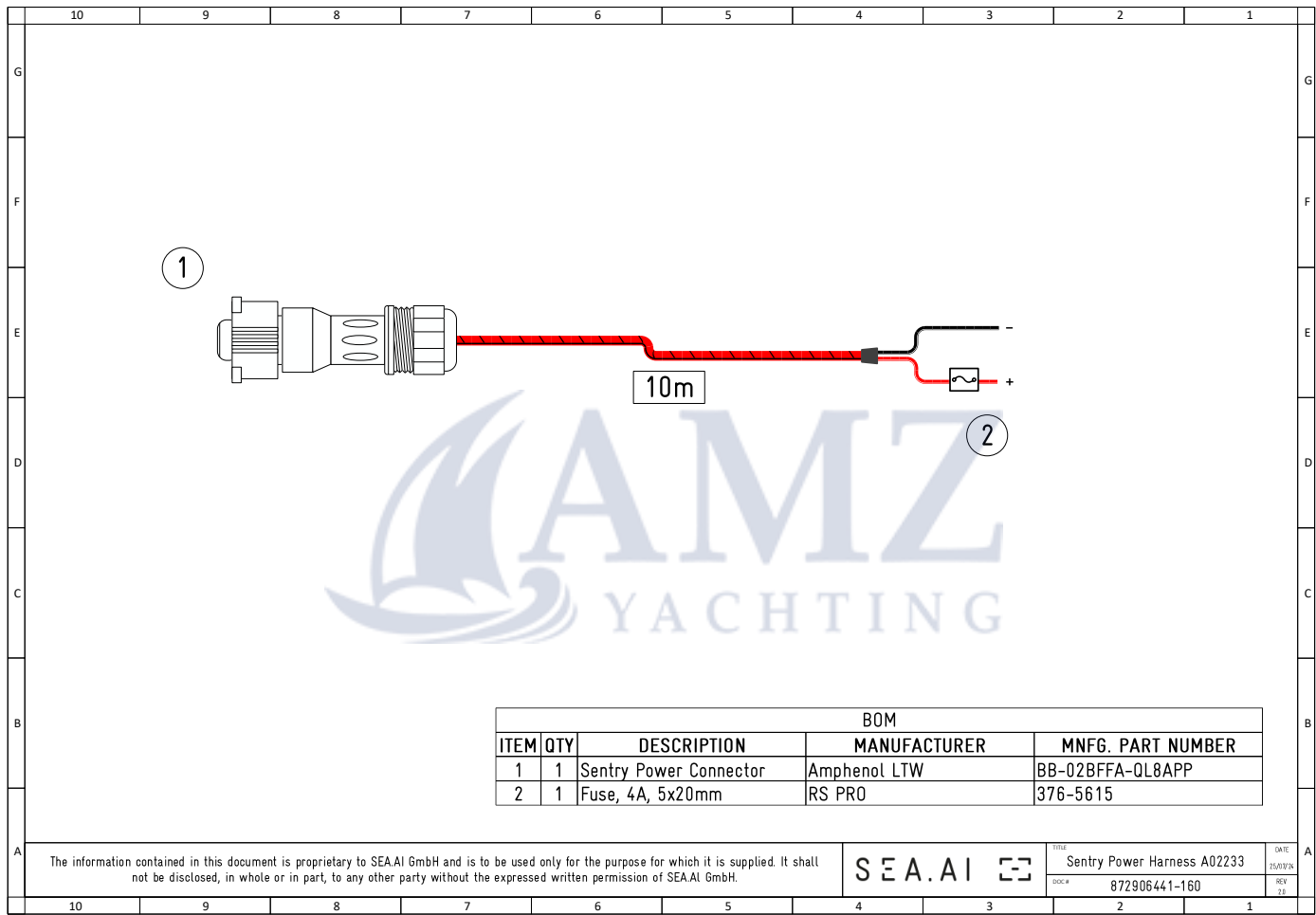
LEGEND

BOM			
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	SENTRY UNIT	F06100
2	1	SENTRY POWER HARNESS	A02233
3	1	SENTRY DATA HARNESS	A02232
4	1	DC-DC CONVERTER 24/24-12	A02871
5	1	ETHERNET COUPLER	A00630
6	1	SENTRY POWER SWITCH	TBD
7	1	N2K ETHERNET GATEWAY	F07503
8	1	JOYSTICK	F06130
9	1	JOYSTICK HARNESS	A02875
10	1	WIFI ROUTER	N/A
11	1	FANLESS COMPUTER	N/A

For the above Interconnect Diagram, please refer to Document: [Sentry Interconnect Diagram](#).

NOTE: SEA.AI does not supply items 10 and 11 but can recommend the manufacturers and models.

3.3 Power Harness



For the above Drawing, please refer to Document: [Sentry Power Harness A02233](#).

3.4 Power Connection

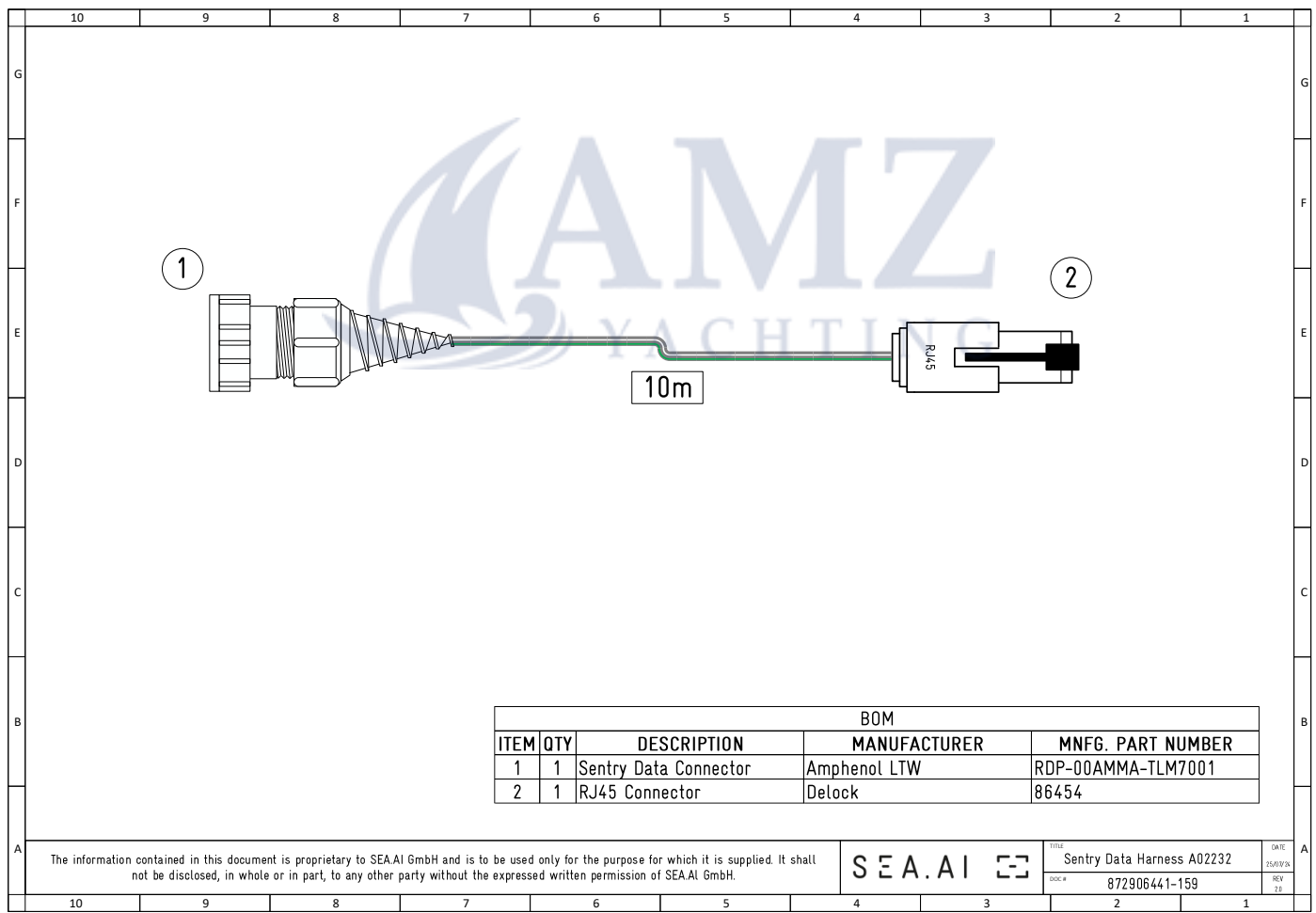
SEA.AI Sentry must be powered with 24V DC and a minimum 4A supply.

NOTE: The Sentry unit does not have an on/off switch, however, an on/off switch can be incorporated with DC-DC converter (see below for more details).

The Sentry installation kit includes item A02871, which is Victron's "Orion-Tr 24/24-12 (280W)" galvanically isolated DC-DC converter. This converter features a remote on/off terminal that can be operated with a low-power switch included in the installation kit. This setup controls the converter's output, eliminating the need for a high-current switch and allowing you to easily turn the Sentry on or off.

The Sentry Power Harness (A02233) is 10 meters long and should not be extended. If there is a need to increase the distance between the Sentry and the power source, it is recommended to extend the power line between the power source and the DC-DC converter. Be sure to consider voltage drop and appropriate wire gauge when making this extension.

3.5 Data Harness



For the above Drawing, please refer to Document: [Sentry Data Harness A02232](#).

3.6 Data Connection

The SEA.AI Sentry communicates via Ethernet within a local area network (LAN). It must be connected to a suitable LAN directly using the Sentry Data Harness (item A02232), which connects the Sentry to the Wi-Fi router.

The Sentry Data Harness (A02232) is 10 meters long and can be extended using the Ethernet Coupler (item A00630) included in the installation kit. For the extension, use an Ethernet cable of at least Cat 5e (not supplied). Ensure that the total Ethernet cable length does not exceed the maximum distance of 100 meters (328 feet) to comply with Ethernet standards.

NOTE: For optimal performance, the Sentry requires a minimum 100 BASE-T (100 Mbit/s bandwidth) connection.

Network Information

Dynamic IP access link: <http://sentry.local/>

Static IP access link: <http://192.168.1.191/>

Fixed IP address: 192.168.1.191

Gateway: 192.168.1.1

NMEA 2000

To read additional boat information from marine sensors (e.g., speed, GPS position, heading, etc.) via SEA.AI Sentry's Ethernet port, the boat's bus information must be available on the LAN or Wi-Fi network using the TCP/IP or UDP protocol.

NOTE: The main functionality of SEA.AI Sentry is fully independent of any additional sensors and can be used without NMEA2000 integration. However, it is recommended to connect SEA.AI Sentry with Ethernet Gateway for enhanced capabilities.

The NMEA2000 – Ethernet Gateway "Shipmodul MiniPlex-3E-N2K" is now supported (item F07503). More detailed configuration information is provided below in this document.

4 Control Devices and Clients

To run the SEA.AI Sentry user interface (UI) and control the unit, a suitable control device, such as a PC or tablet, must be connected to the same local network as the Sentry. For compatible devices and minimum hardware requirements, see below.

WebApp

The WebApp is fully compatible with the latest Chrome and Safari versions.

Link: <http://{IP}/>

Full compatibility requirements:

- HTMLAudioElement
- WebSocket API
- WebRTC API (Web Real-time Communication)
- MediaStream API (using VP9 encoding)
- XMLHttpRequest API

Android and iOS

The Android and iOS applications rely on WebView and WKWebView respectively. These components are required for rendering web content within the application environment.

Minimum requirements:

- Android 6.0 (Marshmallow)
- iOS 17.4

Windows and MacOS

The Windows and MacOS applications are rendered by Chromium (version 120.0.6099.56) web engine.

Minimum requirements:

- Windows 10
- MacOS 10.15 (Catalina)

[Download MacOS App.](#)[Download WindowsOS App.](#)

4.1 MFD Connection

The Sentry system can be connected to a multifunction display (MFD) and controlled using the MFD's touch capabilities. To do this, you will need to connect both HDMI and USB cables from the computer to the MFD.

Below is the list of supported MFD.

NOTE: SEA.AI cannot guarantee that all the OEMs latest software updates will be compatible with Sentry.

<u>OEM</u>	<u>Model(s)</u>
Garmin	84xx series
Raymarine	Axiom XL series
Furuno	TZT16F / TZT19F / TZT2BB
Simrad	NS0 series

5 System Setup

5.1 First start up

Power on the Sentry by switching on the dedicated Sentry circuit breaker as described in the "Power Connection" chapter.

NOTE: Booting up the system and loading the SEA.AI software and database can take up to 3 minutes. The user interface will only be available once the start-up process is complete.

Power on and start up all necessary accessories, such as the PC or tablet and their interfaces (e.g., screen, MFD, trackball, keyboard, etc.).

In the browser, type in either: <http://sentry.local/> or <http://192.168.1.191/> to access UI (below).

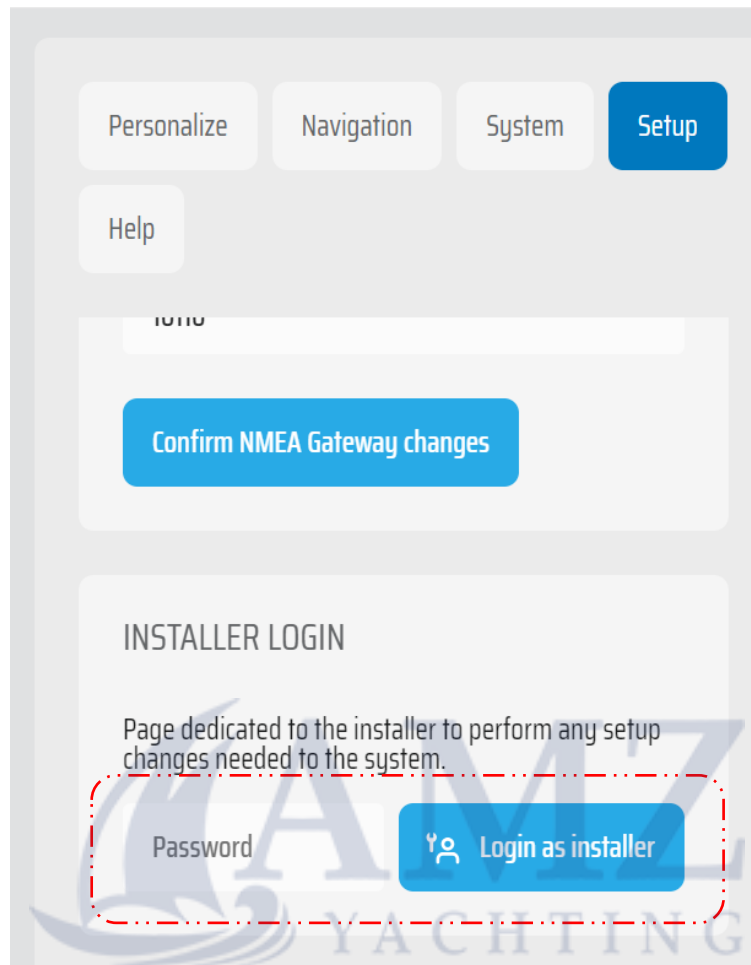


5.2 Setting Parameters

For an optimal alarm functionality and accurate distance estimation, it is necessary to set the exact parameters for mounting height and the distance from unit to the bow.

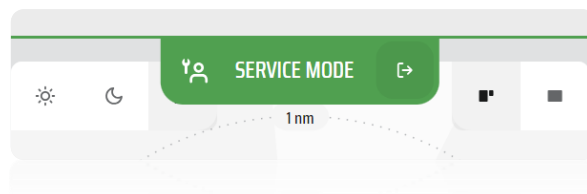
NOTE: Mounting height is the distance in meters between the water surface and the bottom base of the Sentry unit.

To set these parameters, go to Settings. Select the Setup tab and scroll down to the *Installer Login* section.

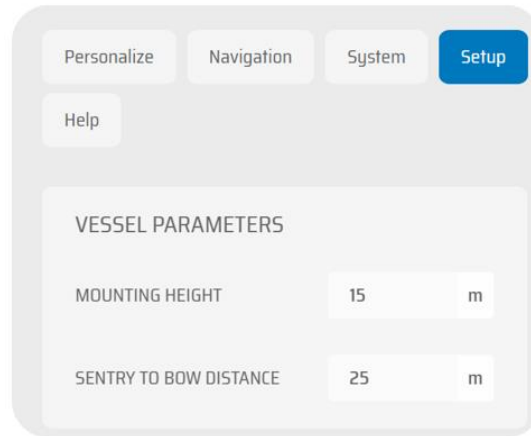


NOTE: For the password, contact SEA.AI professional Services at service@sea.ai.

In the Password field, type in the password and select Login as installer. If successful, SERVICE MODE is activated (highlighted green).

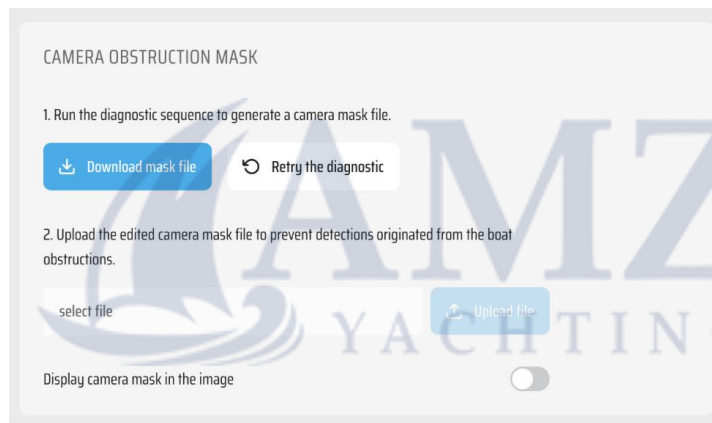


Setting up Vessel Parameters:



The screenshot shows the 'Setup' tab selected in the top navigation bar. Below the navigation bar, there is a 'Help' button. The main section is titled 'VESSEL PARAMETERS'. It contains two input fields: 'MOUNTING HEIGHT' with a value of '15' and a unit of 'm', and 'SENTRY TO BOW DISTANCE' with a value of '25' and a unit of 'm'.

Setting up Camera Obstruction Mask:

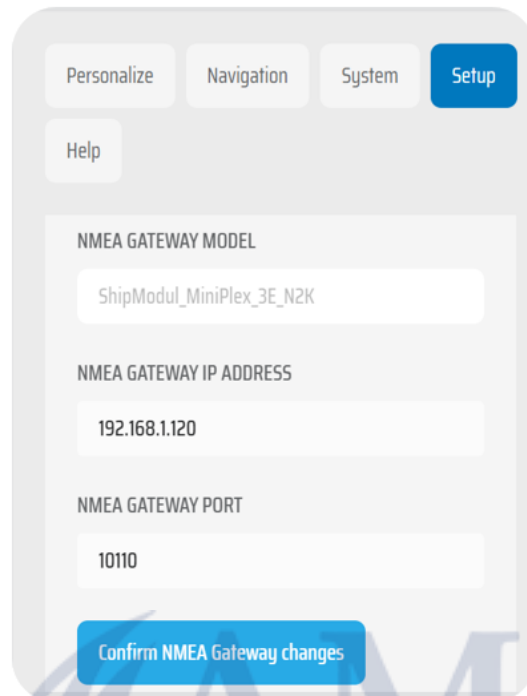


The screenshot shows the 'CAMERA OBSTRUCTION MASK' section. It contains two instructions: 1. Run the diagnostic sequence to generate a camera mask file. Below this are two buttons: 'Download mask file' and 'Retry the diagnostic'. 2. Upload the edited camera mask file to prevent detections originated from the boat obstructions. Below this are a 'select file' button and an 'Upload file' button. At the bottom, there is a toggle switch labeled 'Display camera mask in the image'.

For the instructions on how to set Camera Obstruction Mask, please refer to Document:

[Sentry Ignore Mask Guideline.](#)

Setting up NMEA 2000 Gateway:

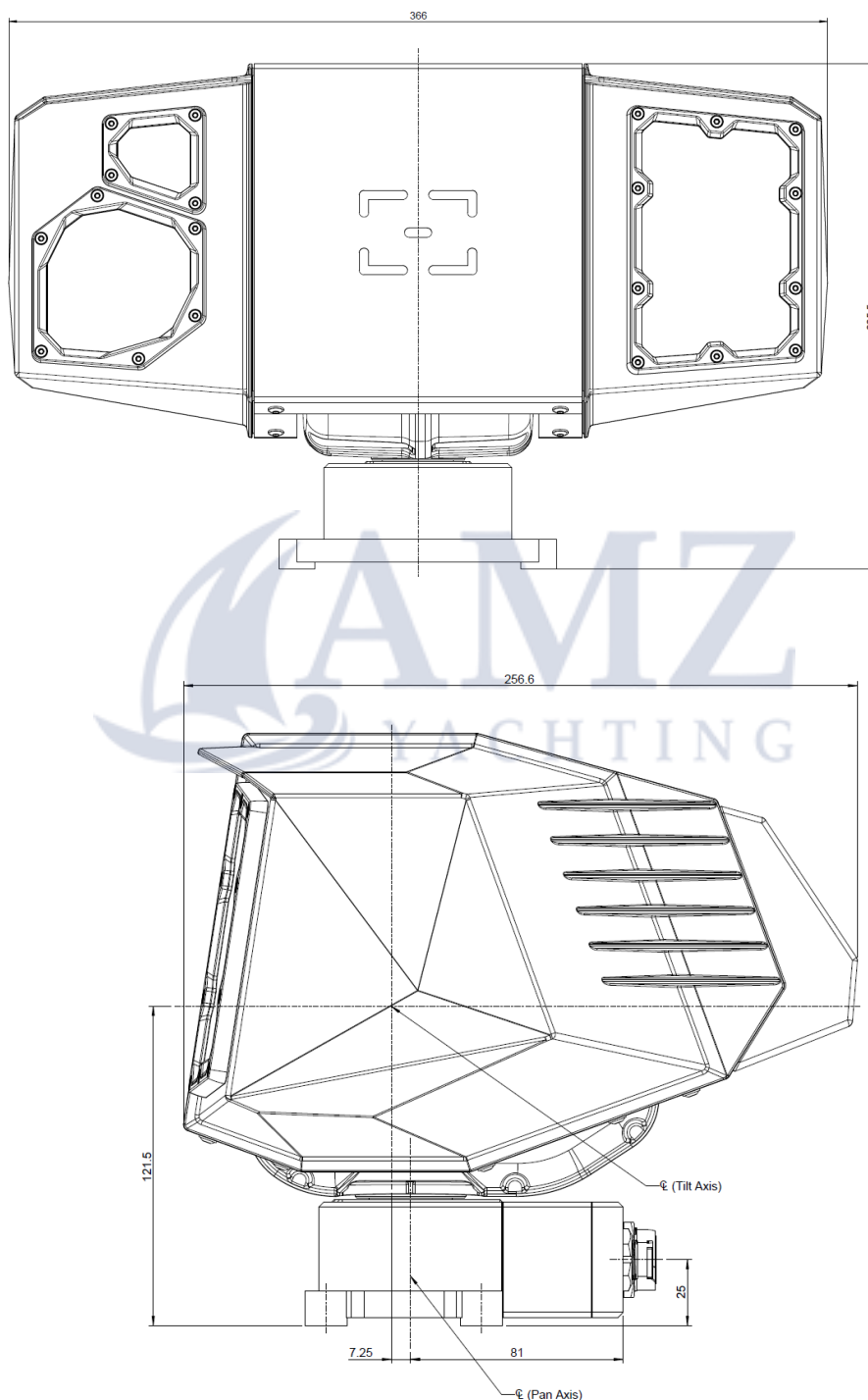


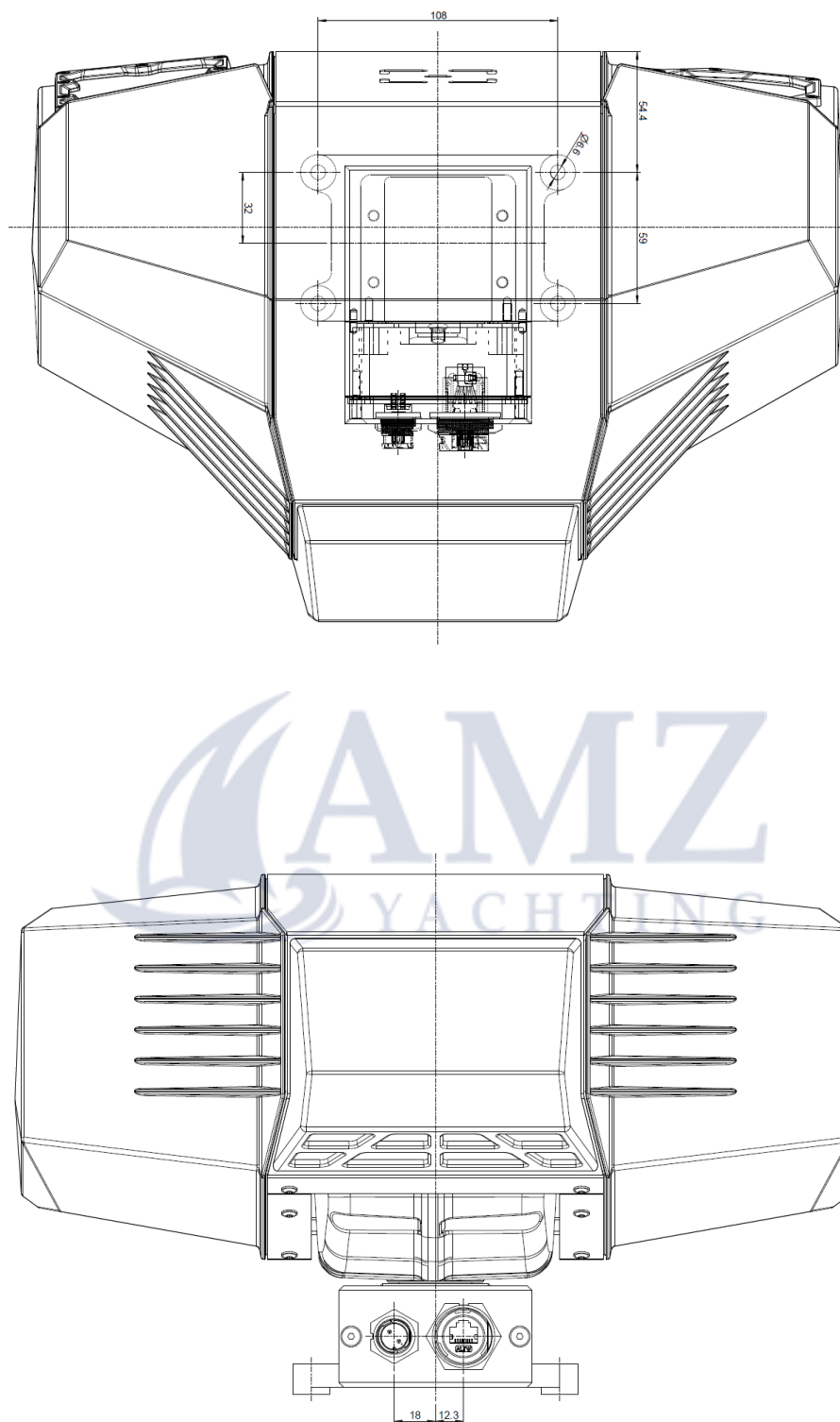
The screenshot shows the 'Setup' screen of the Sentry application. At the top, there are five tabs: 'Personalize', 'Navigation', 'System', 'Setup' (which is highlighted in blue), and 'Help'. Below the tabs, the 'NMEA GATEWAY MODEL' section has a text input field containing 'ShipModul_MiniPlex_3E_N2K'. The 'NMEA GATEWAY IP ADDRESS' section has a text input field containing '192.168.1.120'. The 'NMEA GATEWAY PORT' section has a text input field containing '10110'. At the bottom of the form is a blue button labeled 'Confirm NMEA Gateway changes'.

For the instruction on how to configure N2K Gateway, please refer to Document: [Sentry ShipModul MiniPlex-3E-N2K Configuration Guideline](#).

6 Mechanical Drawings

You can download Sentry 2D drawing and 3D CAD files here: [2D](#) and [3D](#), respectively.





7 Maintenance

To ensure optimal performance, always run the latest available software. Updating your software frequently provides feature and performance enhancements.

The camera housing and lens require occasional cleaning. Clean the lens when you notice image quality degradation or see excessive dirt buildup.

Important when cleaning this product:

- Do NOT wipe the lens windows with a dry cloth or 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.
- Take care when cleaning the lens windows, as they have a protective anti-reflective coating that may be damaged by improper cleaning.

To clean the camera lenses:

1. Rinse with fresh water to remove all dirt particles and salt deposits.
2. Clean the vision unit with a clean, soft cotton cloth. You can moisten the cloth and use a mild detergent if needed. Allow it to dry naturally.
3. If any spots or smears remain, gently wipe the lens window with a clean microfiber cloth or soft cotton cloth.
4. If necessary, use isopropyl alcohol (IPA) or a mild detergent to remove any remaining spots or marks.

8 Technical Support

SEA.AI provides a range of technical support options:

Online Documentation: [Sentry Documentation](#)

E-mail: service@sea.ai

Web: www.sea.ai

The preferred method of contacting Support is via e-mail, which ensures proper dispatching and tracking to address your questions promptly.

When contacting Support, please provide the following information:

- Sentry serial number
- Sentry installation date
- Description of the issue / problem



- NOTES :

