S≡A.AI ⊡

User Guide

Say hello to your
new SEA.AI Sentry

Register your product:

SEA.AI Sentry

INDEX

Thank you for purchasing a SEA.AI product!

SEA.AI systems utilize an advanced artificial intelligence engine and high-quality thermal and optical cameras to provide early detection and identification of floating objects on the water – during the day and at night.

This includes objects that might escape conventional systems such as radar or AIS, including: unidentified vessels, floating obstacles, containers, buoys, inflatables, kayaks, and persons.
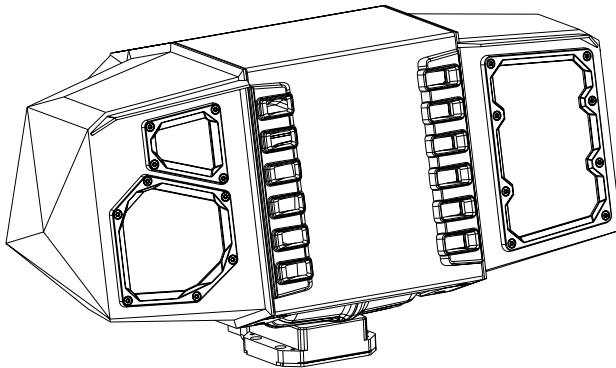
The SEA.AI system's artificial intelligence is based on the latest Machine Vision technology, best-in-class deep learning capabilities, and a constantly evolving, proprietary database of millions of annotated marine objects.

SPECS

About Sentry

Sentry's comprehensive optical and thermal camera setup, complemented by a powerful internal processing unit, provides a higher detection range, wider detection angle, and higher detection frequency, improving performance in unfavorable sea conditions.

Sentry provides you with the ability to pan 360° and tilt up to ±20° for your safety and surveillance both at anchor and underway.

SPECS

How it works

SEA.AI combines high-tech optical sensors with the latest technologies in the field of computer vision and artificial intelligence to enhance safety at sea.

SEA.AI's proprietary database is the core of the system software and its integrated AI-powered object detection and recognition:
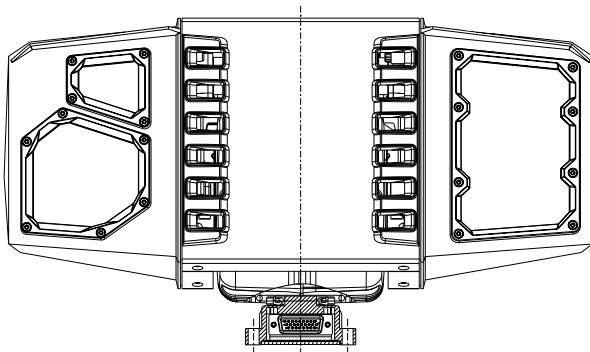
- Over 9 million annotated marine objects (thermal images and RGB images).

- SEA.AI's proprietary Thermal Convolutional Neural Network (CNN).

- Over 300,000 nautical miles of on-water experience around the world.

- Continuously growing and improving (new object classes, e.g., icebergs; new geographic regions, e.g., Red Sea, etc.).

- Regular software updates.

What Sentry offers

- Cameras with a machine vision processor.
- A combination of high-resolution low-contrast and thermal cameras.
- Detection of temperature differences up to 0.05°C.
- Pan and Tilt Unit: 360° / ±20°.
- Mechanical and Digital Image Stabilization.
- Operation Modes.
- Tracking.
- Regular over-the-air updates of the newest AI, trained with new data for improved overall performance.

Ultimate performance with combination of 4 cameras:

Thermal Camera Long Range	Boson® 640x512 px, 8° HFOV, 55 mm lens
Thermal Camera Close Range	Boson® 640x512 px, 32° HFOV, 14 mm lens
Low-contrast Camera Long Range	2560x1944 px, 8° HFOV, 35 mm lens
Low-contrast Camera Close Range	2560x1944 px, 34° HFOV, 8 mm lens

CHECKLIST

Before we move forward, let's make sure we've covered these steps:

✓ You have registered your product to ensure regular updates and warranty.

✓ The installer completed the installation process, and you have Sentry working on your onboard computer or iPad with the latest software update.

✓ You can easily switch on and off using the dedicated switch for Sentry.

START UP

You can access Sentry from any PC or iPad connected to the same network. Simply enter "sentry.local" in your web browser's address bar.

The application supports simultaneous usage for up to two devices. If a third device attempts to connect to Sentry, there will be an option to replace one of the already connected devices.

START UP

Start up:

1. Switch on your device and the Sentry unit. Please note that the startup process for all devices may take up to 5 minutes.

2. Once the devices are powered on and ready, open your web browser (Google Chrome or Safari is recommended).

3. To access Sentry, enter either "sentry.local/" or the IP set during installation (Default: "192.168.1.191") in the address bar of your web browser.

WhatsApp

If you encounter any problems with this procedure, please contact your local dealer/ installer or reach out to SEA.AI directly via WhatsApp or email at: service@sea.ai.
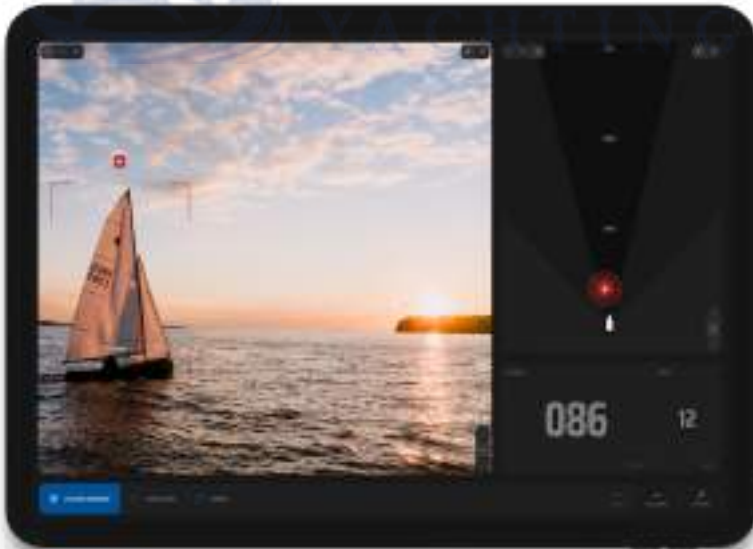
INTERFACE OVERVIEW

SEA.AI systems include three main views:

Colour Camera view | Thermal Camera view | Map view

Colour Camera View

In this view mode, objects detected by the thermal camera will be visually highlighted with an overlayed bounding box, allowing for easy identification of their presence and location. The colour view provides real-time images captured by the colour camera, ensuring seamless functionality in both daylight and low-light scenarios.
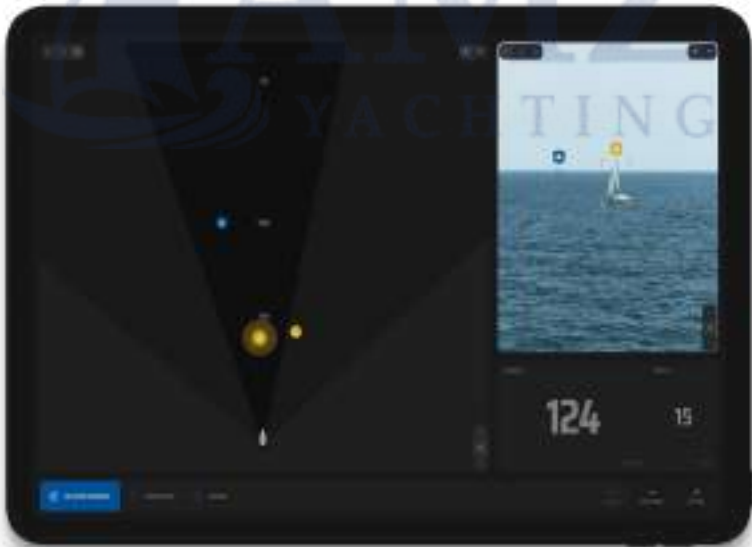
INTERFACE OVERVIEW

Thermal Camera view

The thermal view exhibits real-time images captured by the thermal camera, operating seamlessly day and night. It proves highly beneficial in scenarios with reduced visibility, including low-light conditions or situations where visual clarity is challenging. It relies on the capabilities of the thermal camera to identify such items, making it an indispensable tool in challenging visibility situations.

Map view

The map view presents a comprehensive display of all detected objects, along with their corresponding threat levels (Red, yellow, and blue).
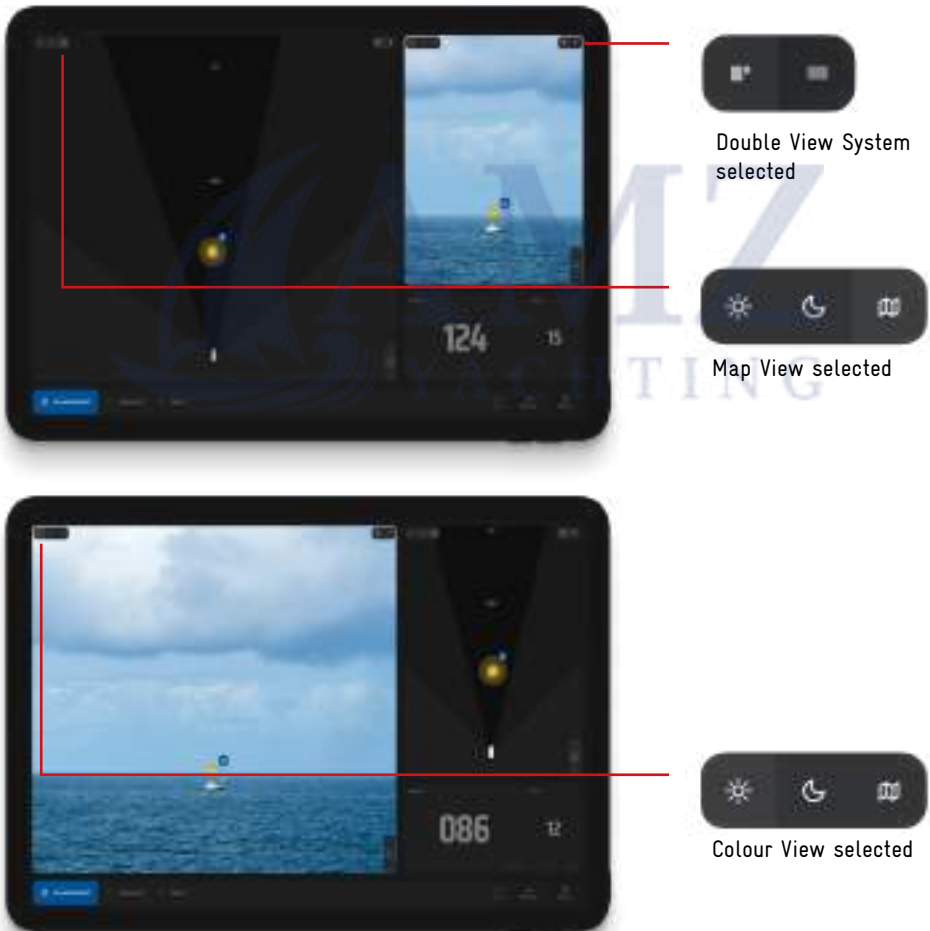In the event that the system identifies a potentially hazardous object, an acoustic alarm is triggered.

INTERFACE OVERVIEW

View switch option

With our double-view system, you have the flexibility to select your preferred view on the left or right side. You can choose between the thermal wide view, thermal narrow view, colour wide view, colour narrow view, or the Sentry map.

Double View System selected

Map View selected

Colour View selected

Furthermore, you have the convenience of switching between the long-range and short-range camera views by simply using a pinch-to-zoom gesture on the screen or by using the zoom buttons provided. The system will automatically switch to the long-range camera view once you reach a certain zoom level.

Zoom Option

INTERFACE OVERVIEW

In the Sentry app, you can choose your preferred theme:

Light mode: Ideal for well-lit environments, ensuring easy app interaction.

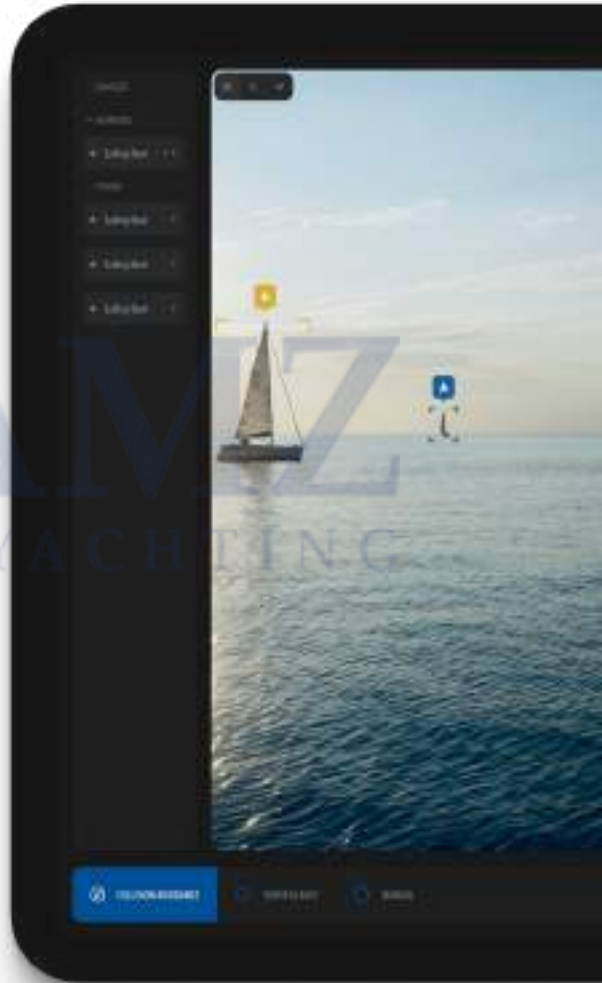Dark mode: A visually comfortable option for low-light conditions.

INTERFACE OVERVIEW

Night mode: Designed for use in nighttime and complete darkness, minimizing screen glare.

DETECTIONS PANEL

By clicking on the "Detections" button in the menu, the detection panel will display a comprehensive list of all detected objects, ensuring that you have access to the latest information available. The app always keeps the most recent detections conveniently sorted by danger level. This way, you can quickly assess and prioritize them for enhanced situational awareness.
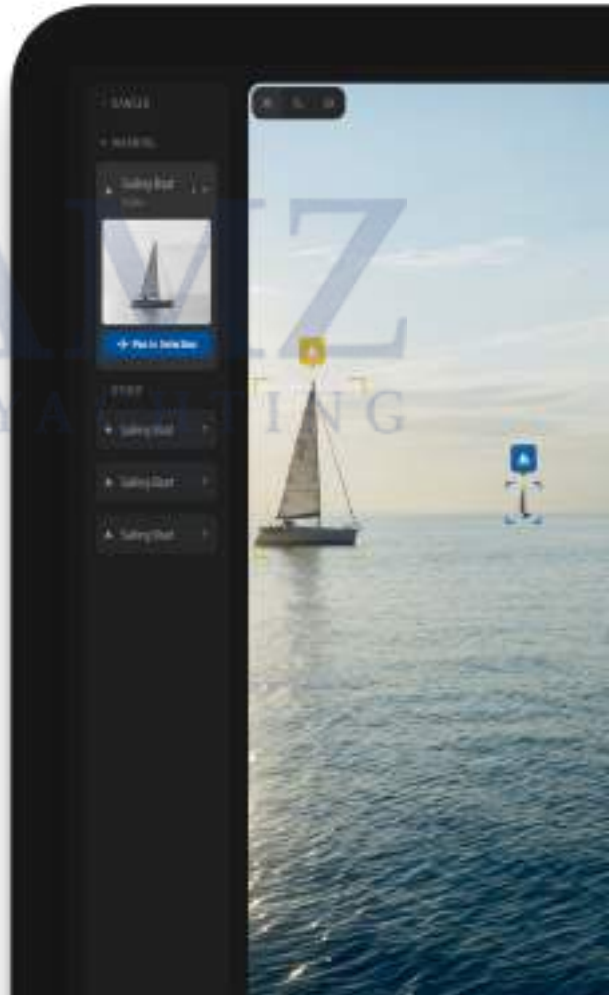
DETECTIONS PANEL

The three threat levels can be customized in the alarm settings.

To view more information about a specific target, simply click on it to see additional details in the detection panel, including a detailed still image of the object last seen.

The app continuously updates the images of each object at any moment it is detected, showing you details on the object when last seen and keeping them current if currently detected.

Switching between the last seen thermal and colour image is easy—just click on the image.

To ensure you have the latest information, the app always keeps the most recent detections organized based on their threat level distance. This way, you can quickly assess and prioritize them for enhanced situational awareness.

OPERATION MODES

Sentry has three operation modes, each customized for separate operating environments.

Collision Avoidance

In collision avoidance mode, the camera will automatically pan left and right towards the centerline of the boat to detect any potential collision threats. This mode is recommended when you are underway to help prevent accidents or collisions.

You have the option to customize your panning preferences in the "Personalize" tab in the settings section. The continuous scanning feature ensures timely detection of obstacles, while the customizable panning width and speed options provide flexibility and adaptability. You can choose the speed and width of the panning motion according to your preference.
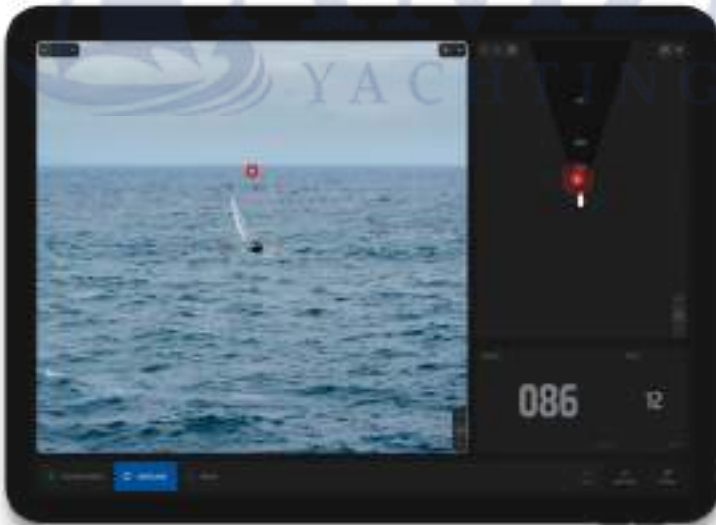
Please note: In the fast mode, the detection range is reduced due to motion blur that occurs with the long-range narrow field of view thermal camera.
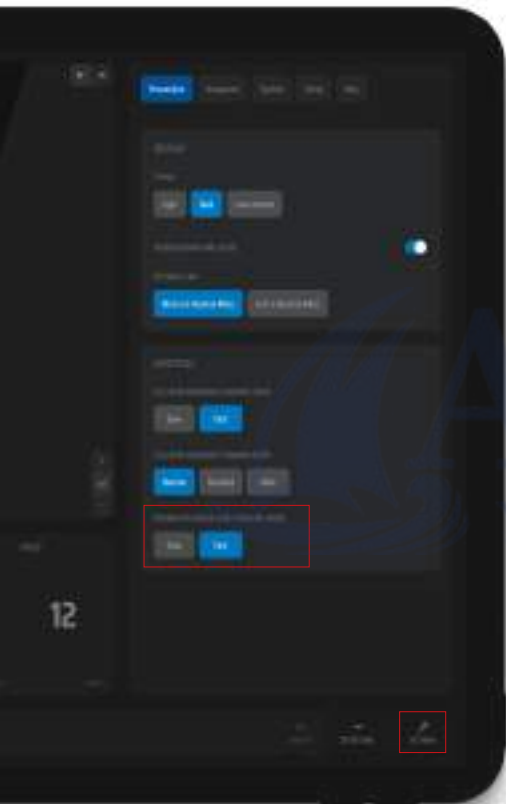
OPERATION MODES

Surveillance

In surveillance mode, the camera will perform a full 360° scan of the surroundings of the vessel. This mode is recommended when the vessel is not in motion.

You have the option to adjust the camera rotation speed in the "Personalize" tab in the settings section. You can choose between fast (30 seconds per 360°) and slow (110 seconds per 360°) rotation speeds.

Please note: In the fast mode, the detection range is reduced due to motion blur, and automatic object detection is not performed on the long-range camera.
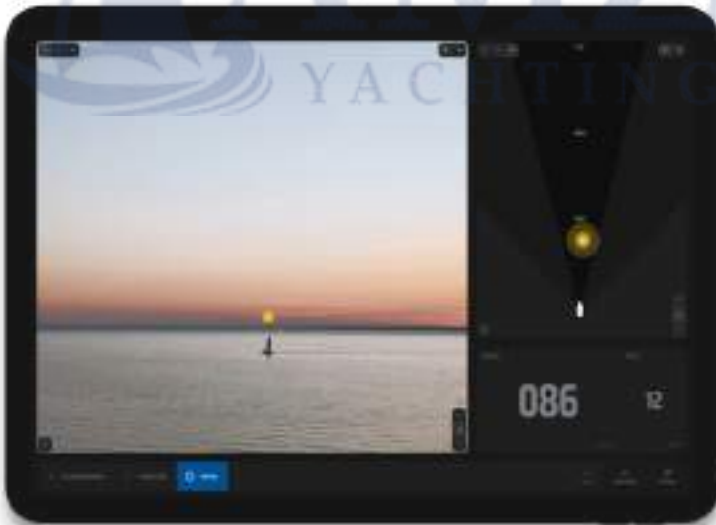
OPERATION MODES

Manual

Explore areas and objects of interest with ease.
In manual mode, you have full control over the camera's
movements using the tilt and pan options available on the
control panel.

By pressing the +30 or –30 buttons, the camera will adjust its position by jumping 30° in the respective direction. Clicking on the 0 button will automatically center the camera again.
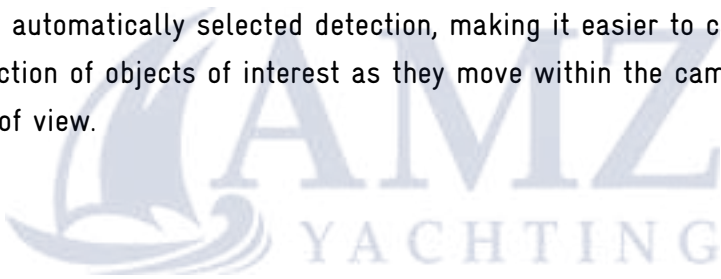

Please note: The alarms function differently in each mode, catering to the specific features and needs of that particular mode.

OPERATION MODES

Tracking

Additionally, in manual operation mode, you also have the feature of tracking a detection. This feature allows you to follow and track detections, ensuring that you can easily capture the action of your objects of interest.

This means the camera will intelligently follow and keep focus on an automatically selected detection, making it easier to capture the action of objects of interest as they move within the camera's field of view.
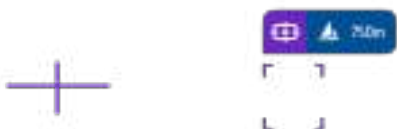
To track an object, follow these steps:

1.

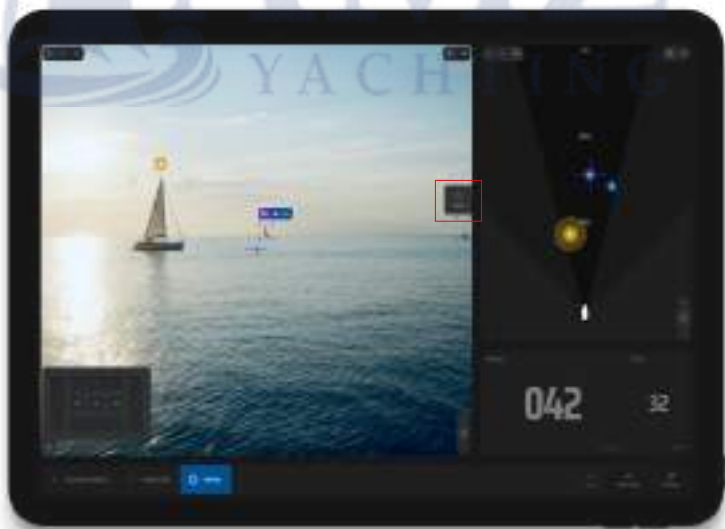Begin by selecting the manual mode on your camera.

⊕ MANUAL

2. To track an object, center/proximate the camera's crosshair on the desired detection. When the object is correctly aligned, it will be highlighted in purple, indicating it has been selected for tracking.
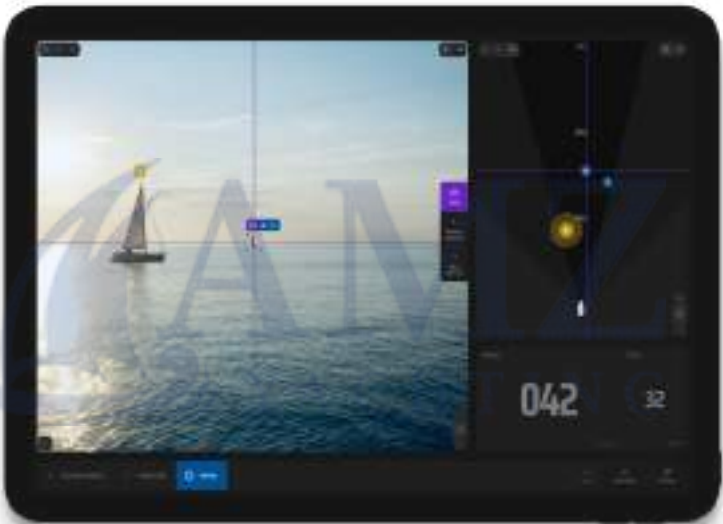
3. On the right side of the screen, you'll find the tracking menu. Locate and click on the "Track" button within this menu.

4. Upon clicking the "Track" button, a crosshair will become visible, featuring four complete lines spanning across the screen. Following this, the camera will operate intelligently by continuously tracking and retaining focus on the selected detection.

5. Additionally, inside the tracking menu, you have the option to choose either "Previous Detection" or "Next Detection." This allows you to choose through detected objects in case there are multiple candidates within the camera's field of view.

ALARMS

SEA.AI systems have three separate threat levels designed to provide users with optimum risk awareness in all three operation modes.

Each of the three threat levels includes colour-coded visual indications of detected objects.
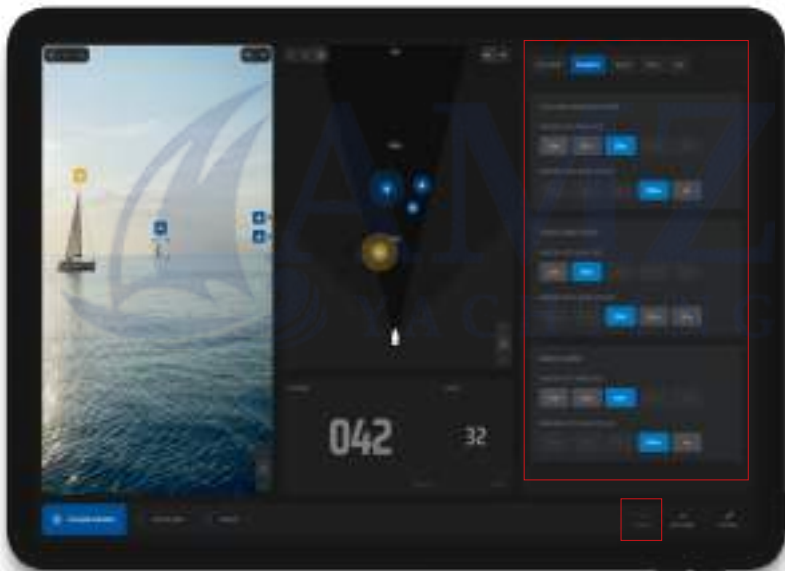
Detection icons shown in Map View

Detection icons shown in Thermal & Colour View

Additionally, detected objects trigger a range of audible warnings. Warning alarms (beep every 2 seconds) and danger alarms (beep every second).

ALARMS

Audible warnings can be easily muted using the sound icon. You can also customize the distance parameters for each threat level to suit your individual needs within the navigation settings.

SEA.AI is an assistance system designed to enhance safety at sea. It does not replace the requirement for a proper lookout to be kept by the person in charge of the vessel.

DETECTIONS

The SEA.AI System computes 10 images per second on both thermal cameras and displays live video images at a rate of 30 frames per second.

The detection and bounding boxes are effectively handled by both thermal cameras, ensuring reliable processing day and night, while the colour camera displays the overlaid bounding boxes for enhanced visual representation.

DETECTIONS

Blue

Distant or safe objects detected. There will only be visual indication, and no acoustic alarms will be triggered.

Yellow

Closer, potentially dangerous objects detected. In addition to the visual warnings, a single-note audible warning is sounded.

Red

Dangerous objects representing an immediate threat detected. In addition to the visual warning, repeated multiple-note audible alarms are sounded. Objects within a predefined safety zone trigger a constant audible alarm.

You can customize the alarm preferences, including threat levels and corresponding alarms, in the settings. The threat levels and alarms are determined by distance, and you have the option to adjust these parameters within the settings section.

SETTINGS PANEL

Personalize:

In the personalized settings, you have the option to adjust the panning width and speed for each operation mode according to your personal preferences. This means you can customize the camera's movement to cover the desired width and control the speed at which it pans.

Panning Width:

Choose from three different panning width options to customize the coverage based on your vessel and navigational environment: narrow, standard, or wide.

50°

Narrow

100°

Standard

180°

Wide

Panning Speed:

Adjust the panning speed to match the requirements of the situation. Select "fast" for dynamic scenarios and "slow" for precise monitoring during long-range detections. Tailoring these settings allows you to optimize your viewing experience and adapt it to your specific needs in different operation modes.
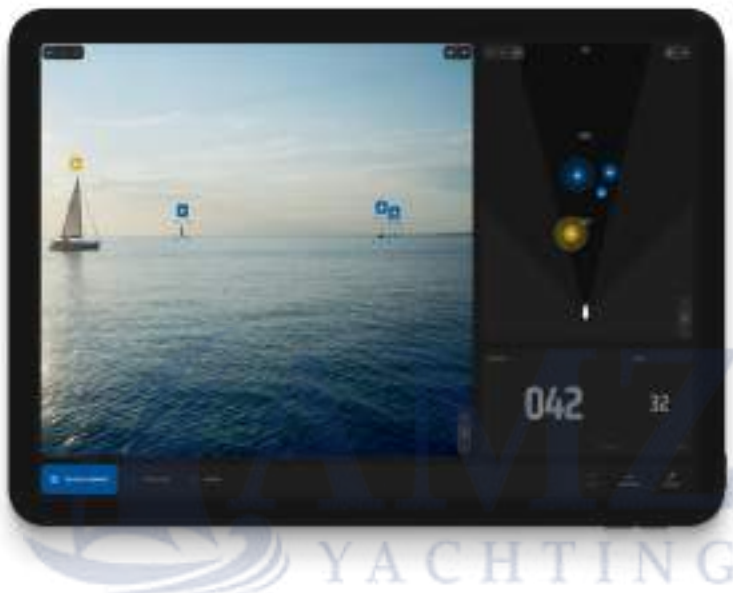
SETTINGS PANEL

You have the ability to customize alarms for each operation mode, allowing you to select different warning and danger alert ranges.

This enables you to personalize the alarms based on your specific preferences and requirements by setting the range distances at which you want alarms to be triggered.

By configuring the alarms, you can ensure that you receive appropriate notifications and warnings during your navigation, enhancing your overall safety and awareness.

UPDATES

Stay up to date by keeping your system regularly updated.

You will receive new updates in your registered email, ensuring future improvements and enhancements for your system.

Here's how to update your system:

1. Access the link sent to your registered email or directly through the provided link below.

2. Open the folder "Software updates."

3. Download the update package (oscar file).

4. Start Sentry and open the App.

5. Go to the settings menu.

6. Select "System."

7. Choose "System Update" and click on "Upload File."

8. Upload the package file that you downloaded from the "Software updates" folder.

Direct link to Software Updates folder

WhatsApp

If you encounter any problems with this procedure, please contact your local dealer/installer or contact SEA.AI directly via WhatsApp or email at: service@sea.ai.

SERVICE & SUPPORT

OVER THE AIR UPDATES & PERFORMANCE IMPROVEMENTS

SEA.AI' artificial intelligence engine is based around an ever-expanding database which we update at regular intervals making SEA.AI even more efficient. If you need any help with updating, please check the update section on this guide, or contact us for further help.

REMOTE SOFTWARE & SERVICE SUPPORT

SEA.AI can provide remote support to ensure the reliable performance of your SEA.AI system wherever in the world our users' vessels are operating. Contact us for online-remote support.

FEEDBACK

If you have any thoughts or comments about our products or customer service we welcome your feedback via: feedback@sea.ai

CONTACT US

To contact us please message us directly via WhatsApp or send us an email service@sea.ai and we will be happy to assist you. You can also find these contacts in the help section of your settings in the app.

WhatsApp

Need help?

SEA.AI

www.sea.ai