SEA.AI

SEA.AI BRAIN

INSTALLATION MANUAL



SEA.AI Professional Services

SEA.AI
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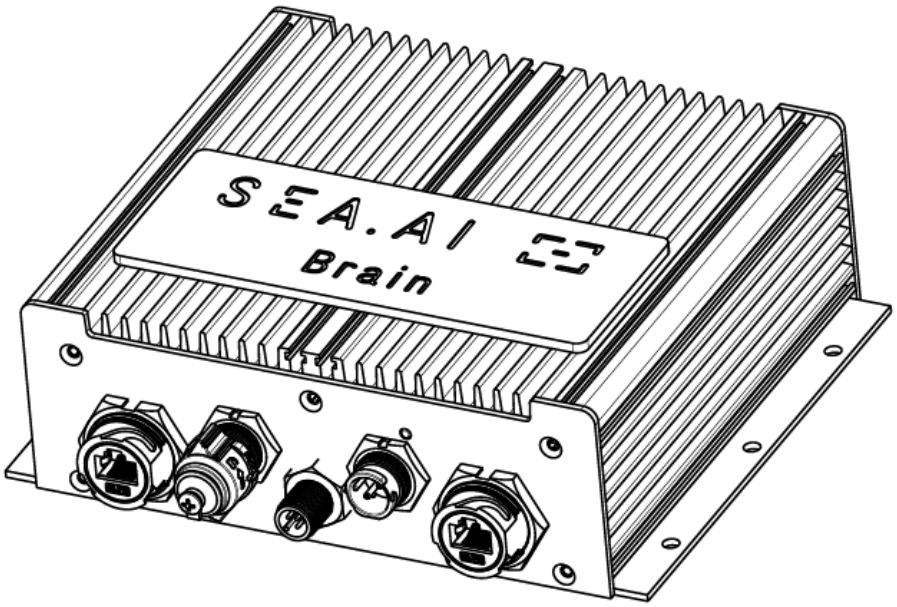
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1 Introduction

1.1 System Overview and Specifications



Specifications	
Connections	Ethernet Ports (E1 and E2) Power Port (J1) NMEA 2000 Port (J3)
Camera Compatibility	Flir M364C and Flir M364C LR
Dimensions (L x W x H)	185mm x 190mm x 61.8mm
Weight	0.80 kg
Power	12 or 24 Vdc and 25W

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1.2 Product Registration

To ensure your new product continues to deliver optimal performance and stays up to date with the latest advancements in Artificial Intelligence, periodic updates are essential.

You can easily register your product by logging into your SEA.AI Connect account at https://connect.sea.ai/account/login. If you do not have an account yet, simply create one by visiting https://connect.sea.ai/account/register/step/1.

1.3 Parts Included

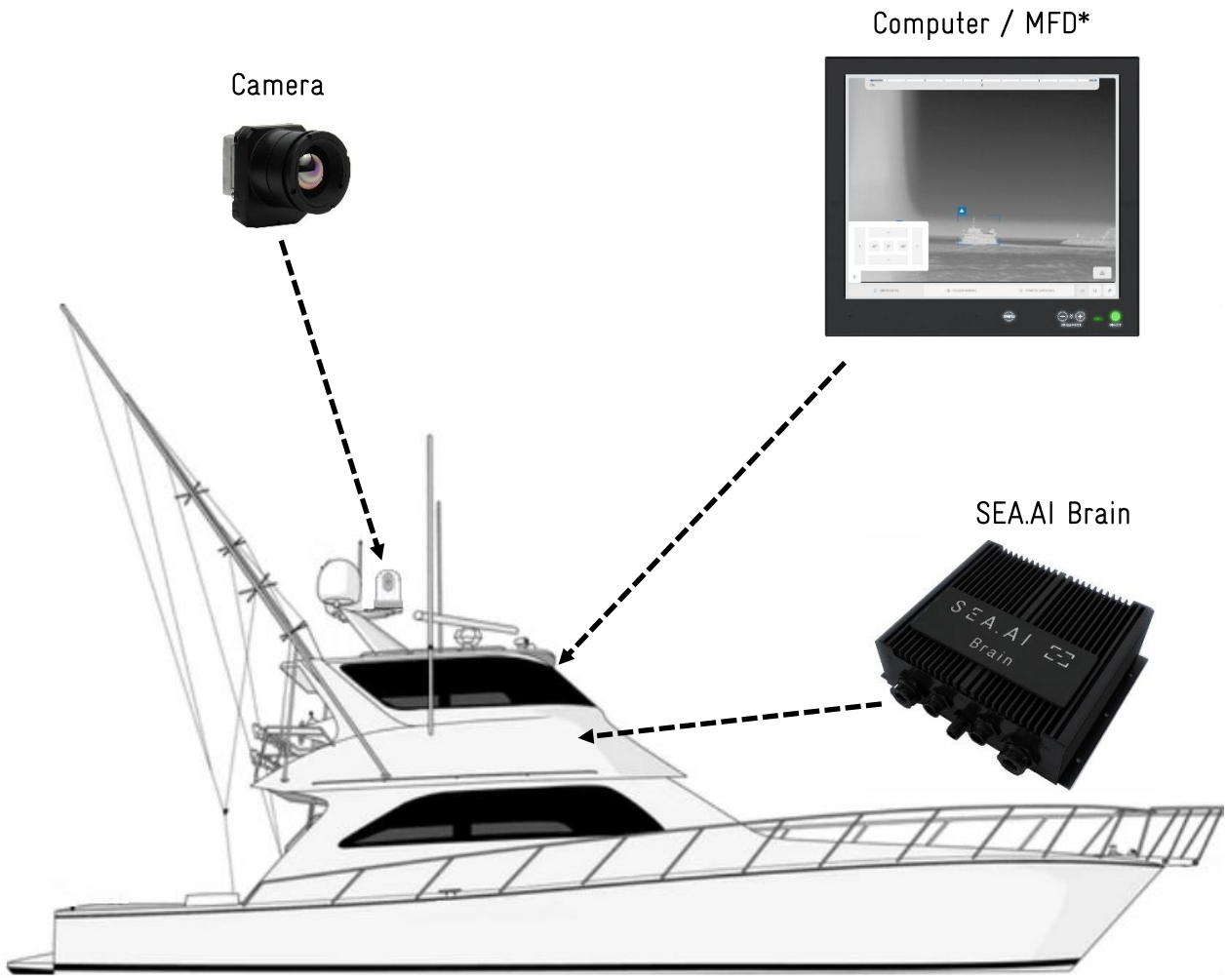
F04000	Basic Instalation Kit	Qty
A00030	Brain Gen1 Processing Unit	1
A02921	Brain Gen1 Power Harness	1
F03146	Brain Gen1 Data Harness	1
A03044	NMEA 2000 Drop Cable	1
Document	Brain User Manual	1

1.4 Tools and Equipment Needed

- Mounting screws (6X) – Refer to Chapter 6 for more details.
- Power drill with appropriate drill bit
- Pen
- Tape Measure or ruler
- Screwdriver
- Computer
- Ethernet Router

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2 Installation



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2.1 Mounting Guidelines

Mounting Surface:

- Ensure the mounting surface is secure and provides adequate support for the product.

Ventilation:

- Allow sufficient airflow around the unit to prevent overheating.

Vibration Considerations:

- Choose a mounting location free from excessive vibrations, such as engine-induced vibrations, to maintain stable performance.

Power supply:

- Install the product as close as possible to the vessel's DC power source to minimize cable lengths and voltage drops.

Water Ingress:

- It is recommended to mount it in a dry location, away from prolonged exposure to sun, salt spray, and water ingress.

Electrical Interference:

- Position the unit away from devices that generate electrical interference, such as motors, generators, and radio transmitters or receivers.

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2.2 EMC Installation Guidelines

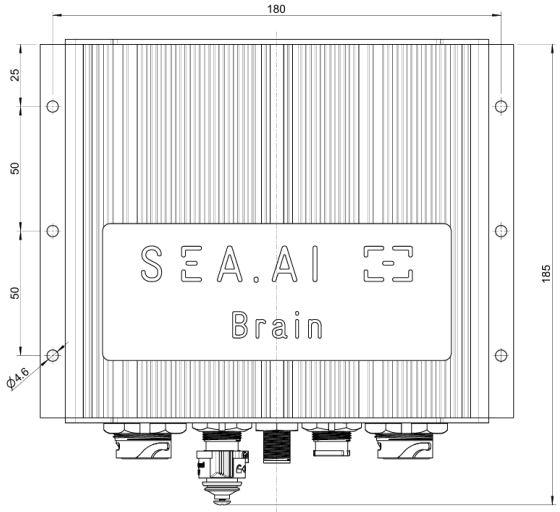
SEA.AI Brain complies with relevant Electromagnetic Compatibility (EMC) regulations to minimize both the emission of electromagnetic interference and its impact on system performance. Proper installation is essential to maintain optimal EMC performance.

Recommended Installation Guidelines for Best EMC Performance:

- **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.
- **Compass safe distance: place the product at least 1 m (3.3 ft) away from any installed compass.** If this isn't possible, ensure the product does not interfere with the compass when powered on.

2.3 Mounting and Hole Pattern

The basic mounting pattern uses four screws. The mounting holes are not tapped. All six (6) 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.



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3 Wiring

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

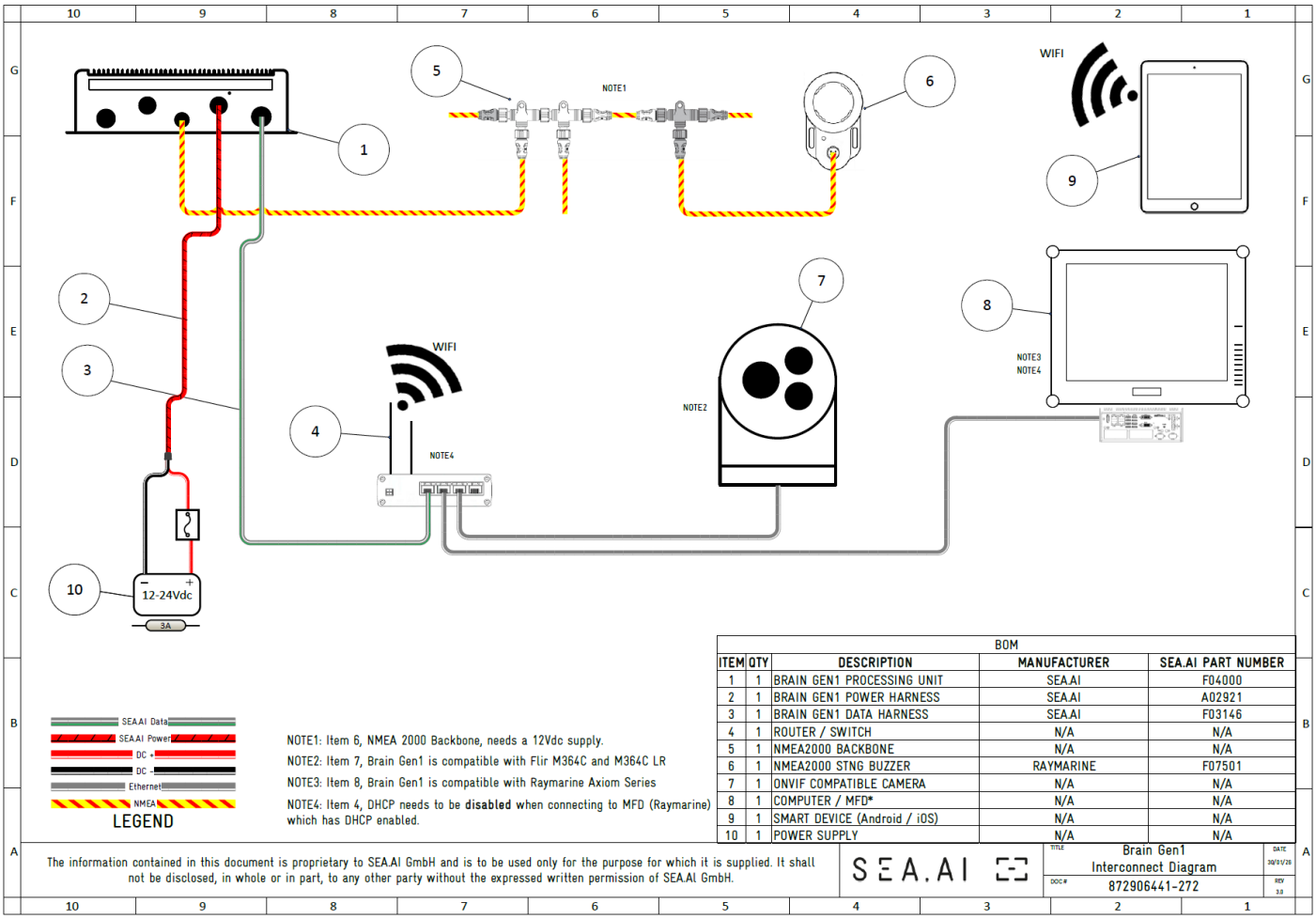
3.1 Wiring Guidelines

- 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 Brain.
- 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.

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3.2 Interconnect Diagram



BOM

ITEM	QTY	DESCRIPTION	MANUFACTURER	SEA.AI PART NUMBER
1	1	BRAIN GEN1 PROCESSING UNIT	SEA.AI	F04000
2	1	BRAIN GEN1 POWER HARNESS	SEA.AI	A02921
3	1	BRAIN GEN1 DATA HARNESS	SEA.AI	F03146
4	1	ROUTER / SWITCH	N/A	N/A
5	1	NMEA2000 BACKBONE	N/A	N/A
6	1	NMEA2000 STNG BUZZER	RAYMARINE	F07501
7	1	ONVIF COMPATIBLE CAMERA	N/A	N/A
8	1	COMPUTER / MFD*	N/A	N/A
9	1	SMART DEVICE (Android / iOS)	N/A	N/A
10	1	POWER SUPPLY	N/A	N/A

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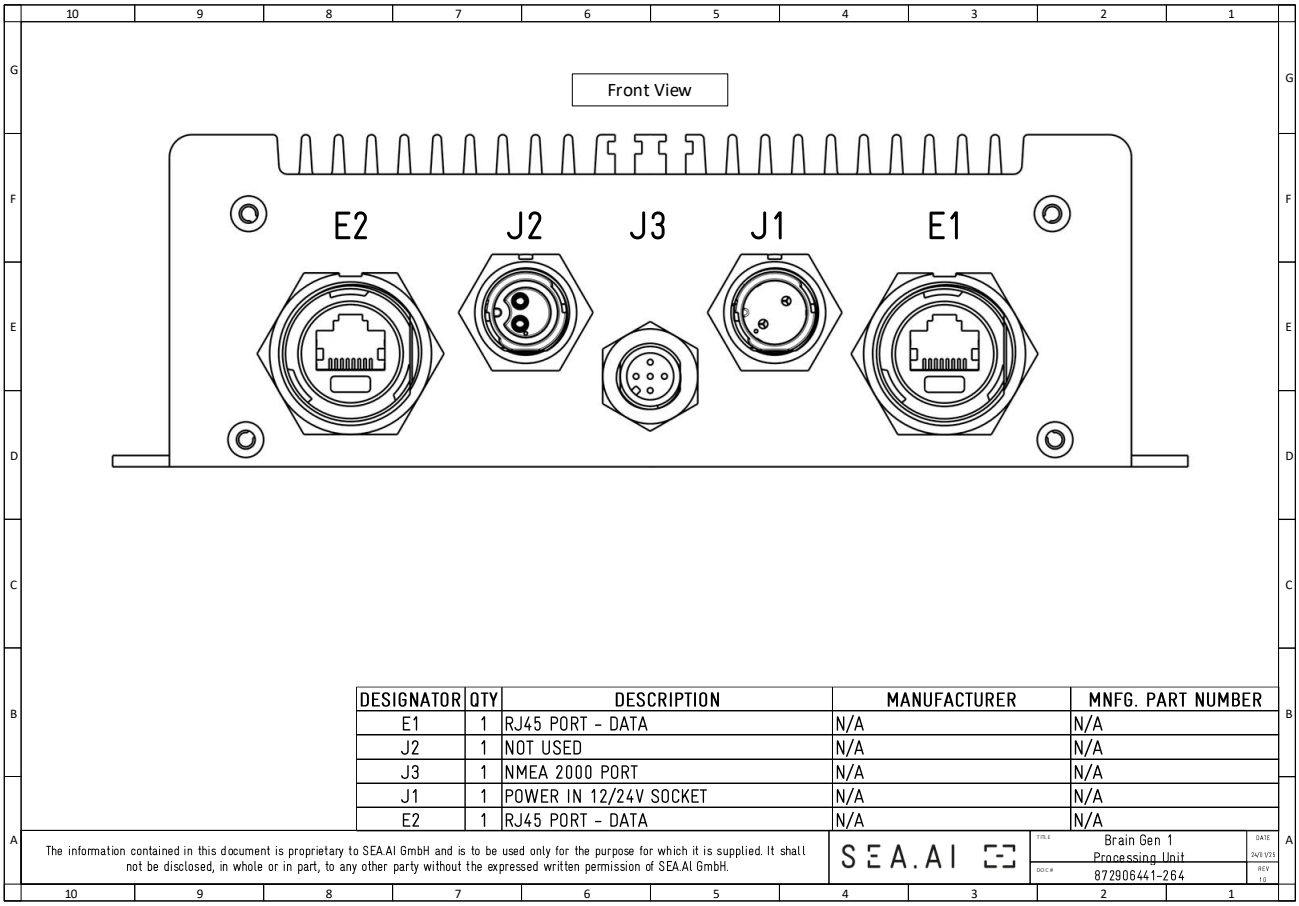
TITLE: Brain Gen1 Interconnect Diagram
DOC #: 872906441-272
DATE: 30/01/26
REV: 3.0

For the above Interconnect Diagram, please refer to Document: Brain Gen1 Interconnect Diagram.pdf

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3.3 Interface

For the existing interface, please see the front of the unit and refer to the drawing below:



DESIGNATOR	QTY	DESCRIPTION	MANUFACTURER	MNFG. PART NUMBER
E1	1	RJ45 PORT - DATA	N/A	N/A
J2	1	NOT USED	N/A	N/A
J3	1	NMEA 2000 PORT	N/A	N/A
J1	1	POWER IN 12/24V SOCKET	N/A	N/A
E2	1	RJ45 PORT - DATA	N/A	N/A

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SEA.AI | TITLE: Brain Gen 1 Processing Unit | DOC #: 872906441-264 | DATE: 24/9/25 | REV: 1.0

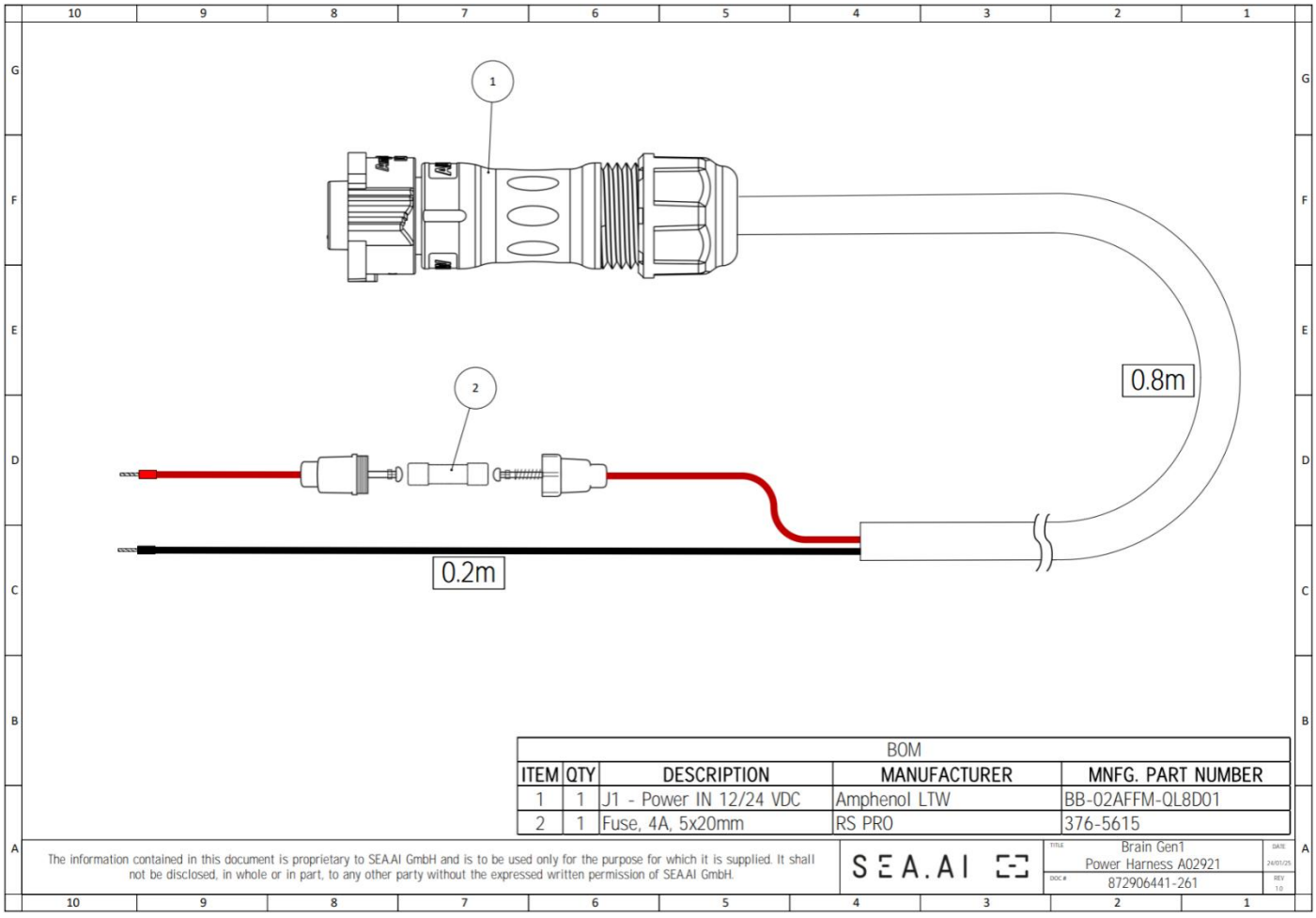
NOTE: As of this release, Brain unit does not utilize ports J2.

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3.4 Power Harness

Power harness is part of the installation kit (item 2 in the BOM – see Interconnect Diagram above). This harness is 1 m long and has a built-in fuse holder with a 6A fast acting fuse to prevent accidental reverse polarity connection, and hence damage to the unit.

NOTE: If modifying the harness, ensure that the fuse holder with a fuse is always present when power is on the Brain unit.



BOM

ITEM	QTY	DESCRIPTION	MANUFACTURER	MNFG. PART NUMBER
1	1	J1 - Power IN 12/24 VDC	Amphenol LTW	BB-02AFFM-QL8D01
2	1	Fuse, 4A, 5x20mm	RS PRO	376-5615

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Brain Gen1
Power Harness A02921
872906441-261

For the above Drawing, please refer to Document: Brain Gen1 Power Harness A02921.pdf

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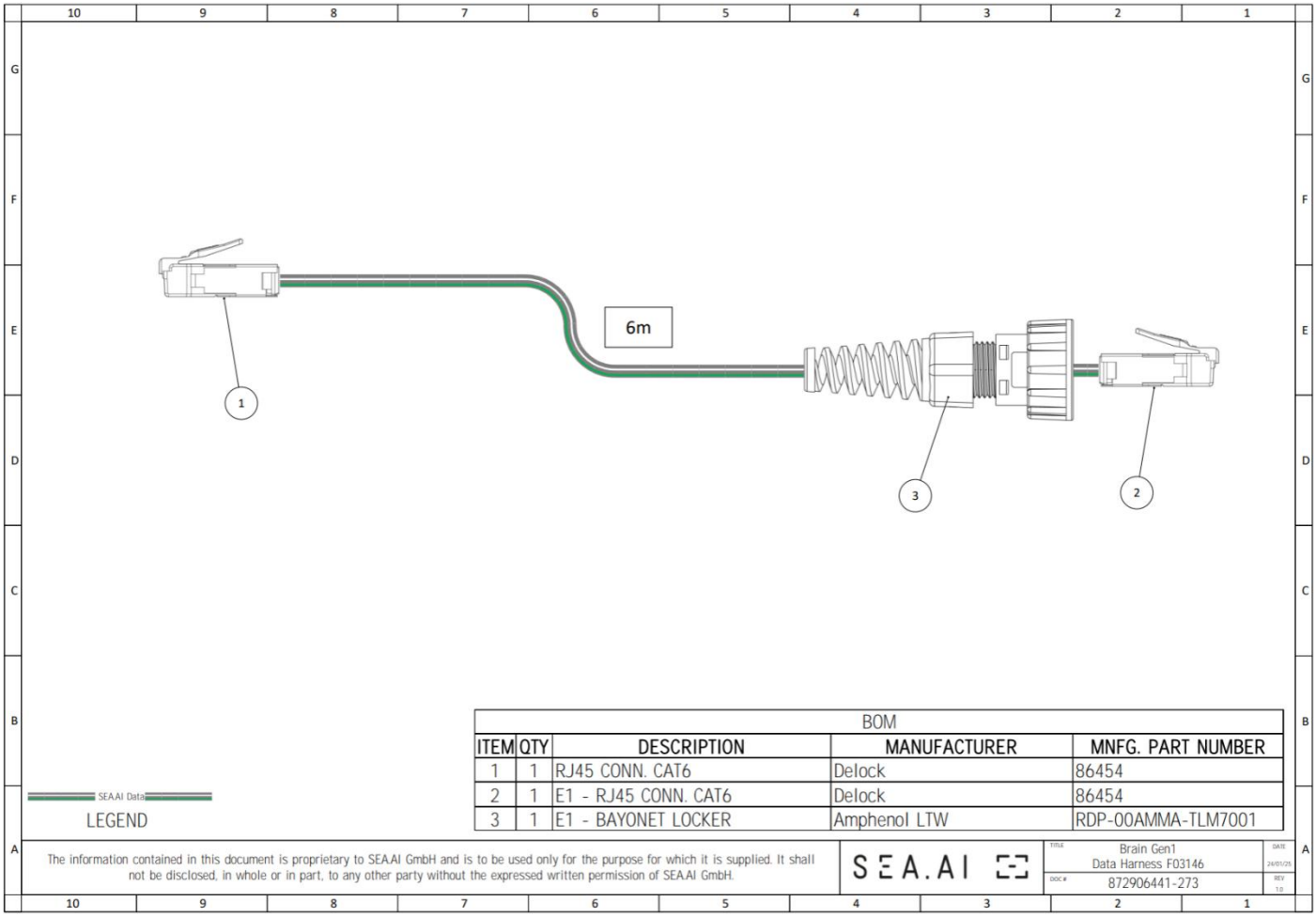
3.5 Power Connection

SEA.AI Brain can be powered with either 12Vdc or 24Vdc, and a minimum 5A or 2.5A supply, respectively.
We highly recommend that the unit be powered with a regulated power supply (DC-DC converter).

The Brain power harness (A02921) is 1 meter long and can be extended. However, be sure to consider voltage drop and appropriate wire gauge when making extension. Additionally, if there is a need to extend the length, it is recommended to extend the power line between the power source and the DC-DC converter.

3.6 Data Harness

Data harness is part of the installation kit (item 3 in the BOM – see Interconnect Diagram above). This harness is 6 m long.



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For the above Drawing, please refer to Document: Brain Gen1 Data Harness F03146.pdf

3.7 Data Connection

The SEA.AI Brain communicates via Ethernet within a local area network (LAN). It must be connected to a suitable LAN directly using the Brain Gen1 Data Harness (F03146), which connects the camera and Computer (Display) via the Wi-Fi router (Please refer to Chapter: Interconnect Diagram).

The Brain Data Harness can be extended via ethernet coupler. 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 Brain requires a minimum 100 BASE-T (100 Mbit/s bandwidth) connection.

3.8 NMEA 2000 Connection

As of this release, Brain system will accept / read additional boat information from marine sensors (e.g., speed, GPS position, heading, etc.) via the J3 port connected to the NMEA2000 backbone using a drop cable.

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4 Control Devices and Clients

To run the SEA.AI Brain 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 Brain. 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.

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Minimum requirements:

- Windows 10
- MacOS 10.15 (Catalina)

Download MacOS App.



Download WindowsOS App.



4.1 MFD Connection

As of this release, the Brain system is compatible with Raymarine Axiom Series of MFDs. However, the additional MFD compatibility will become available in the upcoming Software releases.
The list of compatible MFDs will be announced at the time of Software release.

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5 System Setup

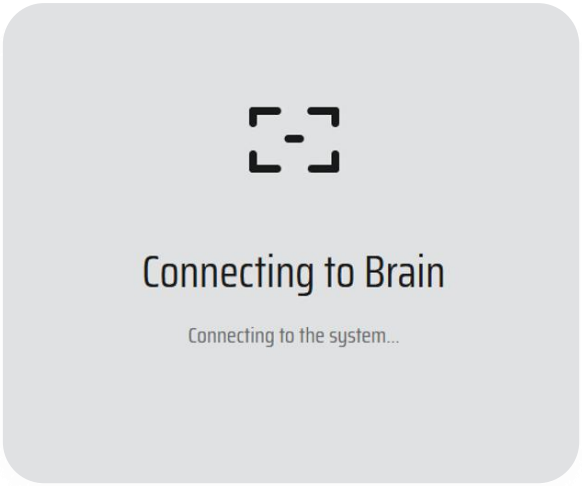
As of this release, SEA.AI Brain is only compatible with Flir's M364C and M364C LR camera models. Please keep an eye on our announcements as the new camera manufacturer's compatibility is announced.

5.1 First start up

Before powering on your Brain unit, ensure that your camera is first powered on and connected to the LAN where the Brain system is connected.
You will need to have access to your camera, USERNAME and PASSWORD. For Flir cameras, the default usernames are **user**, **expert**, **admin**, and passwords are **user**, **expert**, **admin**, respectively.
Ensure that you can access Flir's User Interface using your existing username and password, or one of the three options mentioned above.

Power on the Brain unit and allow the system 5 minutes to power on and start up the Software.

In the browser, type in: http://brain.local/ to access User Interface (UI) below.

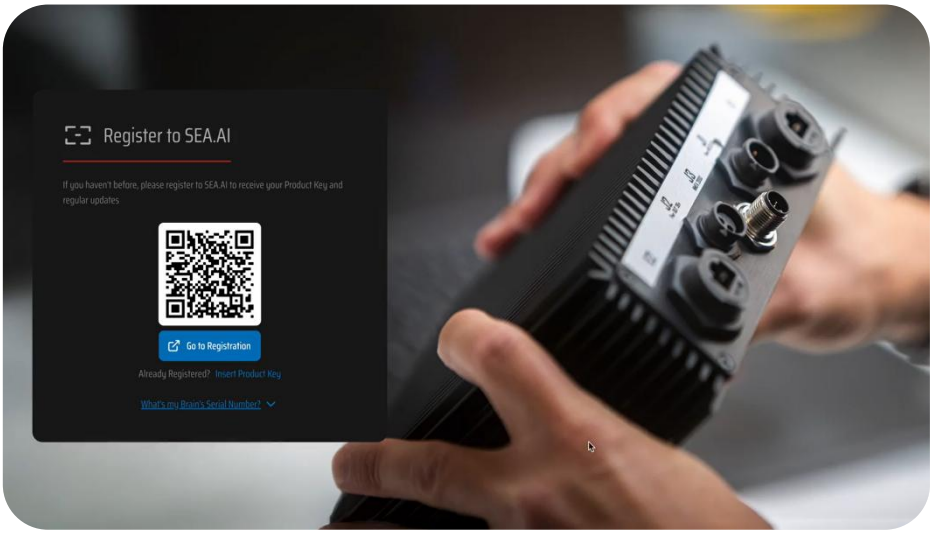


If you have Raymarine Axiom Series MFD connected to the same network as Brain, then you need to disable your router's DHCP. Axioms have built-in DHCP server which needs to be enabled for Brain to work. Only one DHCP server is allowed on the Local Area Network (LAN).

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5.2 Product Registration

After you have entered http://brain.local/ in your browser, you will be directed to the page below:



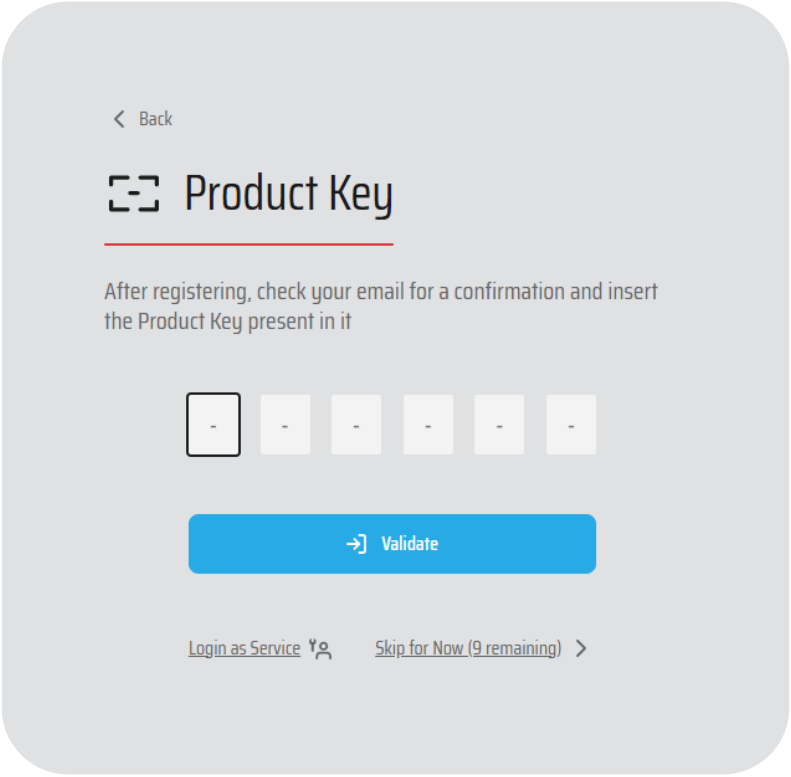
If you have a product key, please select Insert Product Key to continue (below):



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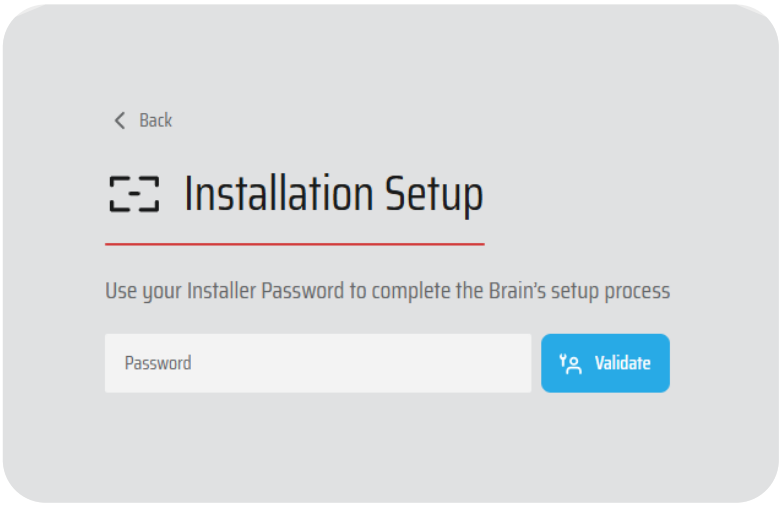
However, if you do not have a product key, please register your account here, and within your account you can register your product (See Chapter 1.2 Product Registration).

Enter your product key and validate (below):



Note: You can skip product registration ten times, after which you will need to register it.

If you are installer, please select "Login as Service", and the prompt will appear (below):



Your Installer Password is available in portal at connect.sea.ai.

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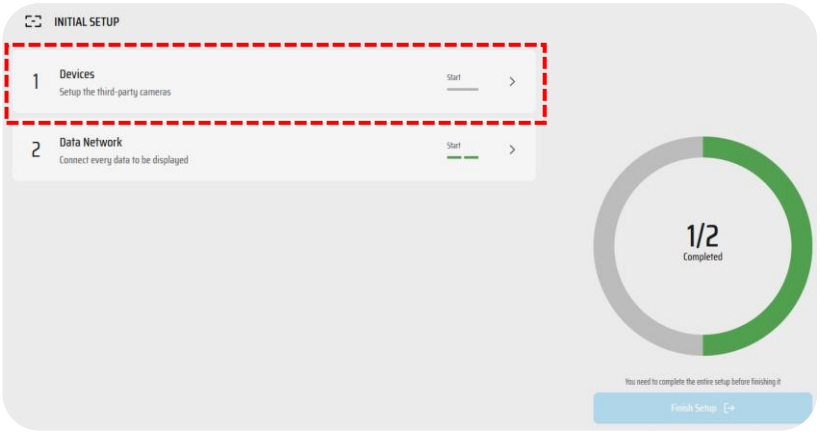
Once the Brain's setup process has been completed, please ensure to log out of the Service Mode (below):

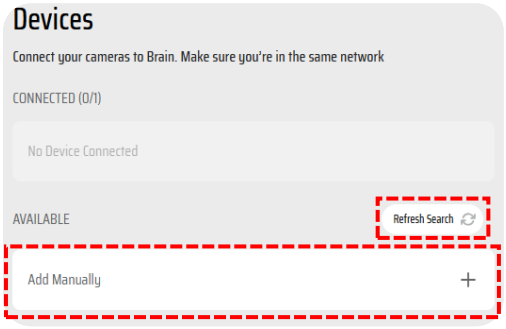


5.2 Setting Parameters

Click on "Go to Settings" and go to Initial Setup.

Click on Devices to add your camera.





You can either select "Refresh Search" to add camera automatically from the drop-down list, or you can add the camera manually.

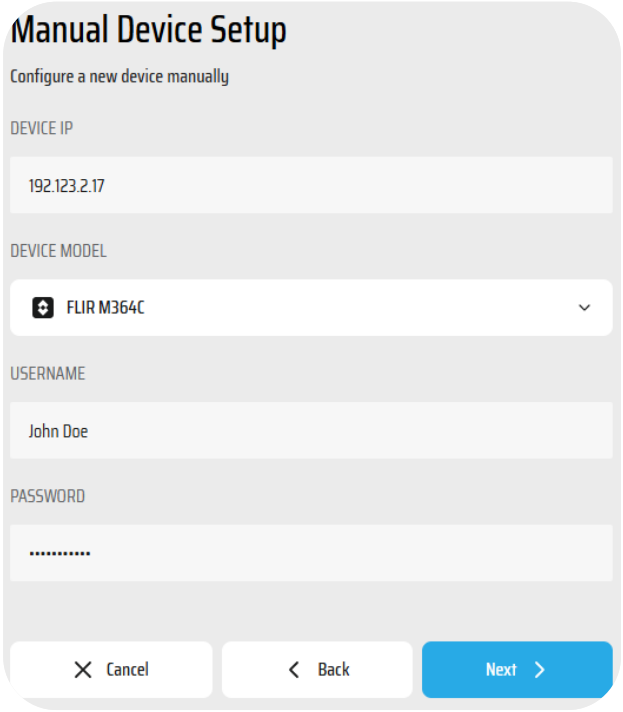
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For Manual Device Setup, fill in the missing fields:

- DEVICE IP
- DEVICE MODEL
- USERNAME
- PASSWORD

For username and password, please refer to Chapter 5.1.

Click on "Next" button to continue the device installation setup.

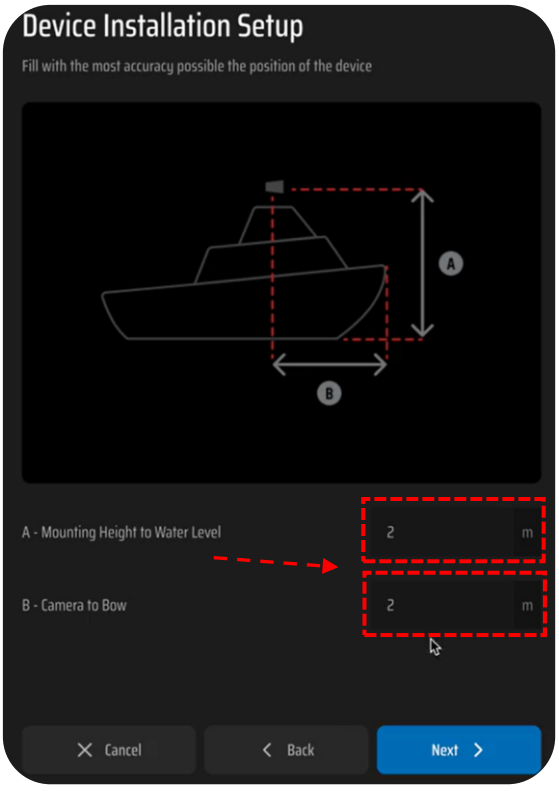


Depending on your vessel, fill out the information:

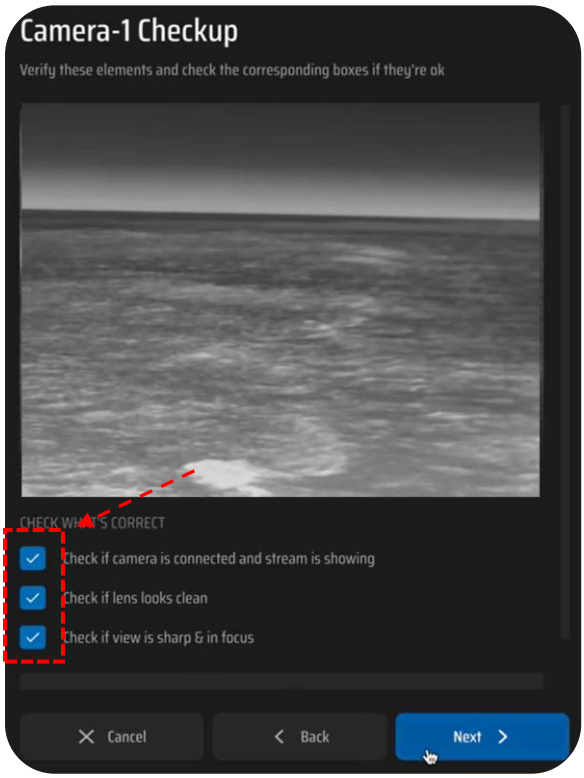
A – Mounting Height to Water Level in meters

B – Camera to Bow in meters

Click "Next" to continue.



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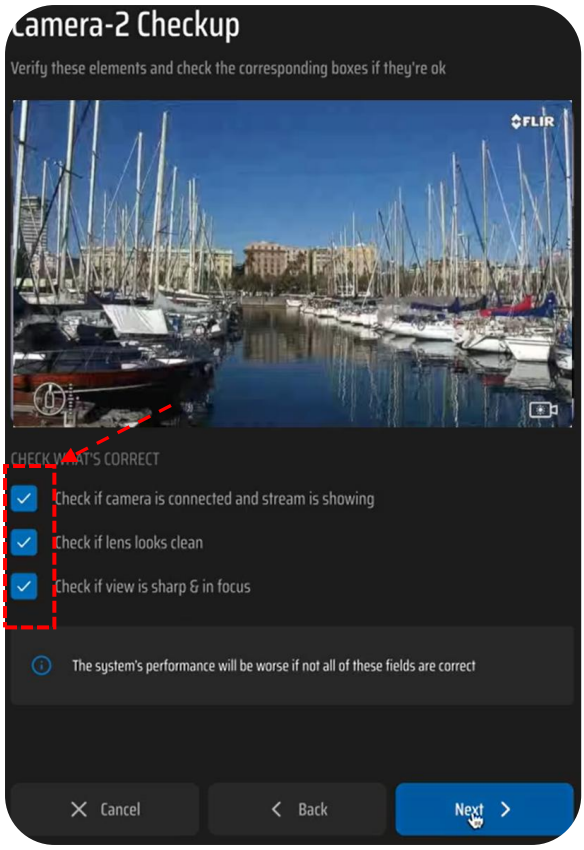


Thermal camera checkup.

Inspect the thermal camera video feed and ensure the following:
- Camera stream is available
- No dirt or debris on the lens
- Camera is in focus

Select all the checkmarks and click "Next".

NOTE: The system's performance will decrease if not all these fields are correct.



RGB camera checkup.

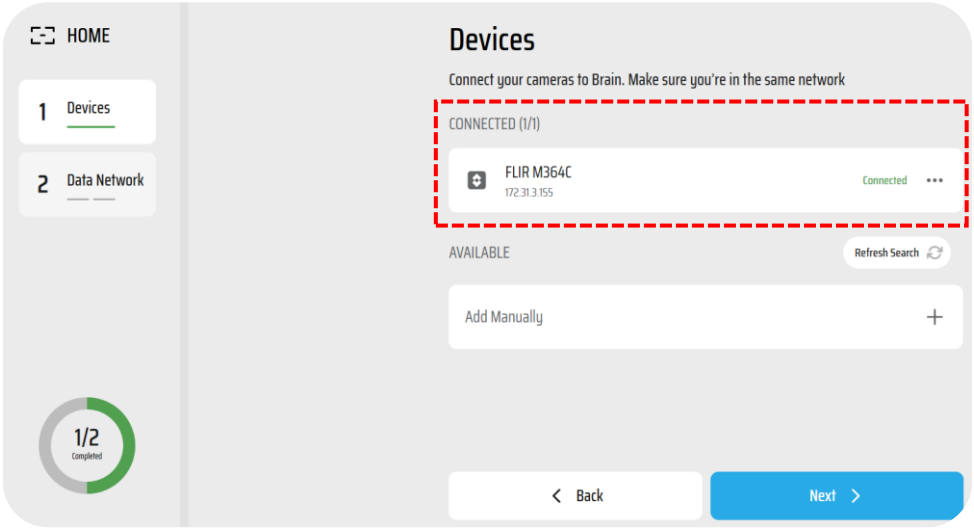
Inspect the daylight camera video feed and ensure the following:
- Camera stream is available
- No dirt or debris on the lens
- Camera is in focus

Select all the checkmarks and click "Next".

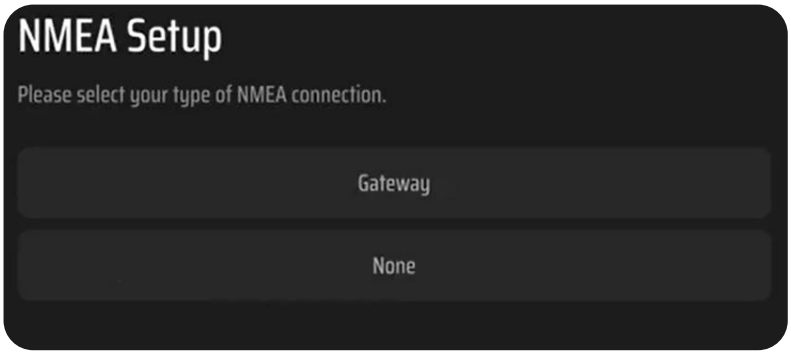
NOTE: The system's performance will decrease if not all these fields are correct.

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Your camera is now connected to the Brain system.

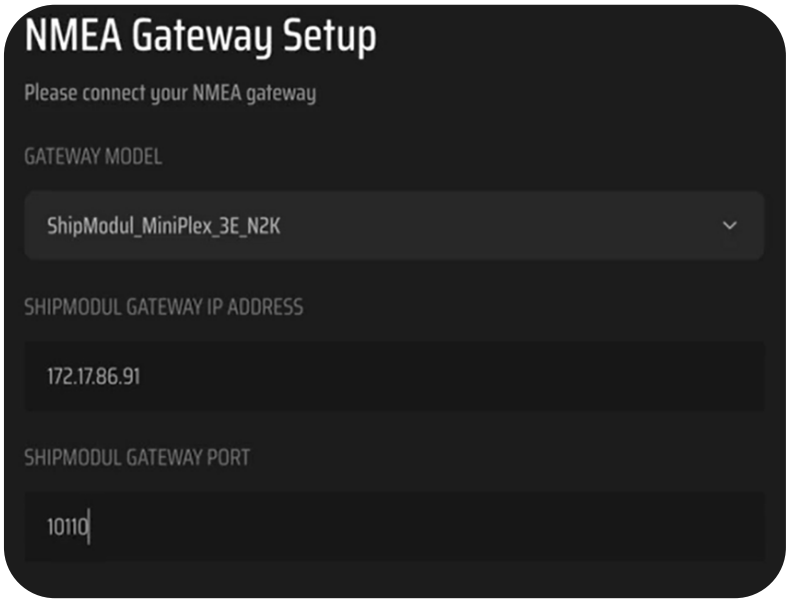


The next step is to set up the NMEA 2000 network if a Gateway is used. Otherwise, select "None"

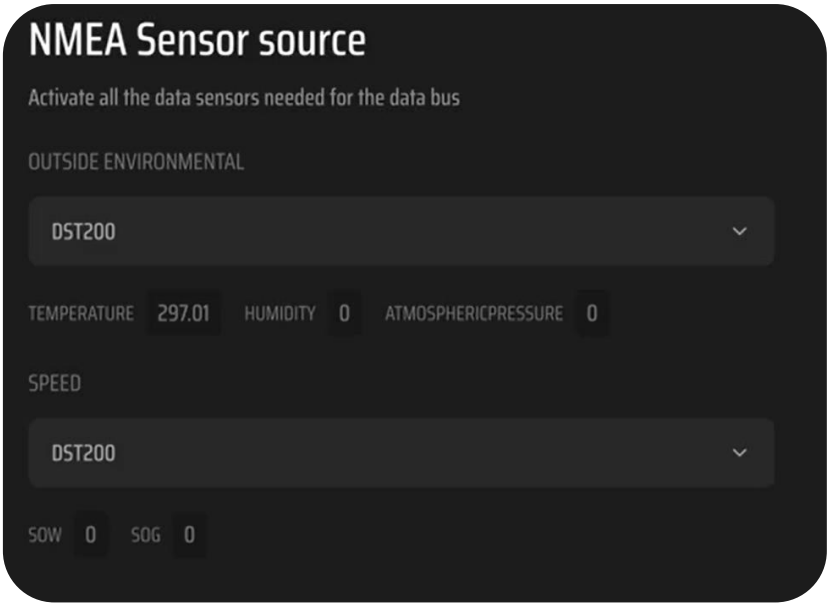


Under NMEA Gateway Setup, in the drop-down Gateway Model, fill out Shipmodul Gateway IP Address, and Shipomodul Gateway Port.

Click "Next" to continue.

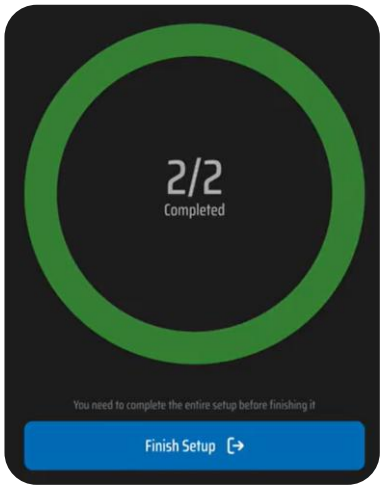


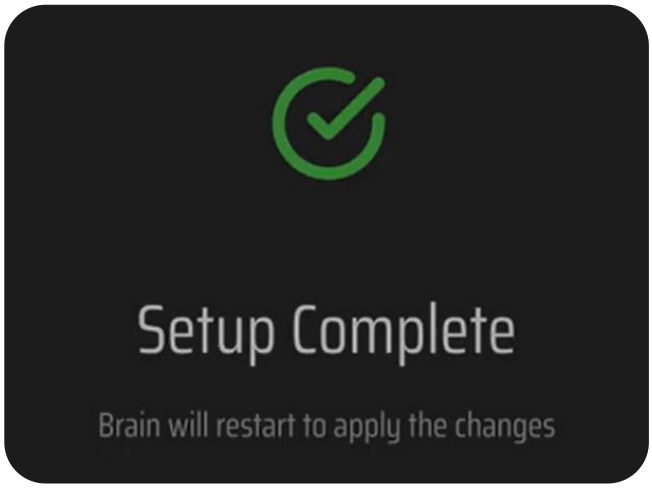
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NMEA2000 gateway integration is successful when NMEA data is displayed together with the name of the device supplying the data.

Select "Next", followed by "Finish Setup" to complete the setup. SEA.AI Brain will restart to apply the changes.





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After the system restarts, Thermal and daylight camera video streams will be displayed on the Brain's User Interface.

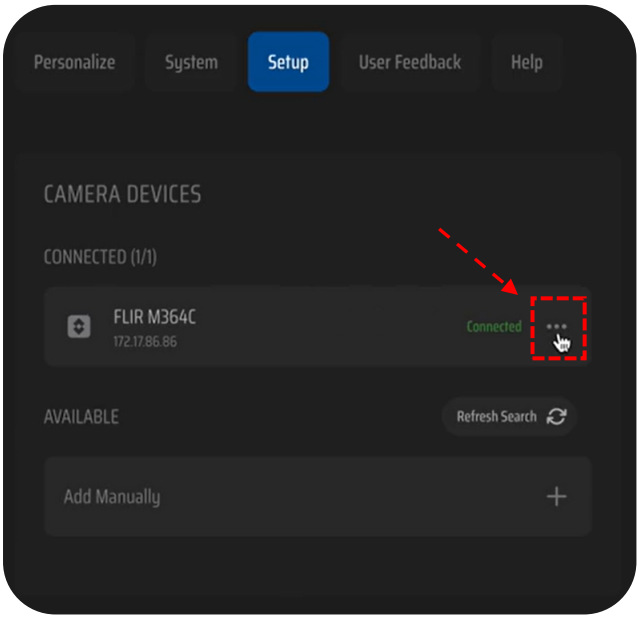


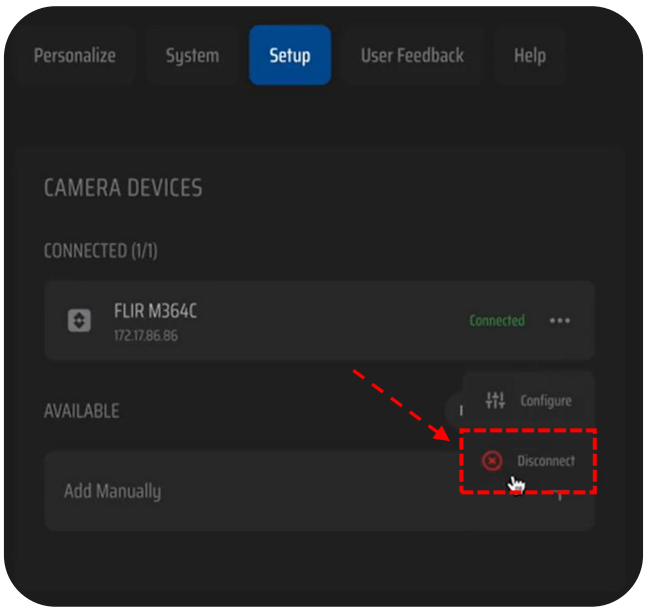
Camera disconnection

To disconnect the existing camera connection to your Brain system, open **Settings** menu, and under **Setup** click on three dots, followed by Disconnect (See below).

Click on the three dots corresponding to the thermal camera to be disconnected.

Click on "DISCONNECT" button.

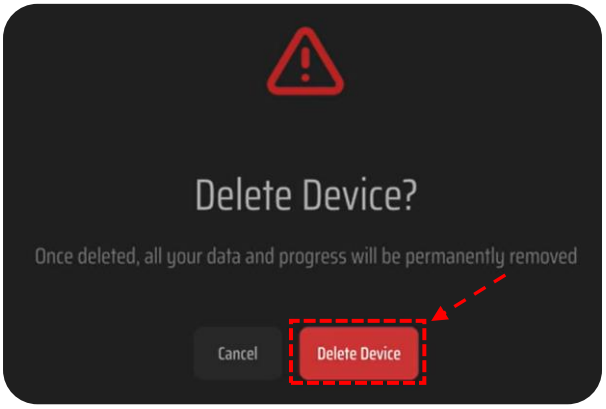


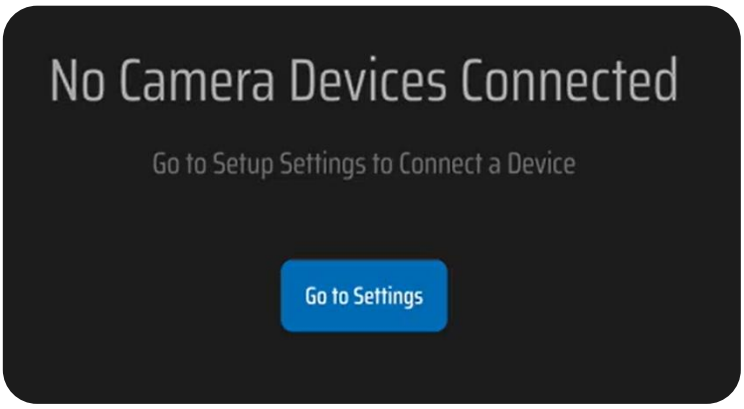


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Confirm your action by clicking “Delete Device”, below.

“NO CAMERA DEVICES CONNECTED” message appear on screen indicating a successful camera removal.

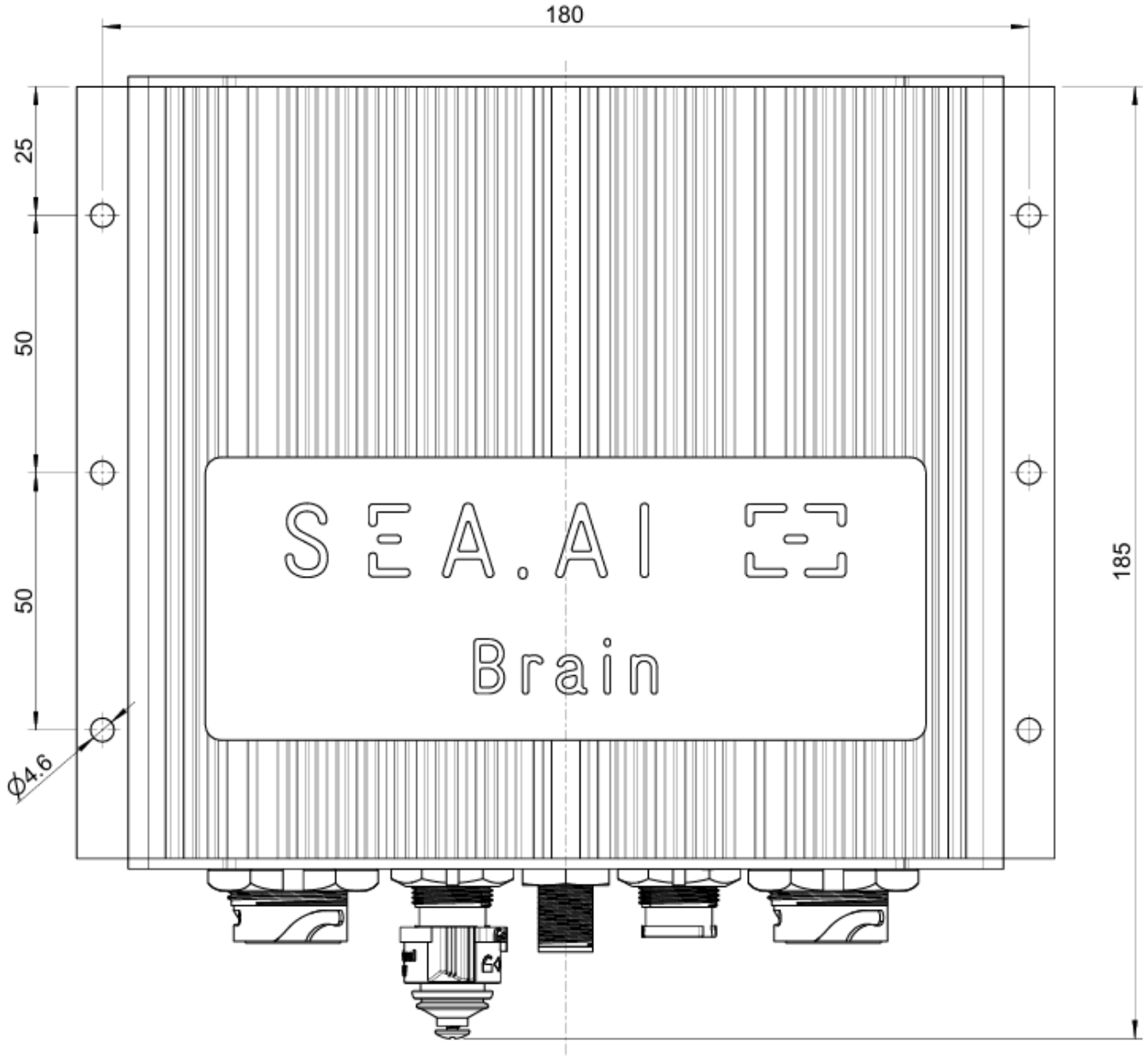




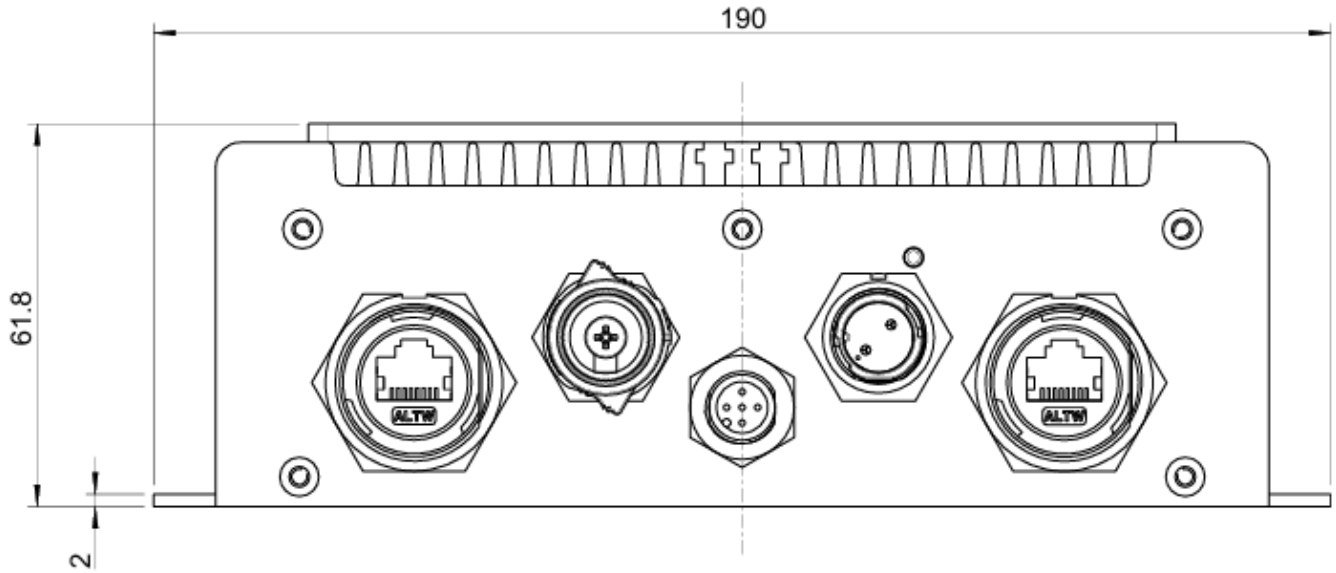
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6 Mechanical Drawings

You can download Brain's 2D drawing and 3D CAD files here: 2D and 3D, respectively.



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7 Maintenance

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

8 Technical Support

SEA.AI provides a range of technical support options:

Online Documentation: Brain

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:

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

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- NOTES :

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