

SEA.AI

SEA.AI OFFSHORE

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INSTALLATION MANUAL



SEA.AI Professional Services

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France

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## 1 Precaution of use

- The SEA.AI system must be installed by an experienced marine electronics technician, improper installation may void the warranty.



### **WARNING**

- Turn off the power before beginning to install the unit, as this may result in fire, electric shock or serious injury.
- Make sure that the power source is compatible with the voltage rating of the unit: connecting to an unsuitable power source may cause a fire or damage the unit.
- Do not disassemble or modify the equipment: this can result in fire, electric shock or serious injury.



### **WARNING**

- Do not rely exclusively on the SEA.AI system to steer the boat: for the safety of the boat and the people on board, the captain must monitor all available navigation aids. SEA.AI is not a substitute for a proper lookout.
- Adjust the masthead vision unit correctly: the adjustment of the camera has a significant impact on the operation of the system.

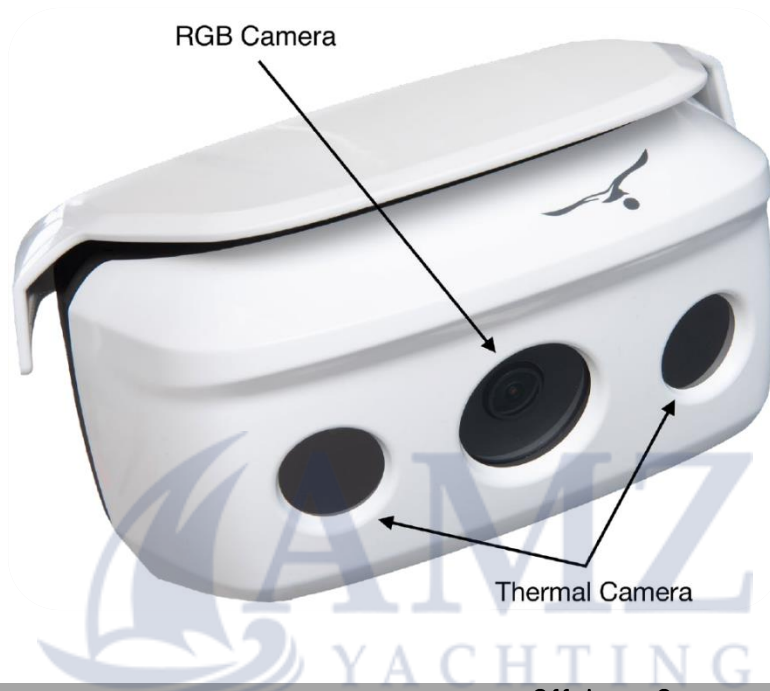


### **WARNING**

- Working at heights requires that safety instructions be followed.

## 2 General Information

- SEA.AI Offshore combines optical sensors and artificial intelligence to detect objects floating on your trajectory. SEA.AI automatically assesses the risk of collision in real time and warns of any possible danger.
- Having a SEA.AI system on board means improved safety for you and your crew.
- All SEA.AI systems can be controlled using the SEA.AI navigation app, which runs on smartphones and tablets (Android and iOS), on your chartplotter or on a computer.

**Offshore One****Thermal camera**

2x FLIR BOSON™  
320 x 256 px, 50°

**RGB camera**

5 Mpx low light vision  
2592 x 1944 px, 110°

**Range detection**

-Large size (yacht, fishing vessel...)	1000m
-Middle size (boat, beacon...)	250m
-Small size (MOB, buoy...)	100m

**Detection**

Thermal

**Weight**

990 g

**Dimensions**

190 x 143 x 106 mm

### 3 Product Registration

– The user must have previously registered online at the following address to obtain the serial password: [SEA.AI Connect](#).

### 4 Parts Included

Art N°	Designation	Qty
F01100	SEA.AI Offshore One	1
A02740	Y-splitter RJ45/NMEA Standard	1
A02680	Data Cable 25m V4 Offshore One	1
A01271	Mast Bracket V4_V3_2	1
A01260	Hexagon Screw DIN 4014 M5x60 A4	2
A01060	Hexagon Nut DIN 985 M5 A4	2
A01050	Washer DIN 9021 5 A4	4
A01350	Wind Sensor Bracket	1
A02678	Power Cable 25m V4 Offshore One	1
A01272	Hexagon Screw DIN 933/ISO 4017 M5x16 A4	4
A02980	RJ45 connector Cat 6 Ethernet Stecker	1
Document	Offshore user guide	1

### 5 Tools and Equipment Needed

- Bracket's Mounting screws (x4) – Refer to Chapter 6.3 for more details
- Power drill with appropriate drill bit
- Pen
- Tape Measure or ruler
- 8mm wrench
- 8mm ratchet wrench
- Necessary for cables routing in the mast
- Computer
- Ethernet Router
- On-board network adapter

## 6 Installation

### 6.1 General view of the installation

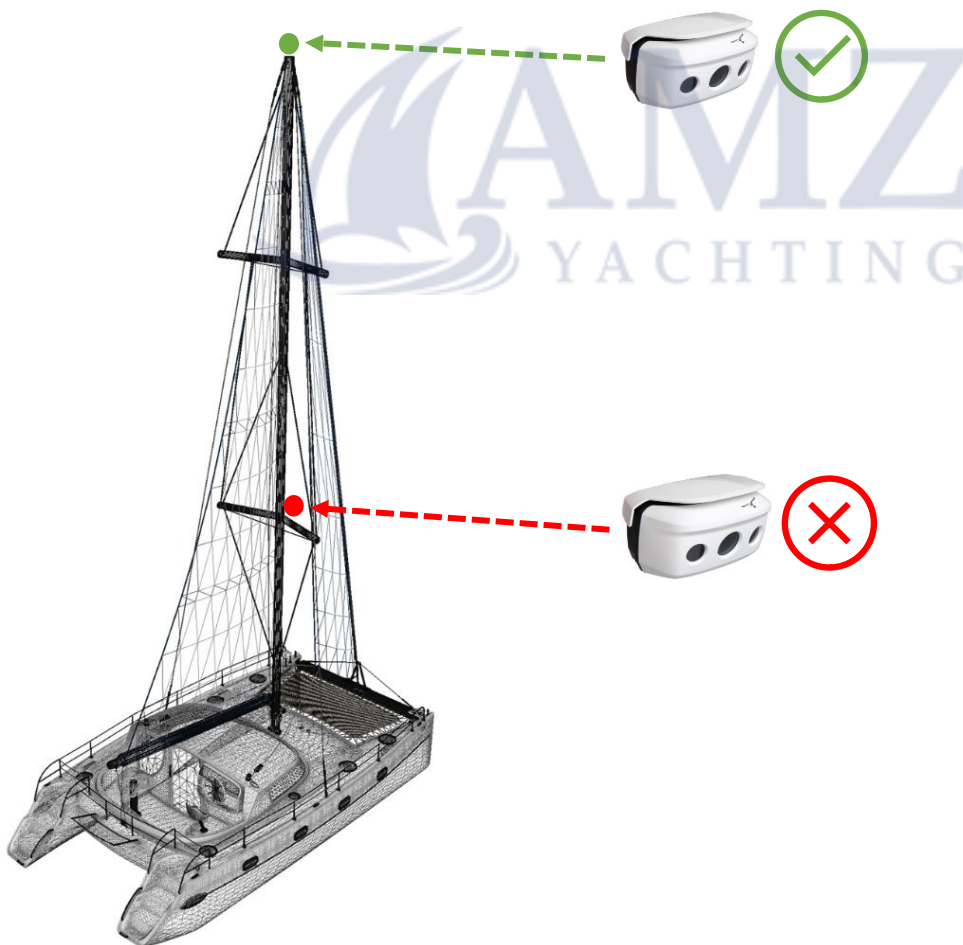
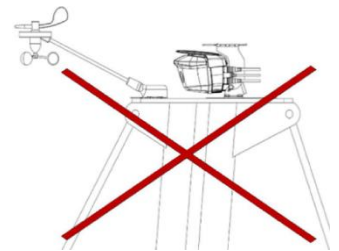
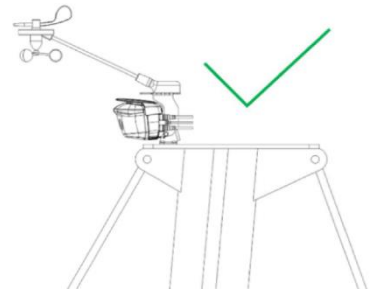


## 6.2 System installation

The installation of the system must comply with the following points:

- The system must be installed at the highest point of the boat
- The system must be installed at a minimum height of 8 meters
- The Offshore One's vision field must be completely clear.

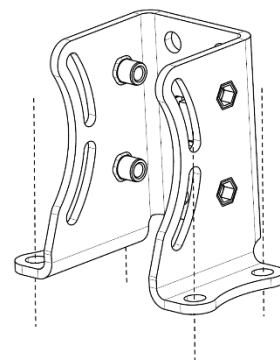
**NOTE :** Sufficient space at the rear of the system must be provided for the proper handling of cables and electrical connectors.



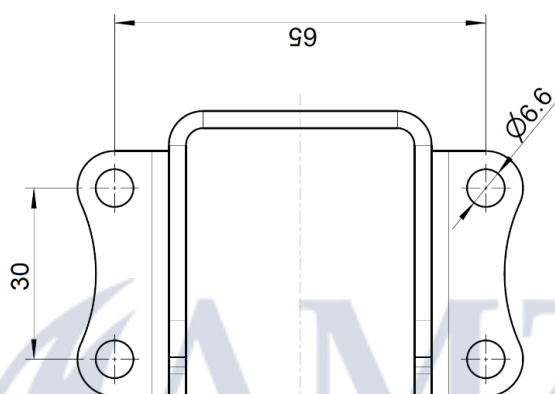
### 6.3 Attaching Offshore One's bracket (Art N° A01271)

The following points must be observed when mounting the system:

- The system bracket must be fixed with four 6mm screws (not included)
- adapted to the characteristics of the support on which it is mounted (drawings of the bracket available page 28).
- The fixing screws must be secured with threadlockers or locknuts.



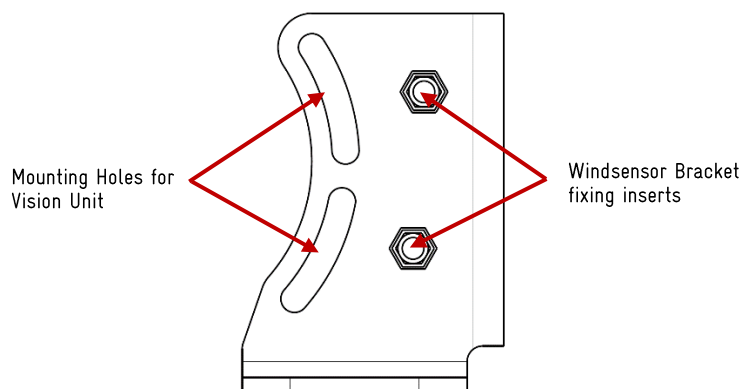
VU bracket's holes pattern



### 6.4 Mounting Offshore One on the bracket

To attach the system to the bracket, use x2 screws Art N° A01260, x4 washers Art N° A01050 / x2 nuts Art N° A01060, provided in the installation kit.

A01271 Left View





**NOTE :** If necessary, the windsensor bracket (Art N° A01350) included in the installation kit can be attached to the system bracket (Art N° A01271) by using x4 hexagonal screws M5x16 (Art N° A01272).



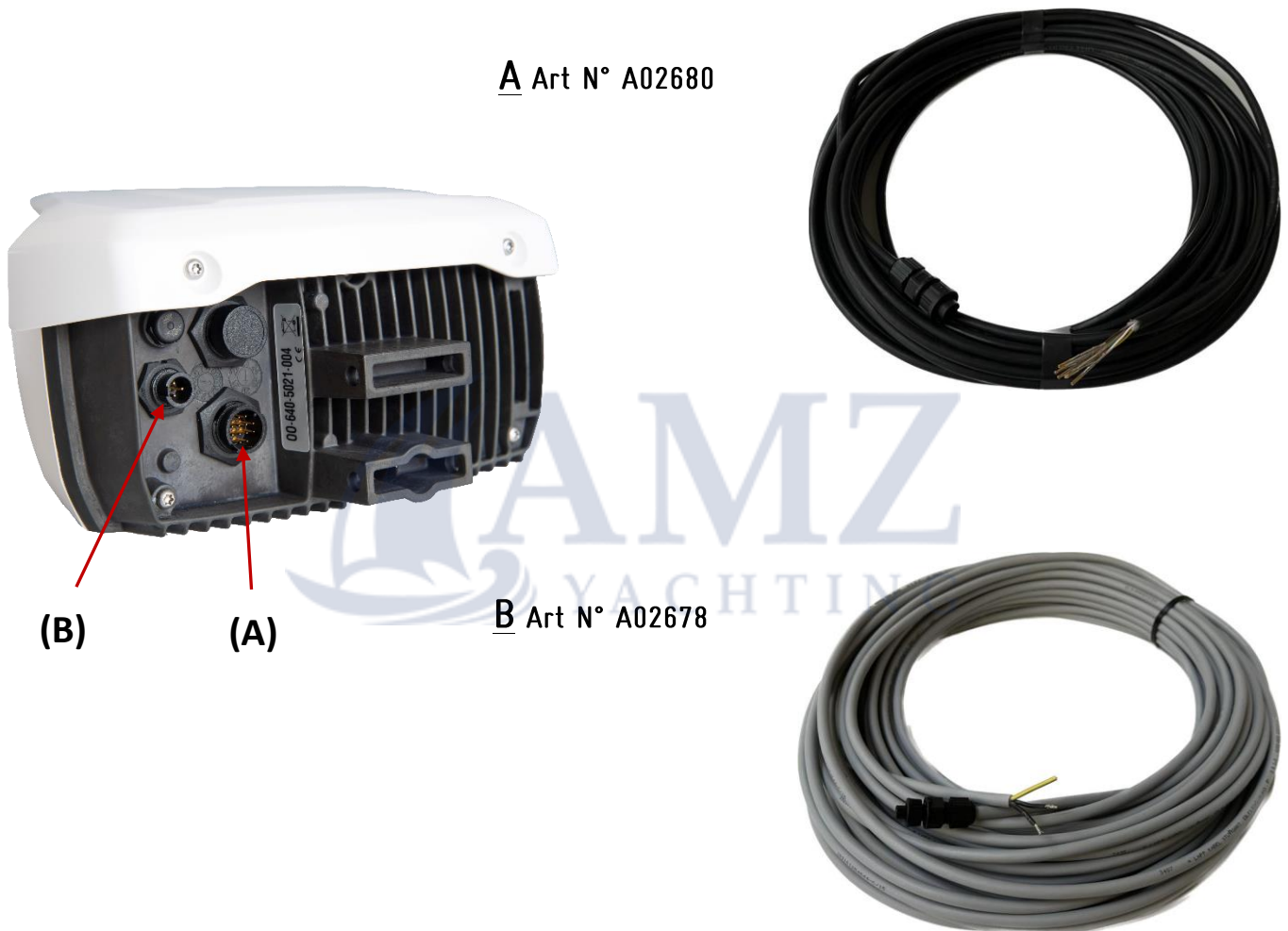
**NOTE :** The inclination of the system will have to be adjusted during the commissioning (+/- 15°)



**WARNING:** Offshore One must not be painted or covered!

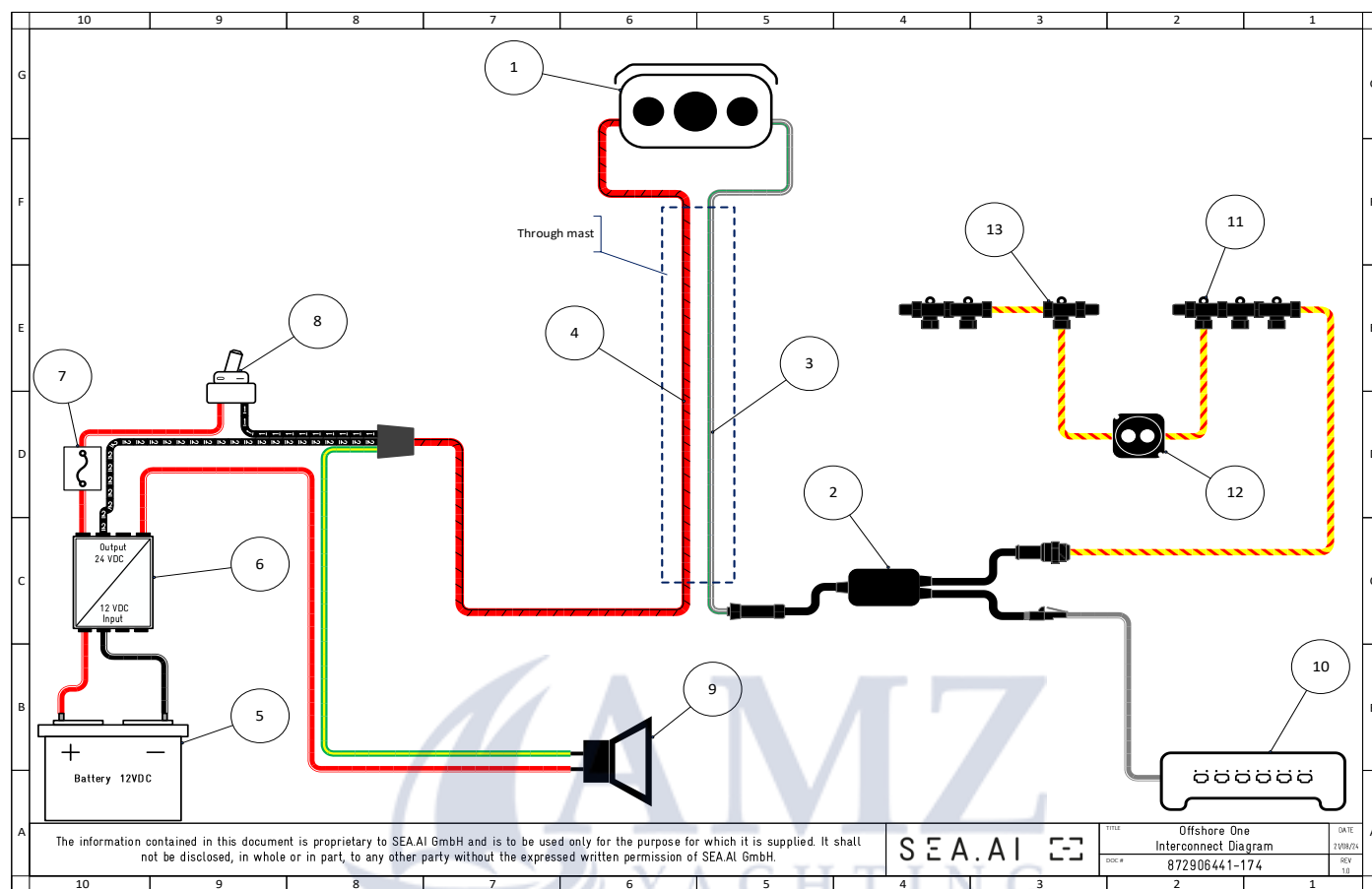
## 6.5 Connecting Offshore One

After routing the cables, connect the **data cable** (label A Art N° A02680) and the **power cable** (label B Art N° A02678) to the corresponding sockets on the system.

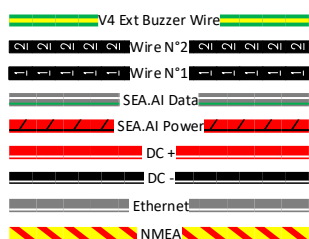
**WARNING:**

- Circular connectors must be properly locked.
- Cables must be properly secured so that their weight is not supported by the connectors.

## 6.6 Wiring Offshore One



BOM			
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	SEA.AI OFFSHORE ONE UNIT	F01100
2	1	Y-SPLITTER RJ45 / NMEA	A02740
3	1	DATA CABLE 25M	A02680
4	1	POWER CABLE 25M	A02678
5	1	12VDC POWER SUPPLY	N/A
6	1	12/24 DC/DC CONVERTER	N/A
7	1	FAST BLOW FUSE 3A	N/A
8	1	POWER SWITCH	N/A
9	1	EXTERNAL BUZZER	N/A
10	1	BOAT LAN	N/A
11	1	SEA.AI DEDICATED BACKBONE	N/A
12	1	NMEA 2000 BRIDGE	N/A
13	1	BOAT BACKBONE	N/A



## LEGEND

NOTE: SEA.AI does not supply item from 5 to 13 but can recommend the manufacturers and models.



Use original SEA.AI cables and plugs, signal quality and performance will be reduced with incorrect cabling.

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6.7 Connecting the Offshore One unit

WARNING: Incorrect positive and negative pinout can damage the system. Make sure the power supply is secured with a fuse (max 5A).

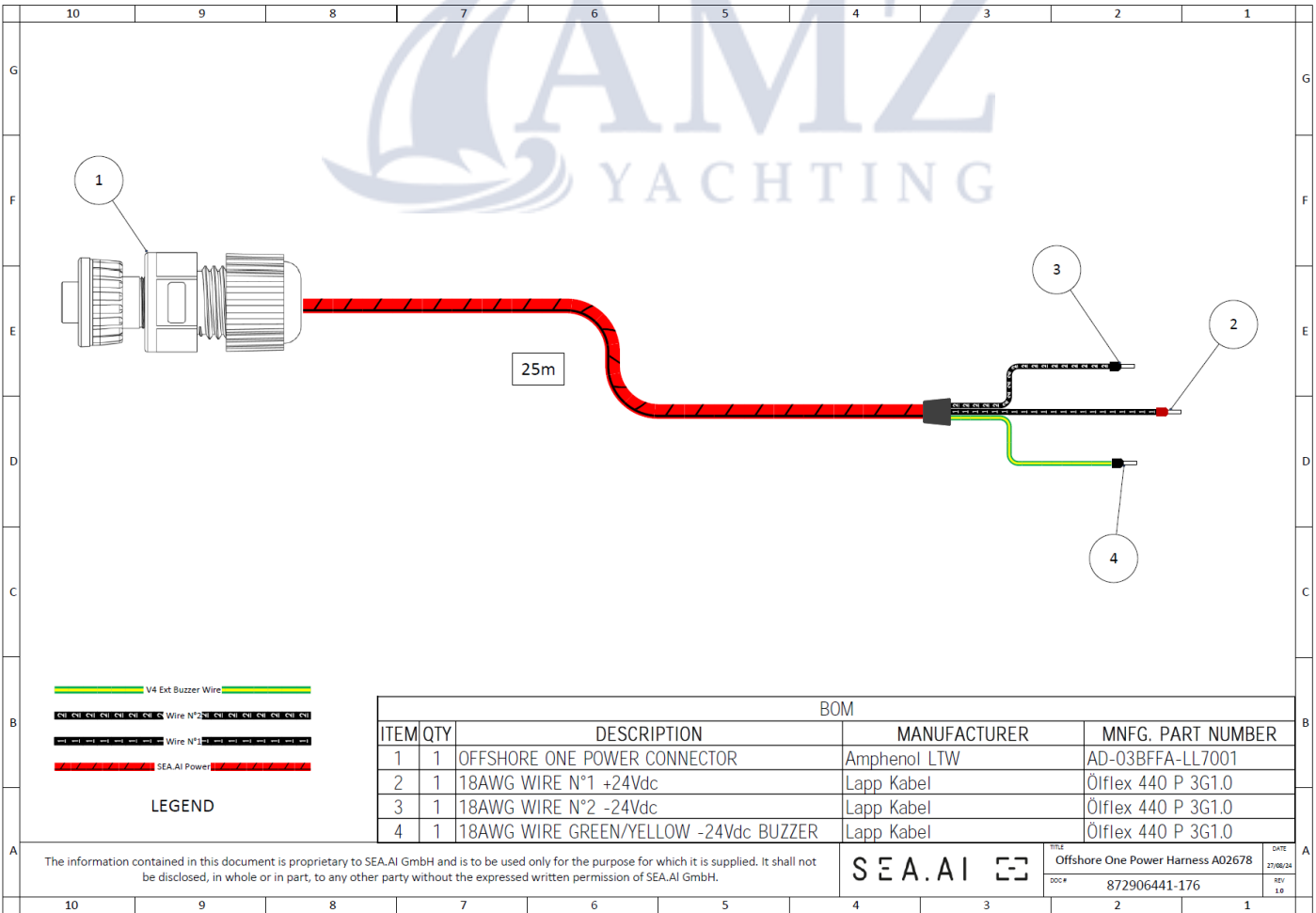
Power cable

Connect the power cable to the boat's electrical system:

- Supply voltage 24 V stabilized.
- The power supply must be protected by a 3A FAST-BLOW type fuse.
- The power supply must be subject to an independent switch.

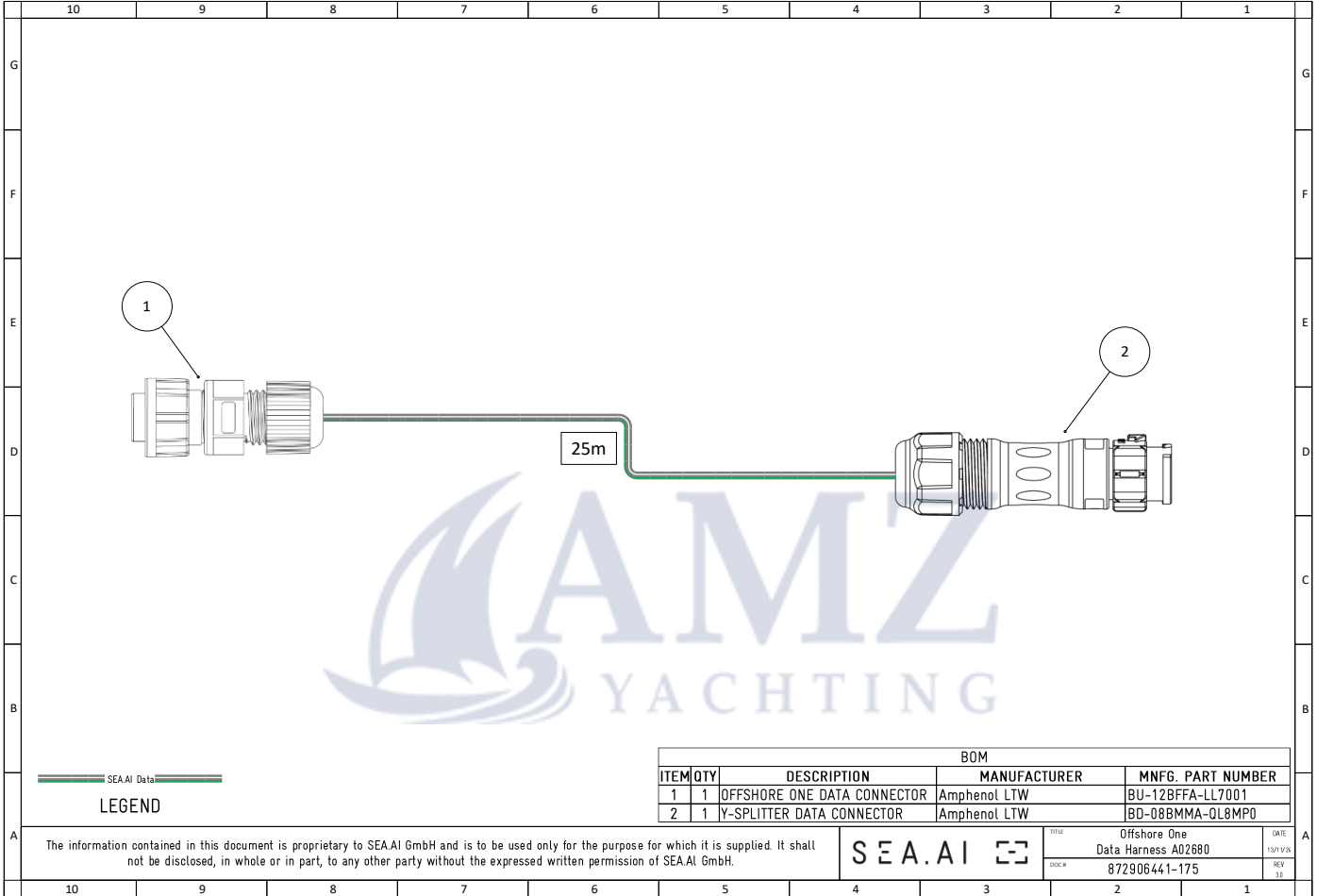
Connect the power cable from boat's breaker to the Offshore One's **B** socket.

- Wire N°1: +24Vdc
- Wire N°2: -24Vdc
- Wire Green/ Yellow: -24Vdc External Buzzer



Mast data cable

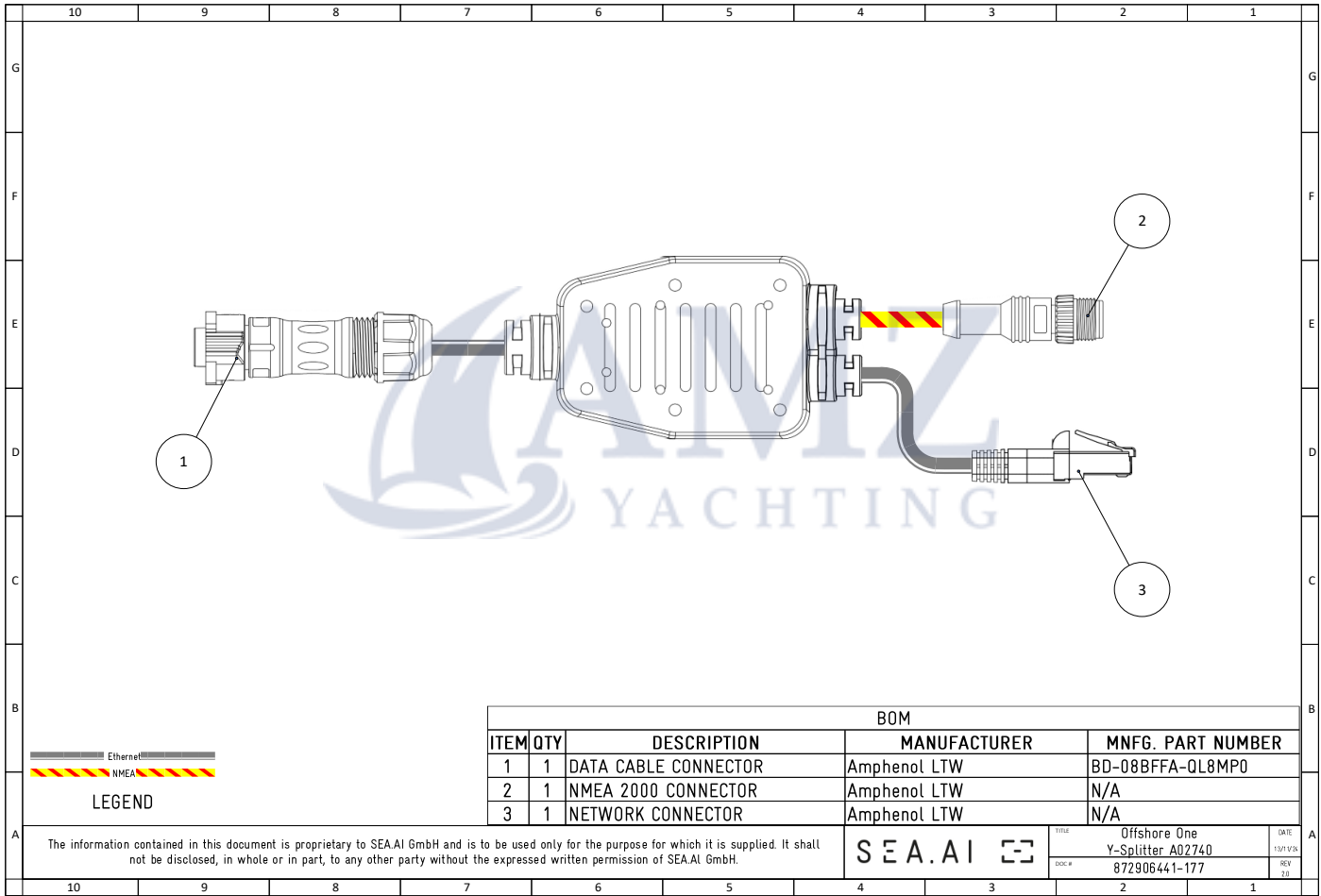
The mast data cable is connected to the SEA.AI Offshore One unit on the top of the mast (**socket A**) and to the Y-SPLITTER (Art N° 02740) 8 pin connector inside the boat.



“Y”- Splitter cable

The Y-cable is necessary to split the ethernet cable and the NMEA 2000 backbone.  
The ethernet cable must be connected to your boat LAN (Ethernet HUB; Router; MFD; etc...) or your onboard computer.  
To receive boat data, SEA.AI Offshore One must be connected to the boat bus backbone (NMEA 2000) in place of a termination resistor.

Termination resistor is mounted inside SEA.AI Offshore One Unit. A separate backbone for SEA.AI Offshore One with an NMEA bridge connection to the boat backbone is highly recommended.

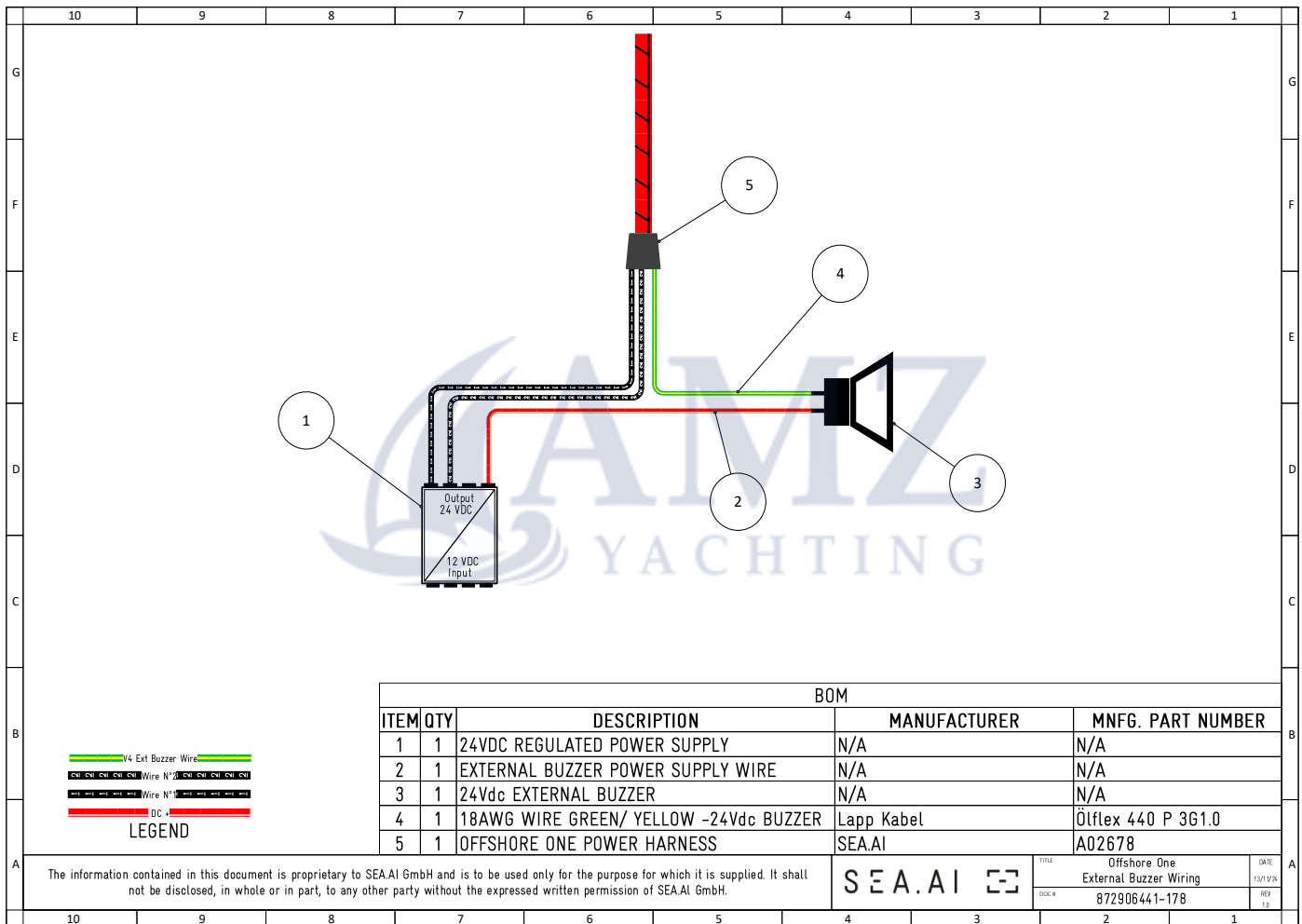


## 6.8 External Buzzer

SEA.AI Offshore One has an in-built switch to control an external buzzer.

The external buzzer needs to be continuous to correctly reflect alarm intervals generated by SEA.AI Offshore One.

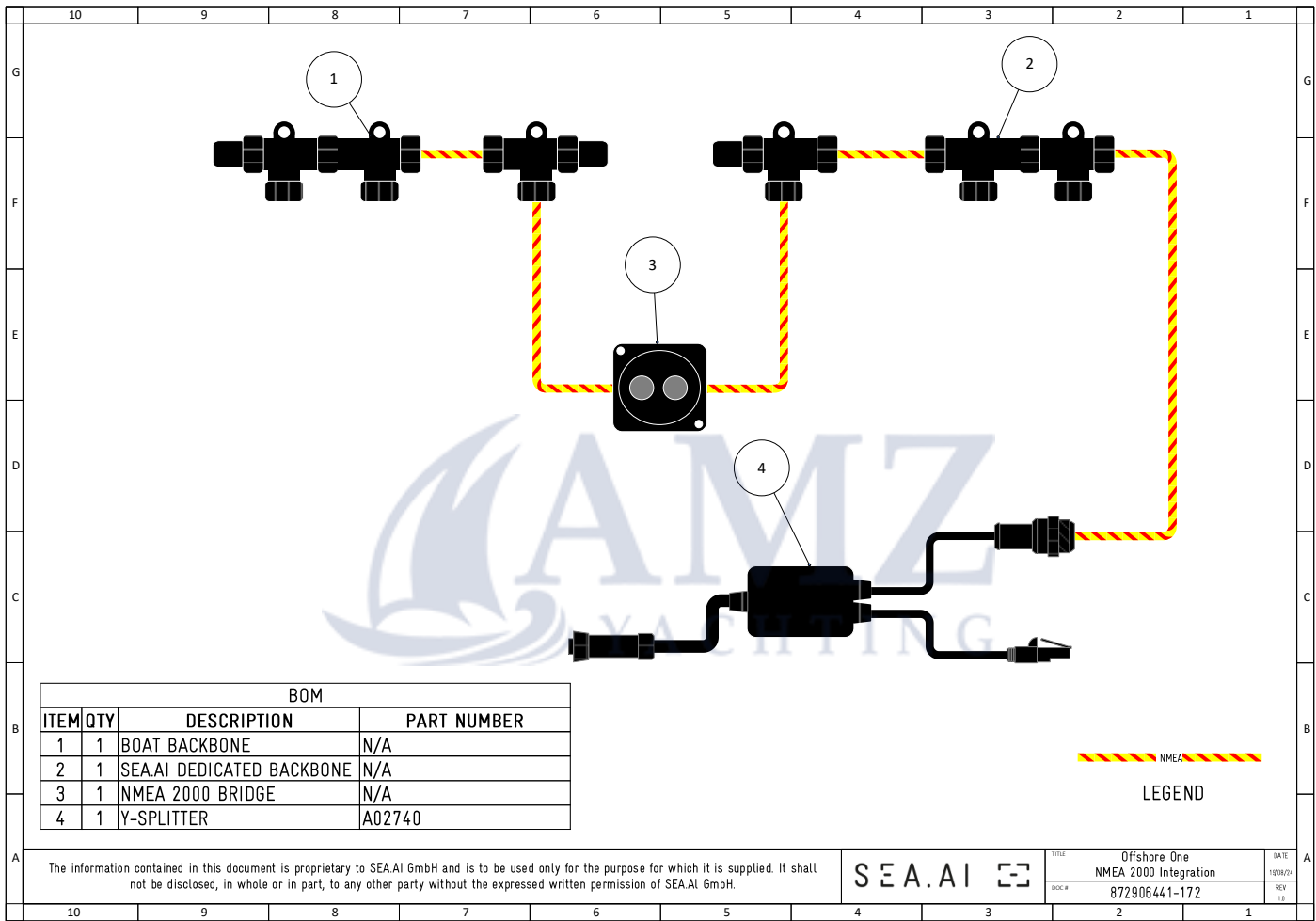
Connect the external buzzer's positive pin to the power supply, and the negative pin to wire **GREEN/YELLOW** of the mast power cable.



**WARNING: Maximum Current / Voltage: 1A / 24VDC**

6.9 Connecting to NMEA 2000 Network

Connect the Y-Splitter in place of a terminator. Termination resistor is mounted inside SEA.AI Offshore One Unit. A separate backbone for SEA.AI Offshore One with an NMEA bridge connection to the boat backbone is highly recommended.

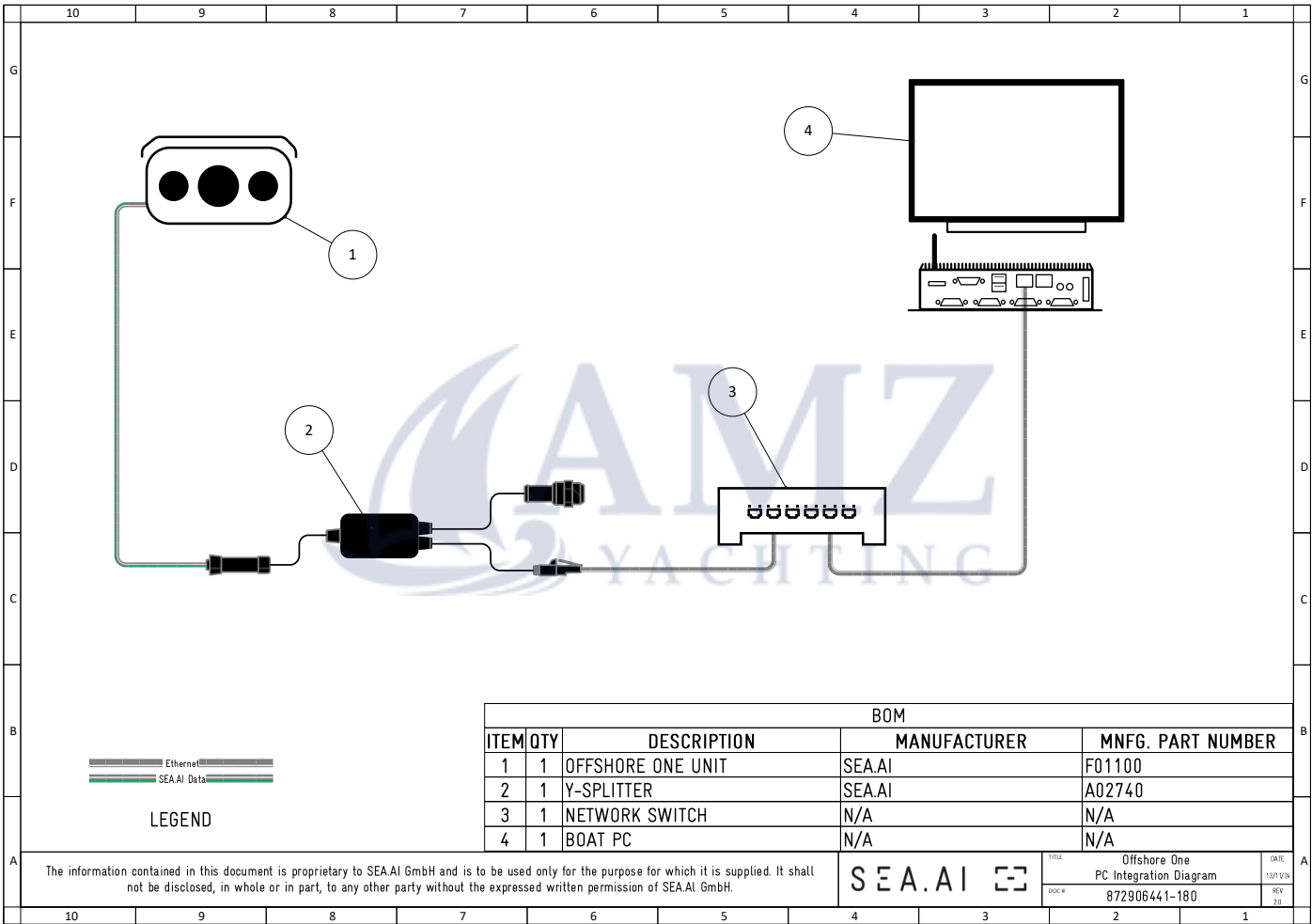




6.10 Integration examples

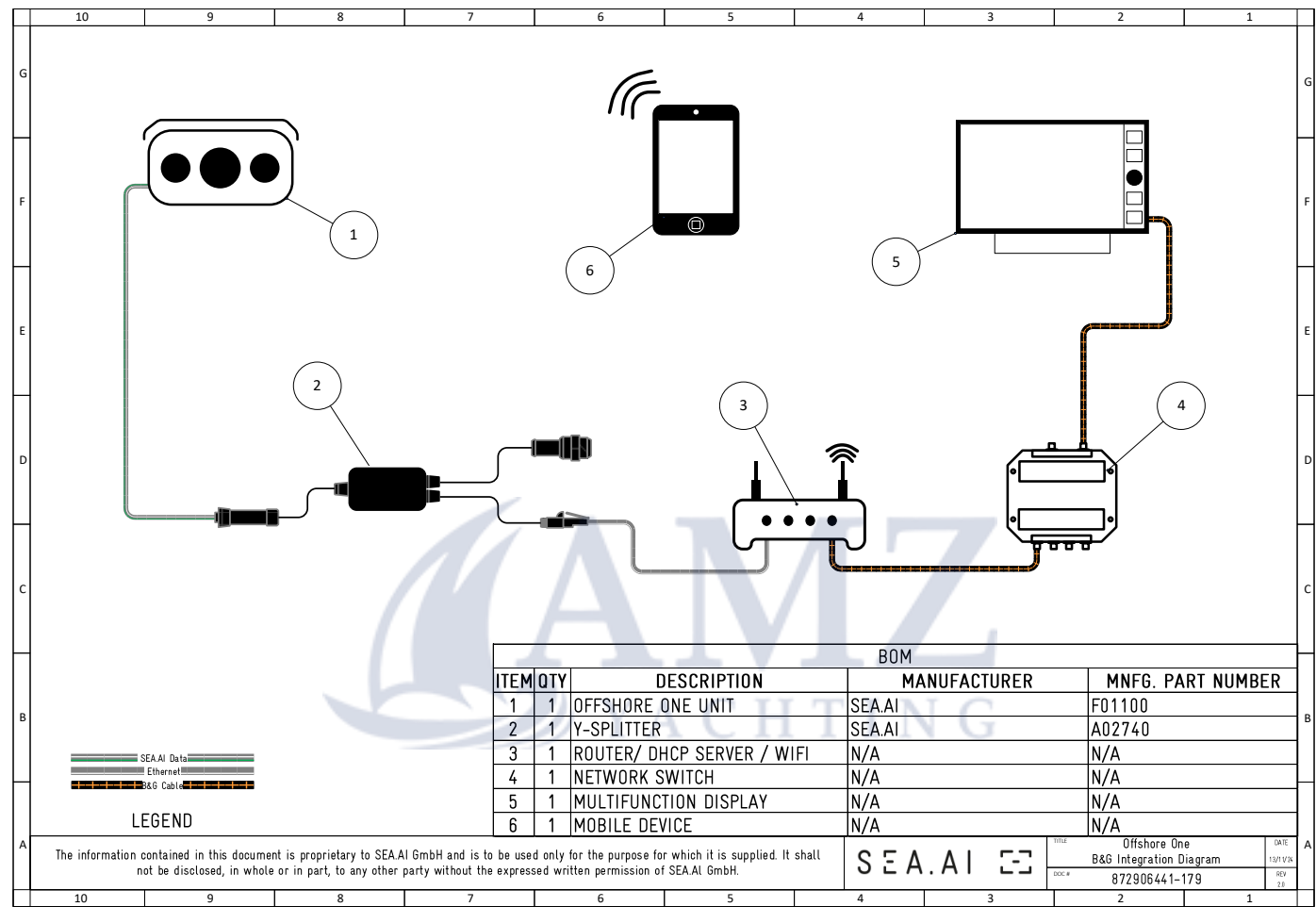
PC Integration

For direct PC Integration, set the computer's Ethernet port used for SEA.AI, on the same static IP address range (IPV4) than Offshore One.  
OFFSHORE ONE IP ADDRESS: 192.168.17.11



B&G® Integration

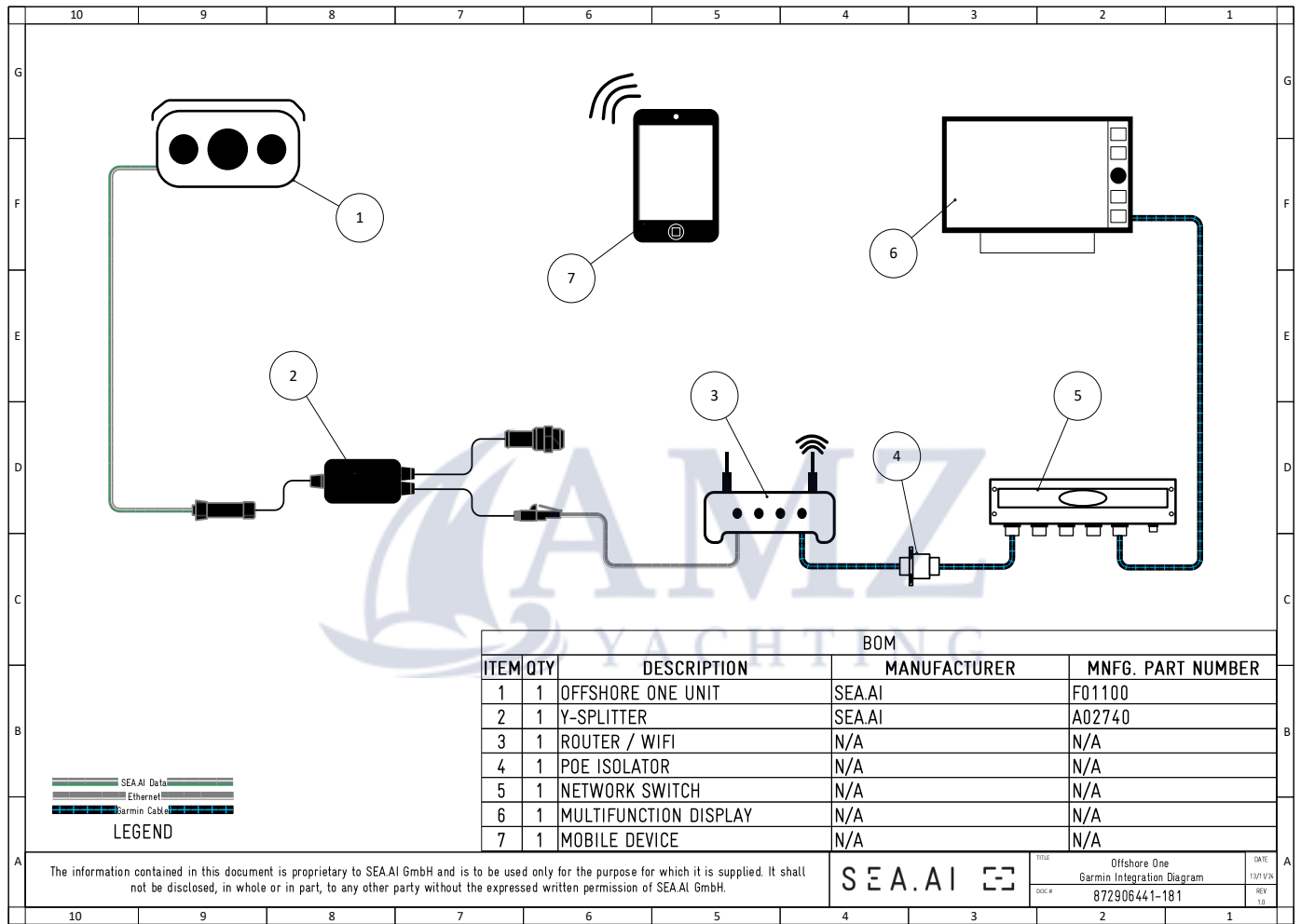
For B&G® Network Integration, a router with DHCP server functionality must be add to integrate B&G's® MFD.



Garmin® Integration

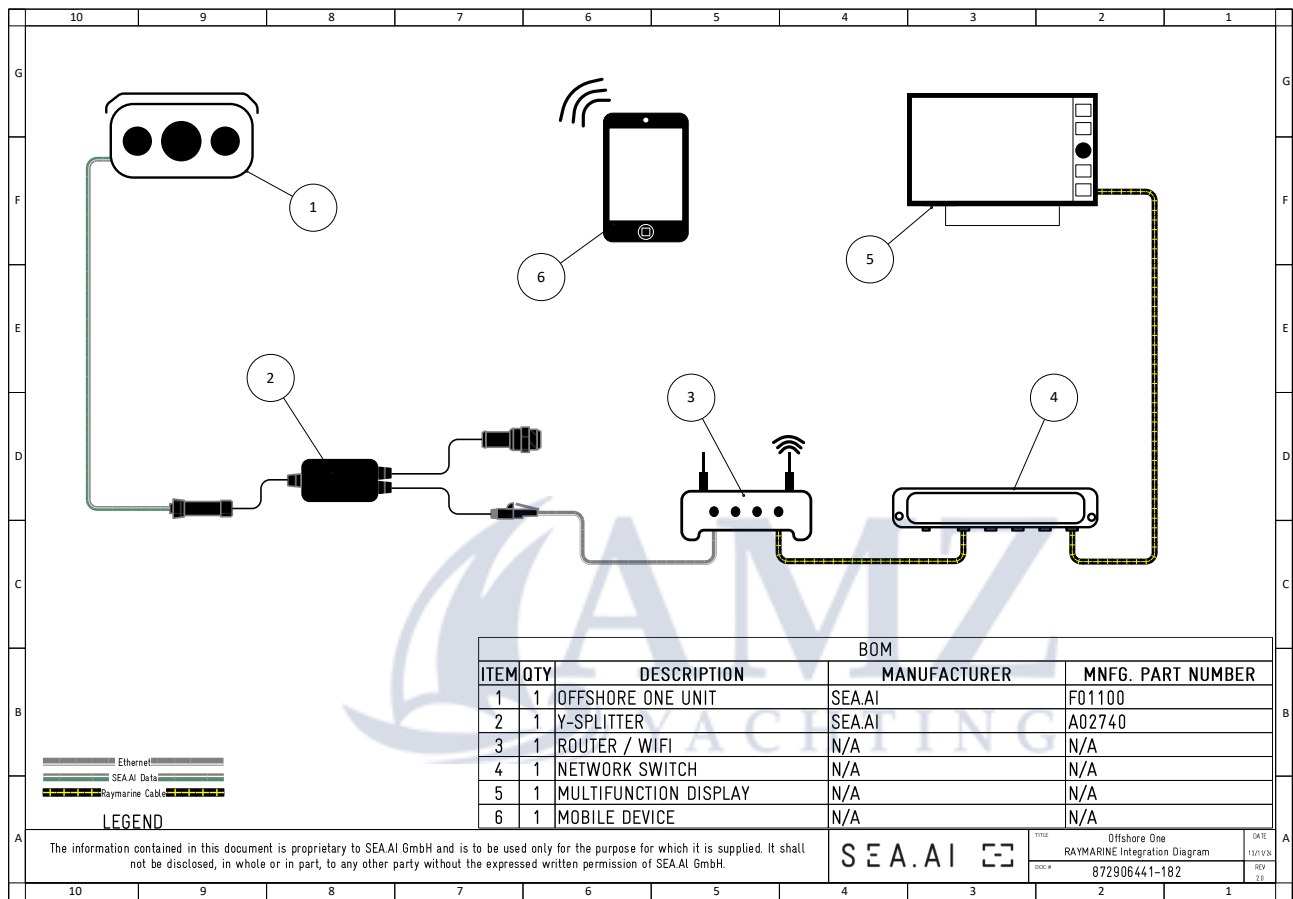
For Garmin® Network Integration, a POE isolator must be added to the Garmin® network switch port used for SEA.AI.

For mobiles devices use, a WIFI router could be integrated with DHCP FUNCTION OFF, to avoid DHCP conflict with MFD.



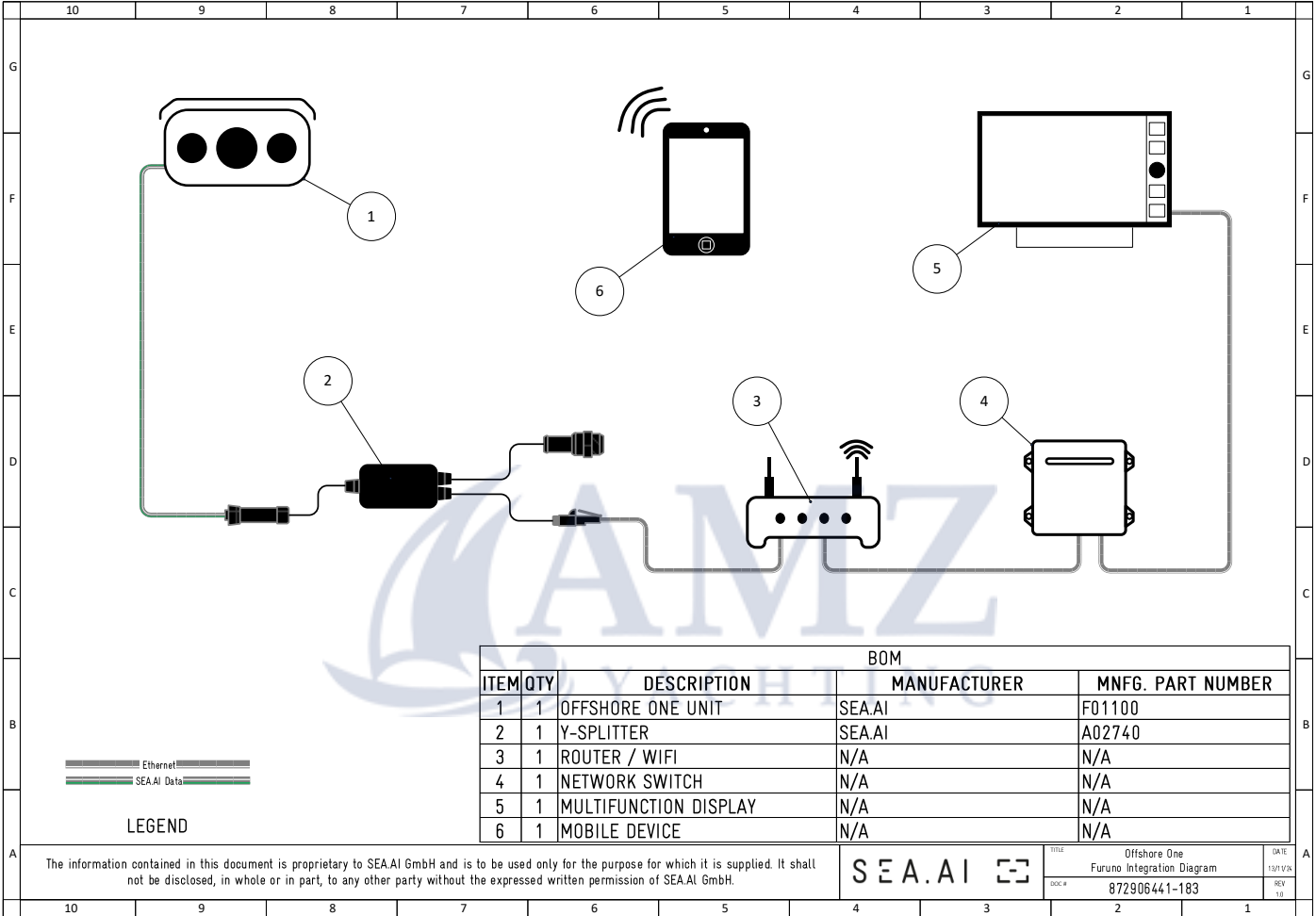
Raymarine® Integration

Raymarine® network:  
For mobiles devices use, a WIFI router could be integrated with DHCP FUNCTION OFF, to avoid DHCP conflict with MFD.



Furuno® Integration

Furuno® network:  
For mobiles devices use, a WIFI router could be integrated with DHCP FUNCTION OFF, to avoid DHCP conflict with MFD.



## 7 Commissioning & Configuration

SEA.AI Icon

- Turn on the SEA.AI system (start-up time is approximately two minutes).
- On MFD, the access to the application is done via the SEA.AI icon (appears automatically).
- From a computer, use the following links to access the SEA.AI home screen.



-System integrated in a network with DHCP server (router) :

<http://oscar.local/WebContent/page/welcome.html>

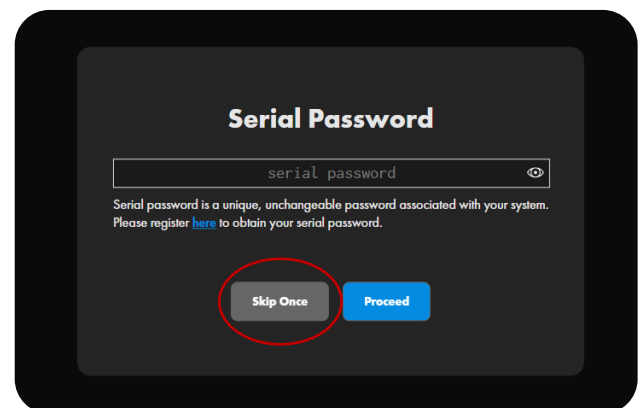
-System directly connected to a computer (static IP address) :

<http://192.168.17.11/WebContent/page/welcome.html>



An installer mode is available for settings and parameters of the SEA.AI system (pages 21 & 23) in the absence of a serial password.

This **unique** access is available via the Serial Password page, clic “Skip Once” button.



Fill in the position of the vision unit (VU) on the boat with the following informations:

- Mast rake
- Height of the Vision Unit above sea level
- Distance from mast bottom to bow

Valid by pressing **"Next"** button

1 2

???

???

???

Mast rake (boat to mast angle)  (°)

Camera module mounting height  (m)

Distance from mast root to the bow  (m)

Accuracy of 0.5m or less is mandatory for correct object distance estimation

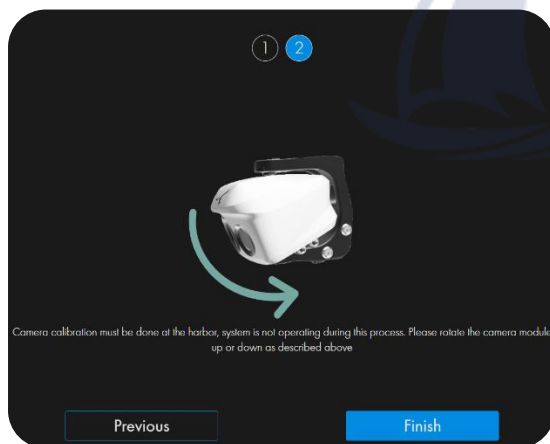
Cancel Next

Adjust the angle of the vision unit as indicated on the interface. (needs 2 technicians: one on top of the mast; one at the display).

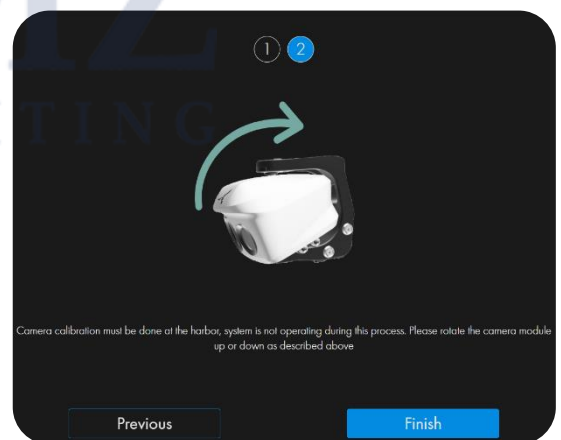
Vision Unit tightening torque: 2.5Nm

After Vision Unit tightening, valid by pressing **"Finish"** button

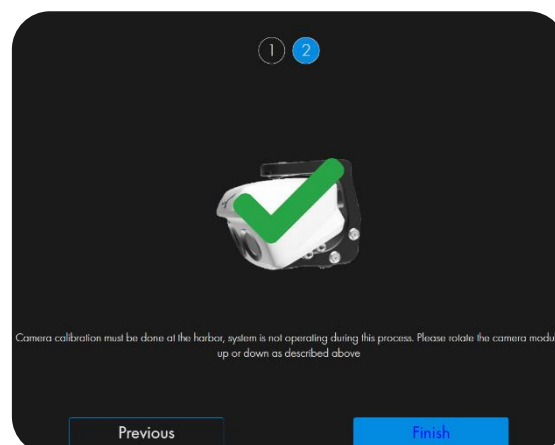
Too high, rotate Vision Unit down.



Too low, rotate Vision Unit up.

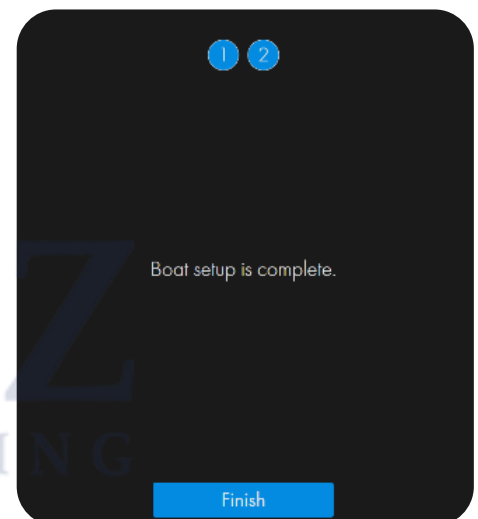
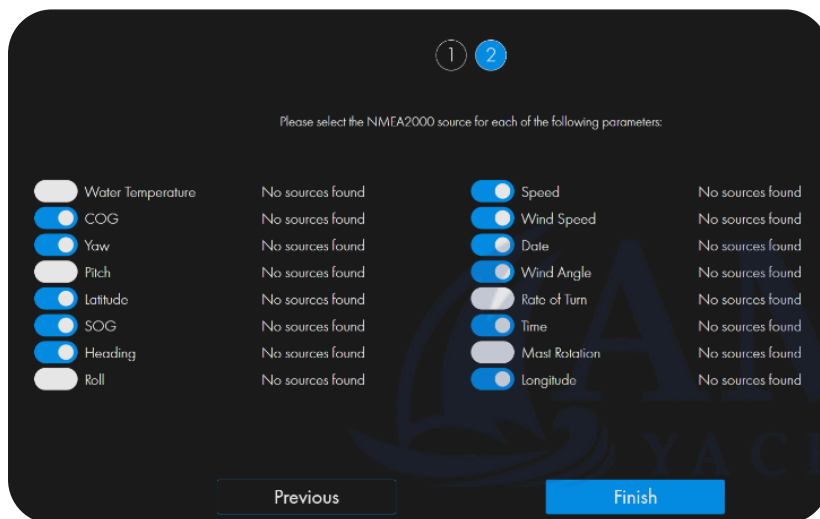
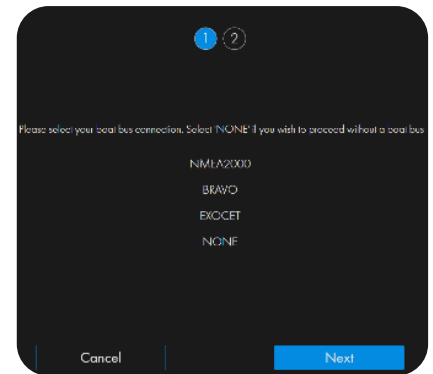


Correct Vision Unit angle.



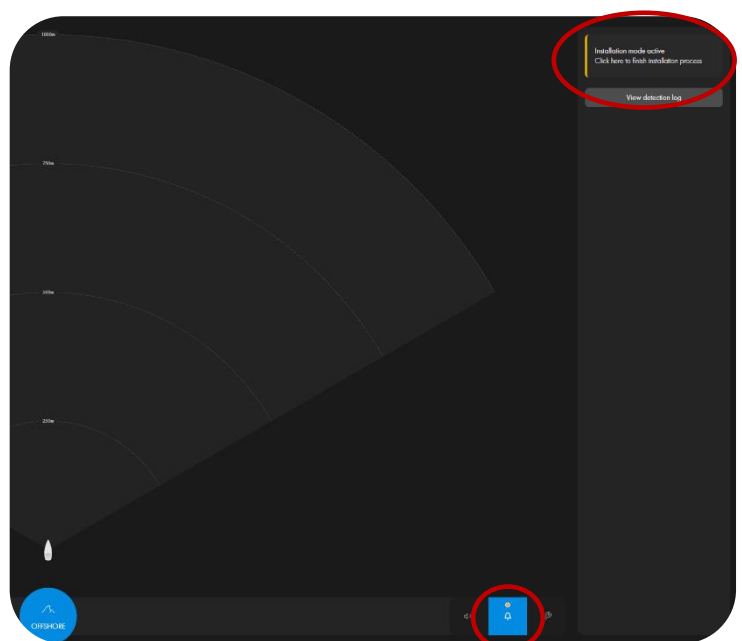
Configure SEA.AI with the onboard information network.  
Select the network type (NMEA 2000, BRAVO, EXOCET, NONE).  
Select the information to be displayed  
If multiple sources of same type of data are available, chose the instrument to be used

**NOTE:** Uncheck "No sources found" data parameters.



Once all settings and parameters have been completed, you can log out of installer mode by clicking on the "Click here to finish installation process" button on the notification page.

Following this action, the next connection to the SEA.AI system must be made using the Serial Password.



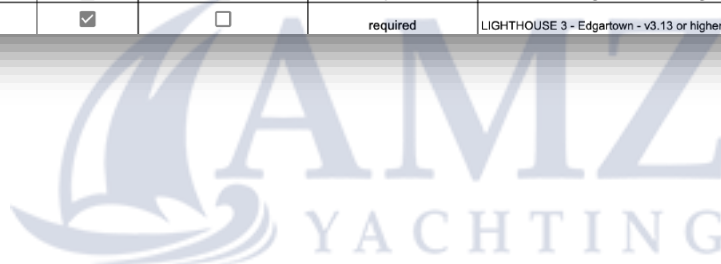


## PGN List.

PGN	Description
Water Temperature	130311
Course over ground	129026
Yaw	127257
Pitch	127257
Latitude	129025
Speed over ground	129026
Heading	127250
Roll	127257
Speed over water	128259
Wind speed	130306
Date	126992
Wind angle	130306
Rate of turn	127251
Time	126992
Mast rotation	65330
Longitude	129025

## 8 MFD COMPATIBILITY

One, Offshore, Competition					
Brand	Model	App Running	Internal MFD Alarm	NMEA Buzzer	Comments
B&G	Zeus3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	reccomended	App is running but very slow performance due to slow MFD HW , wifi router necessary
	Zeus3S	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	reccomended	wifi router necessary
	Vulcan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	reccomended	App is running but very slow performance due to slow MFD HW , wifi router necessary
	Nemesis	<input type="checkbox"/>	<input type="checkbox"/>	reccomended	
Simrad	evo3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	reccomended	wifi router necessary
	evo3S	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	reccomended	wifi router necessary
Garmin	One Helm compatible MFDs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	reccomended	
Furuno	TZtouch3 series: TZT9F/12F/16F/19F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	required	
	TZtouch2 series: TZT2BB/TZTL12F/15F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	required	
Raymarine	Axiom	<input checked="" type="checkbox"/>	<input type="checkbox"/>	required	LIGHTHOUSE 3 - Edgartown - v3.13 or higher Update
	Axiom Pro	<input checked="" type="checkbox"/>	<input type="checkbox"/>	required	LIGHTHOUSE 3 - Edgartown - v3.13 or higher Update
	Axiom XL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	required	LIGHTHOUSE 3 - Edgartown - v3.13 or higher Update



## 9 MAINTENANCE

The system should always be updated to the latest available software version.

You should update your software frequently to benefit from all the improvements.

The software can be updated with the SEA.AI Navigation application.

The vision unit (VU) and camera lenses should be cleaned periodically, clean the lenses if you notice a decrease in image quality or dust accumulation.

### WARNING:



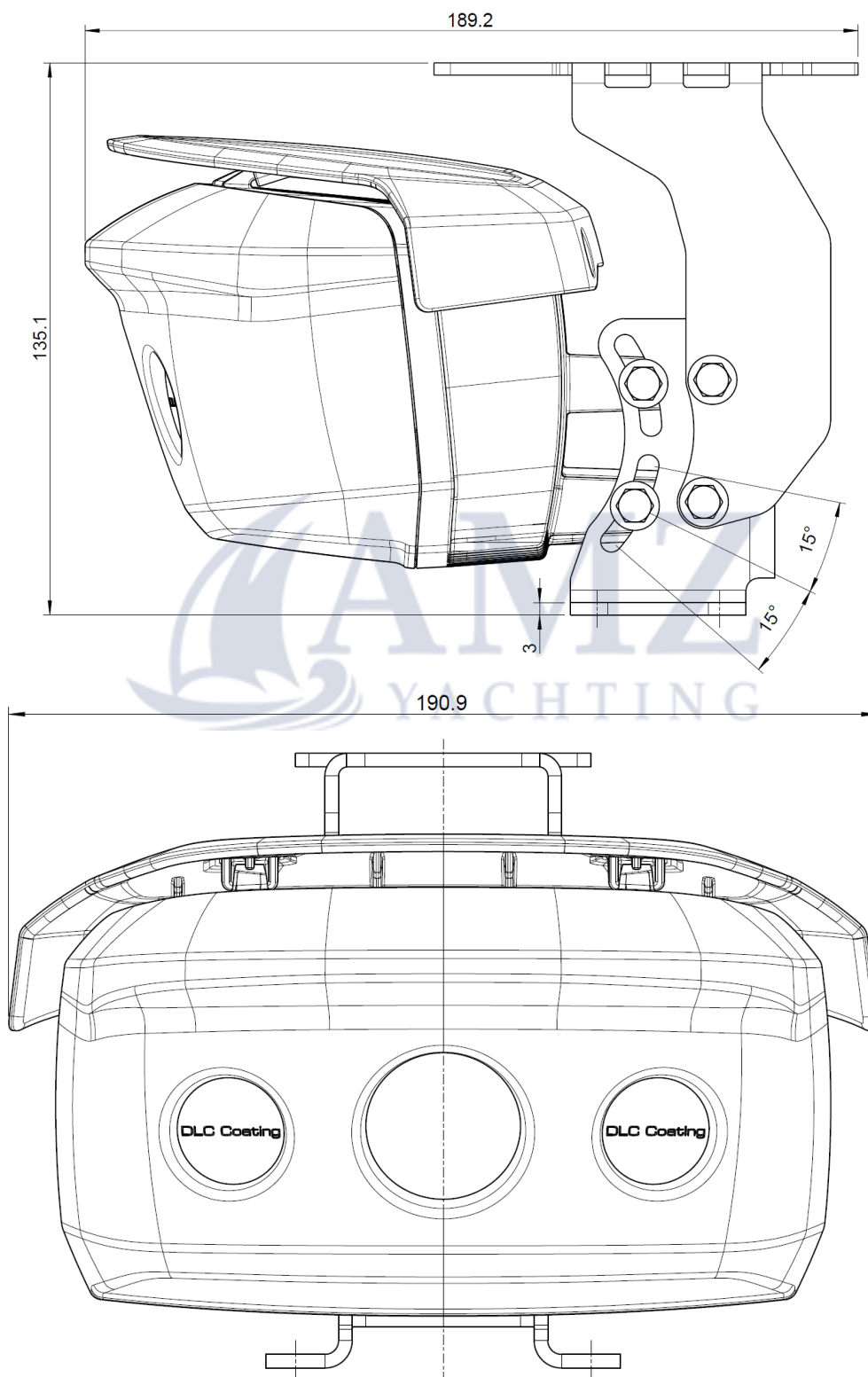
- DO NOT SCRUB the lenses with a dry cloth or abrasive material such as paper or brushes as this may damage the protective coating.
- DO NOT use acid or ammonia-based products.
- DO NOT EXERCISE EXCESSIVE PRESSURE when cleaning

Be especially careful when cleaning the lenses. The anti-reflective coating could be damaged by improper cleaning.

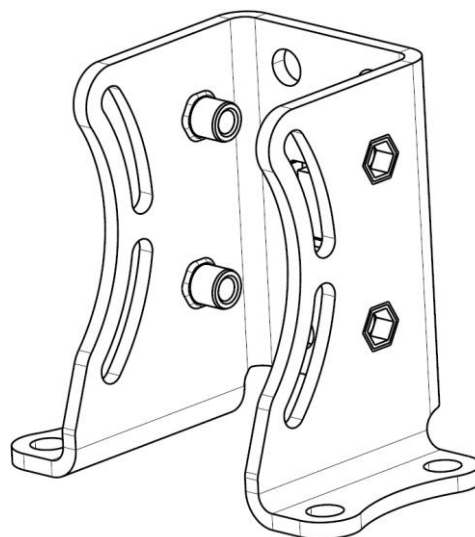
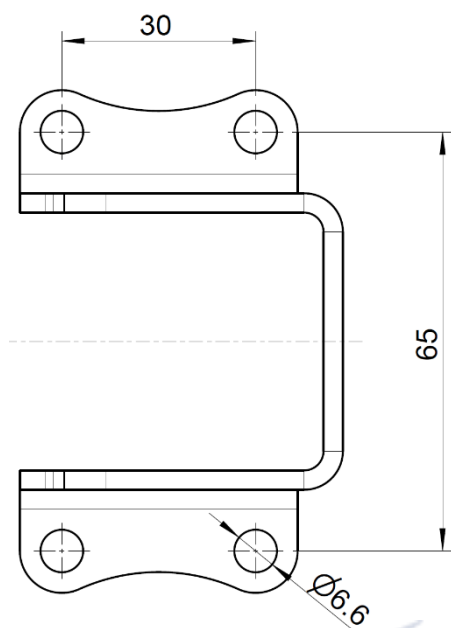
- Clean the vision unit housing with a soft, clean cotton cloth. You can dampen the cloth and use a mild detergent if necessary.
- Rinse the camera lenses with clean water to remove dust particles and salt deposits. Allow to dry naturally.
- If stains or streaks remain. Gently rub the lenses with a clean microfiber cloth or soft cotton cloth.
- If necessary, use isopropyl alcohol or a mild detergent to clean up any remaining traces.

## 10 TECHNICAL DATA

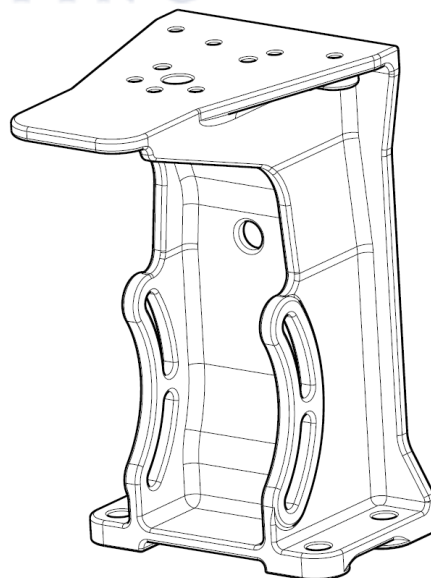
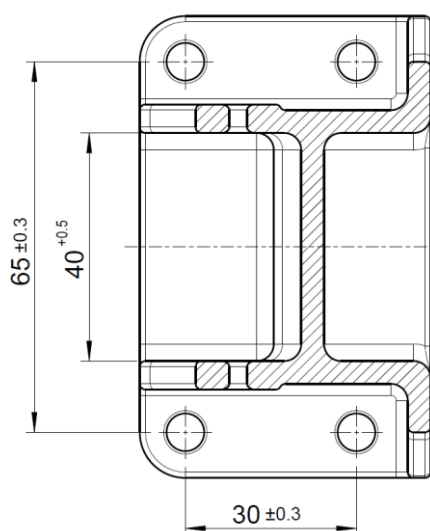
F01100 Vision Unit View



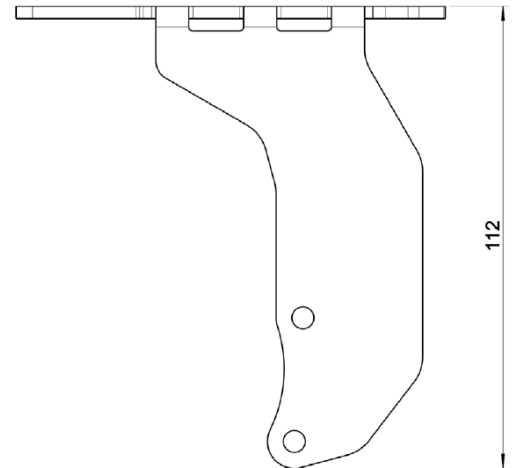
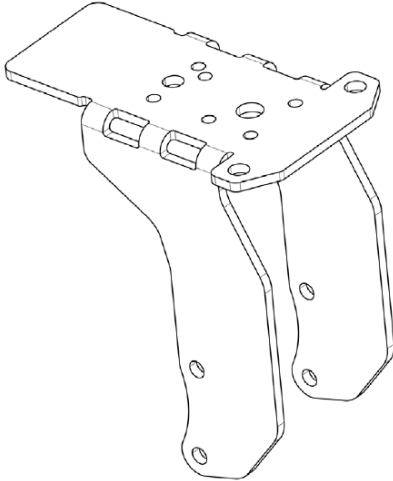
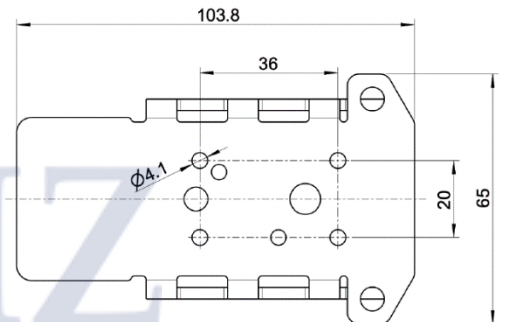
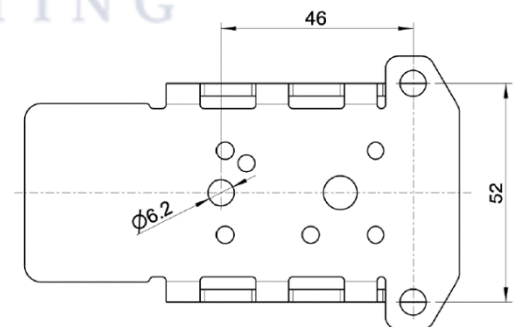
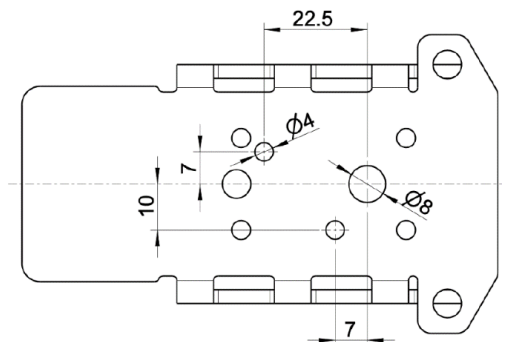
A01271 Vision Unit bracket view



A01345 Vision Unit isolated bracket view (optional)



A01350 Wind sensor bracket view

B & GGARMINRAYMARINE

## 11 TECHNICAL SUPPORT

SEA.AI provides a range of technical support options:

Online Documentation: [Offshore](#)

E-mail: [service@sea.ai](mailto:service@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:

- Offshore One serial number
- Offshore One installation date
- Description of the issue / problem



## NOTES :

