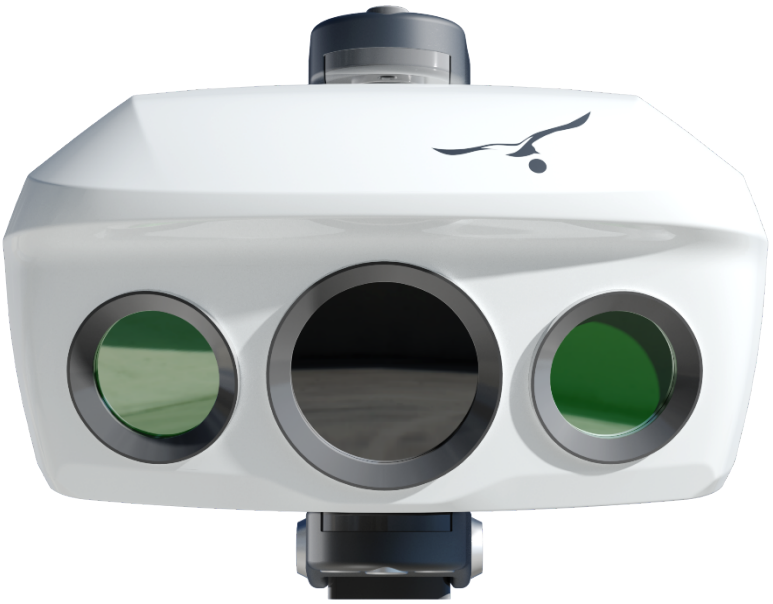
Installation Guide

Models:

OSCAR RACING SERIES

OSCAR ADVANCED SERIES

Last updated: 03/2021



Installation Guide

Content

1.1. System Requirements

For OSCAR to run as suggested you need the following prerequisites

- Minimum height of mounted Vision Unit of 8 m to the water surface
- NMEA 2000 compatible boat bus
- GPS device connected to the boat bus
- Required wiring (see chapter Wiring)
- Tablet Android (V 7.0 or later) I or iPad (5th Gen, iOS 11.0.1 or later) with the OSCAR App (v1.0.3) installed. Or Browser on PC/MAC (Firefox, Chrome; latest version)
- 24V DC power supply

2. Installation Preparation

2.1. Checklist preparation

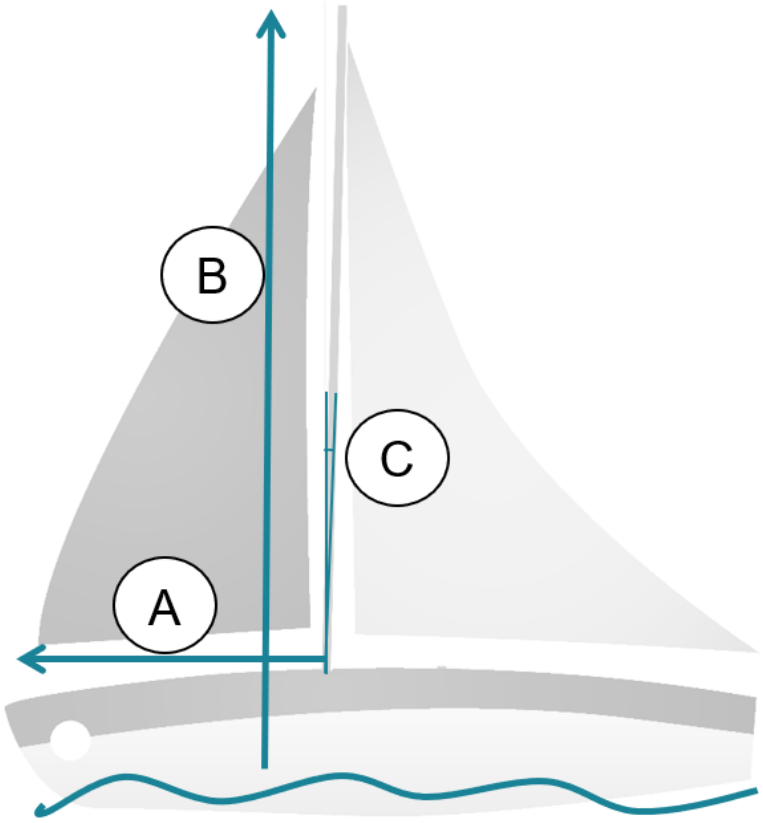
- Cables, connectors – see chapter Wiring.
- Free switch on switch panel
- You can use OSCAR via App or Web-access (Browser)
  - App: Download it to your navigational device from Google PlayStore or Apple App Store: “OSCAR Navigation”
  - Web-access: Default IP address: http://192.168.1.11:8080/com.bsb-driveline.eye-sea.server-development/WebContent/index.html
- NMEA 2000 boat-bus

(A) Horizontal distance from mast / signal mast to bow (+/- 1 m)

(B) Height of the mounted Vision Unit to water surface

ATTENTION: for correct functionality the tolerance is +/- 250 mm

(C) Mast rake

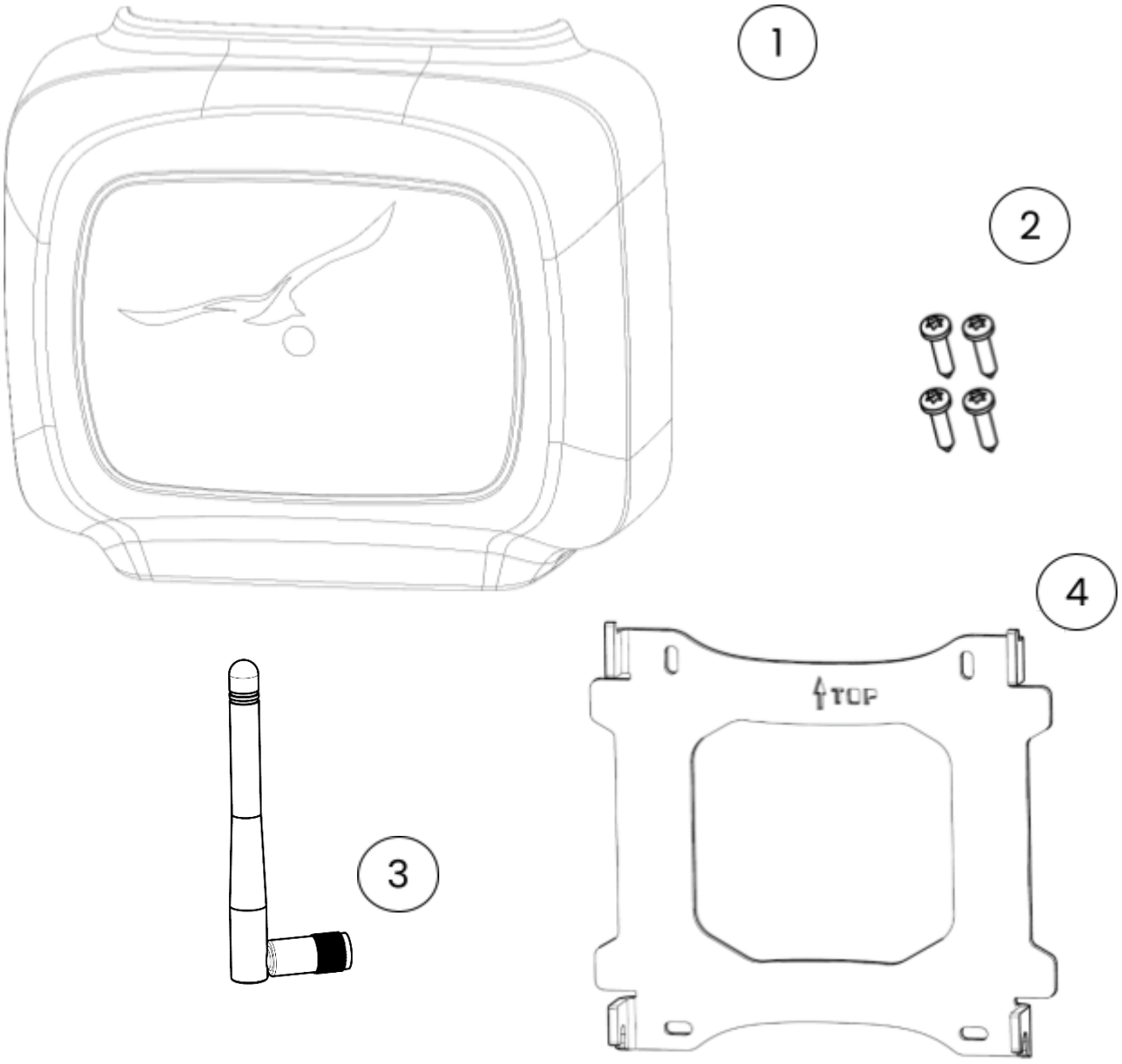


2.2. Tools needed for hardware installation

- OSCAR system incl. card with your personal OSCAR-WiFi and Serial Password
- Allen key 2.5 mm
- Wrench Size 10 mm + 8 mm
- Torx Wrench T15 + Torx T10H
- Bolt Adhesive Medium: Loctite 243
- Torque wrench (flange & screws) 1.2 Nm – 5 Nm
- Drilling machine + Drill bit ⌀ 2 mm and ⌀ 6 mm
- 4x Screws M6 for adjustable fixing bracket
- 1 Network cable minimum CAT5e incl. 1x TE Mini I/O plug & 1x Amphenol circular connector to connect Vision Unit with Processing Unit
- 1 power cable incl. 1x Switchcraft hollow plug in the length to connect Processing Unit with control panel
- 1 power cable with a cross section of one wire of 1.5 mm^2 incl. 1x Switchcraft hollow plug & 1x Amphenol circular connector in the length to connect Vision Unit with Processing Unit
- NMEA 2000 cable (Boat bus to Processing Unit)
- Boatswain's chair
- Ruler, Marker/Pencil, cable ties

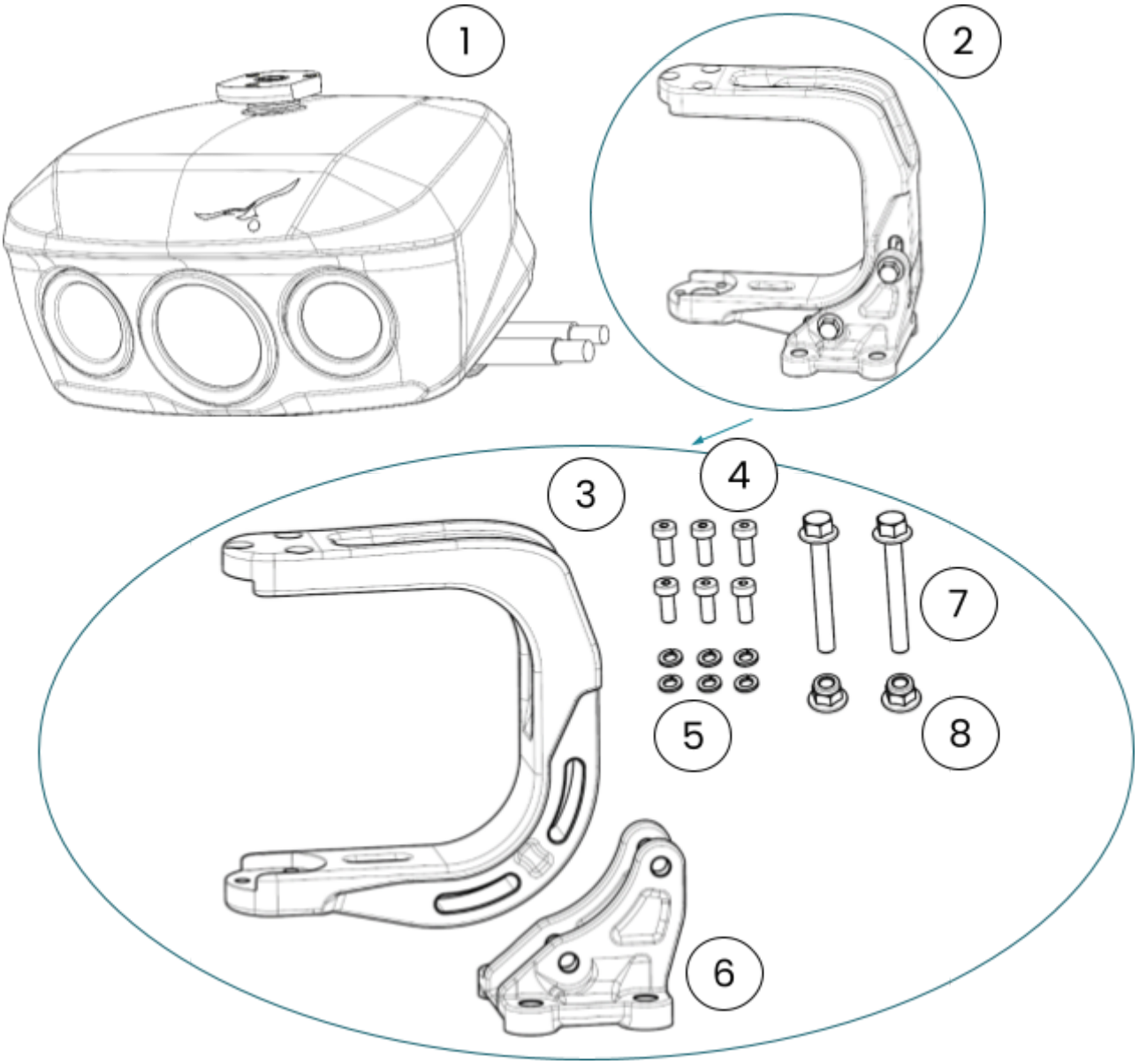
2.3. OSCAR parts package

Processing Unit



(1) Processing Unit – Module
(2) 4x Torx Screw 3.5x16 mm T15
(3) WiFi Antenna
(4) Mounting Adapter

Vision Unit & Adjustable Fixing Bracket

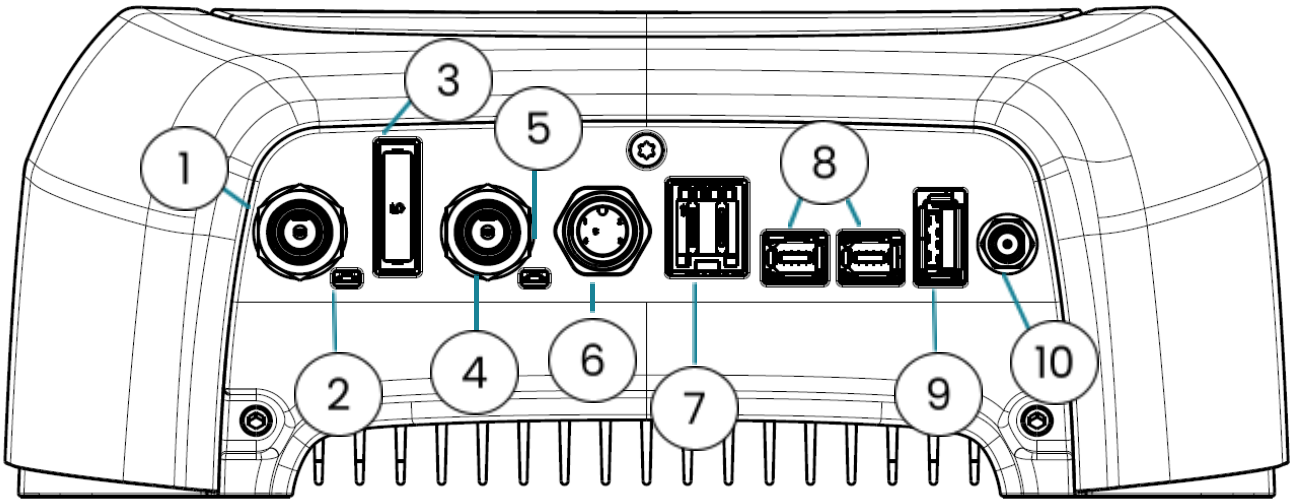


(1) Vision Unit with 2x cable outlet 700 mm for network & power supply
(2) Adjustable Fixing Bracket, consisting of:
(3) Bracket (Fixing Bracket – Part 1)
(4) 6x Socket screws M4x10
(5) 6x Spring Washer M4
(6) Adjustable Mounting Adapter (Fixing Bracket – Part 2)
(7) 2x Flange Screw M5x40

(8) 2x Flange Nut M5

3. Processing Unit

3.1. Connections

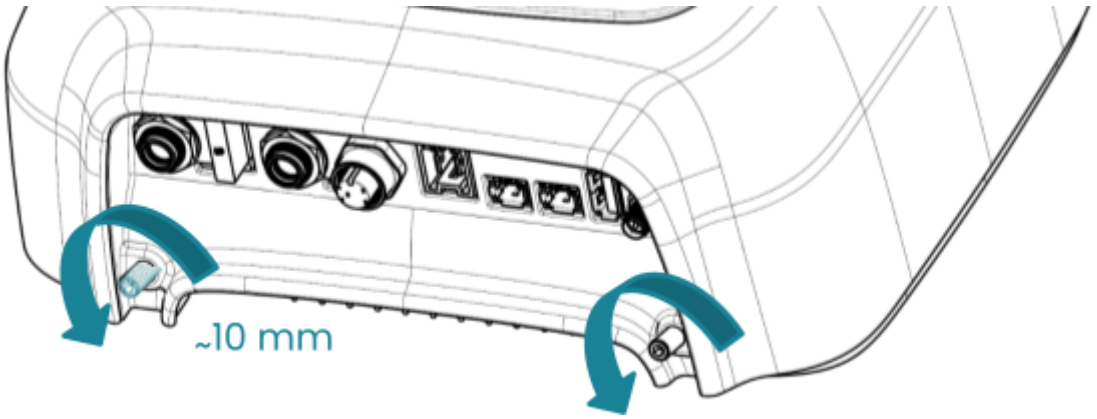


(1) Hollow plug (Switchcraft) – for power supply connection of switch panel
(2) Power LED
(3) Fuse Holder
(4) Hollow plug (Switchcraft) – for power supply connection to Vision Unit
(5) Status LED
(6) NMEA 2000 – Boat bus
(7) Output external Buzzer
(8) 2x TE Mini I/O – Network – for Vision Unit and optionally to your computer
(9) USB Slot
(10) WIFI Antenna

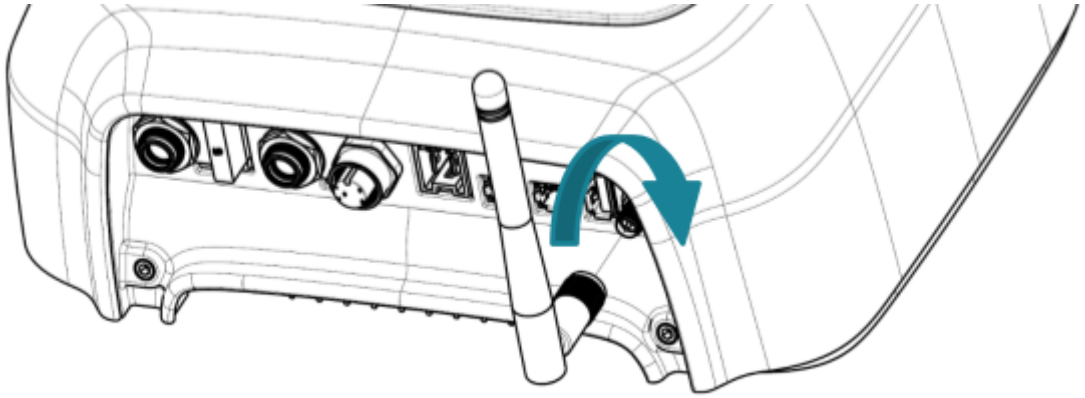
3.2. Mounting

The Processing Unit is delivered pre-mounted.

1. Disconnect the *Mounting Adapter (4)* from the *Processing Unit (1)*



Unscrew the 2 grub screws at the bottom of the *Processing Unit (1)* for around 10 mm on each side. Remove the *Mounting Adapter (4)*.

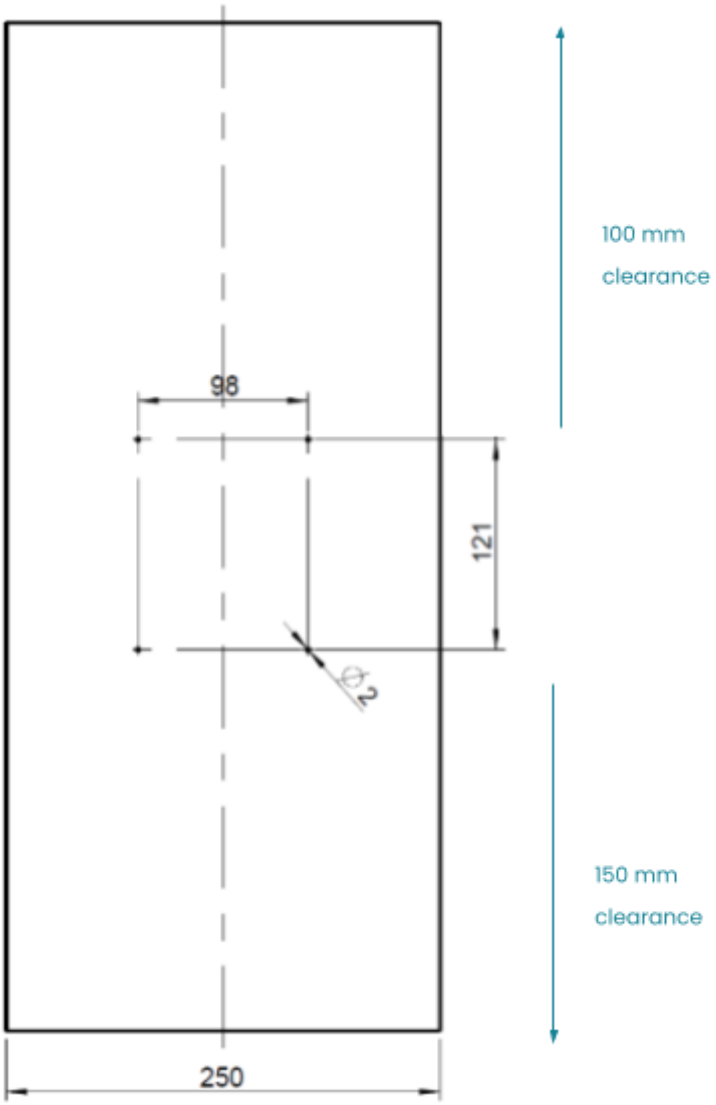


Attach the *WiFi Antenna (3)* to the *Processing Unit – module (1)*.

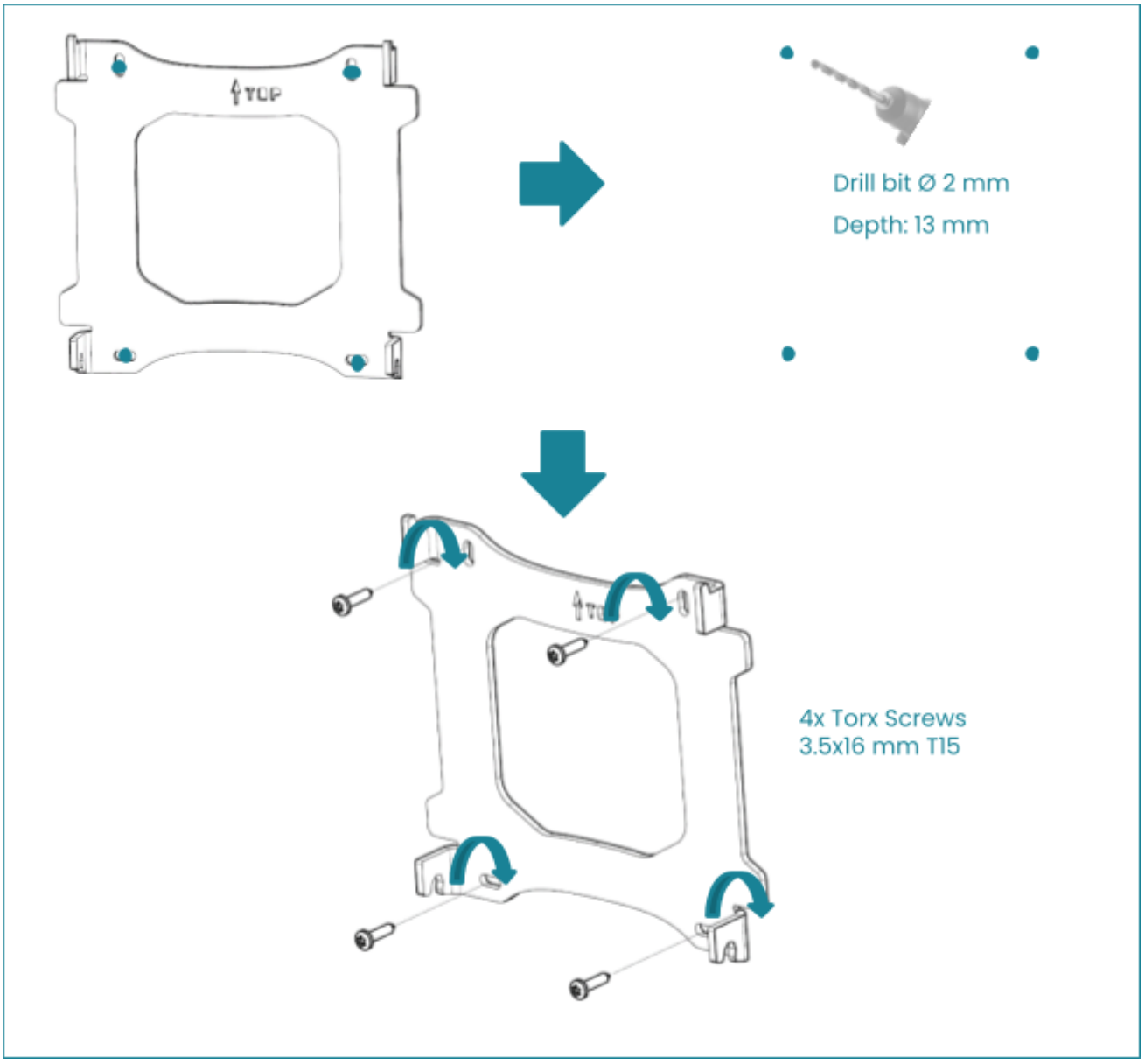
2. Install the *Mounting Adapter (4)* in a dry environment

Place the *Processing Unit (1)* in a dry environment in a vertical position (e.g., wall) and have at least 100 mm clearance on top and 150 mm below bottom to other devices (heat convection).

ATTENTION: Keep clear of any Wi-Fi or GPS antennas as they might interfere.

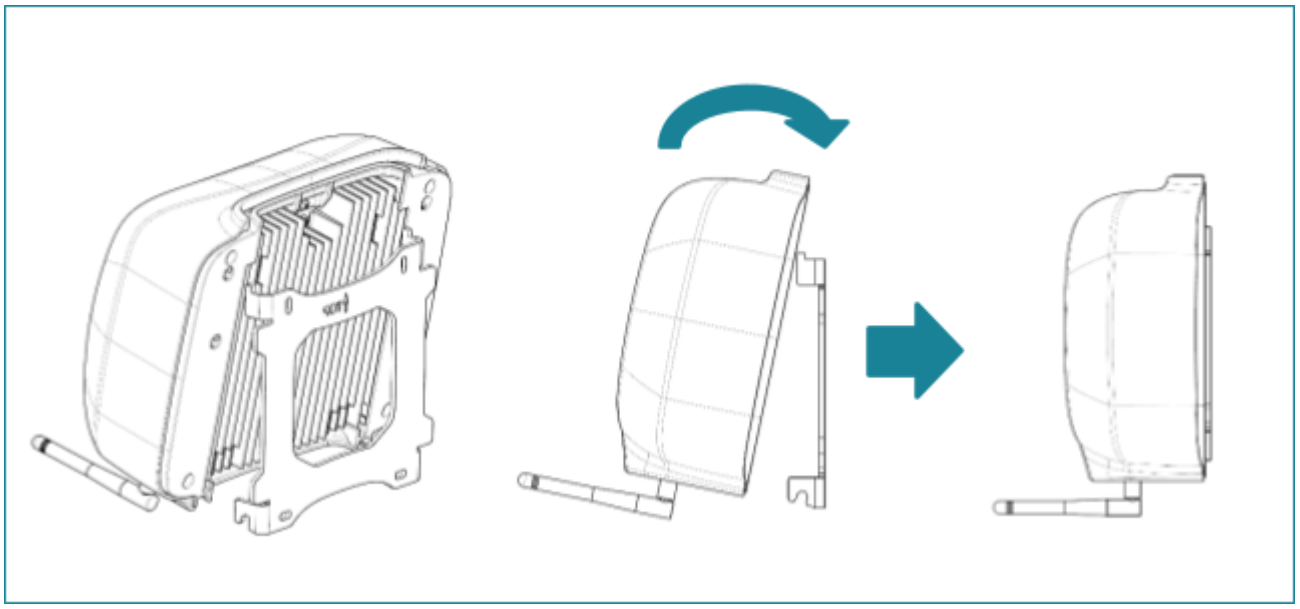


Place the *Mounting Adapter (4)* according to the sketch below – with the “TOP” mark facing upwards. Mark the 4 drilling positions according to the *Mounting Adapter (4)*.

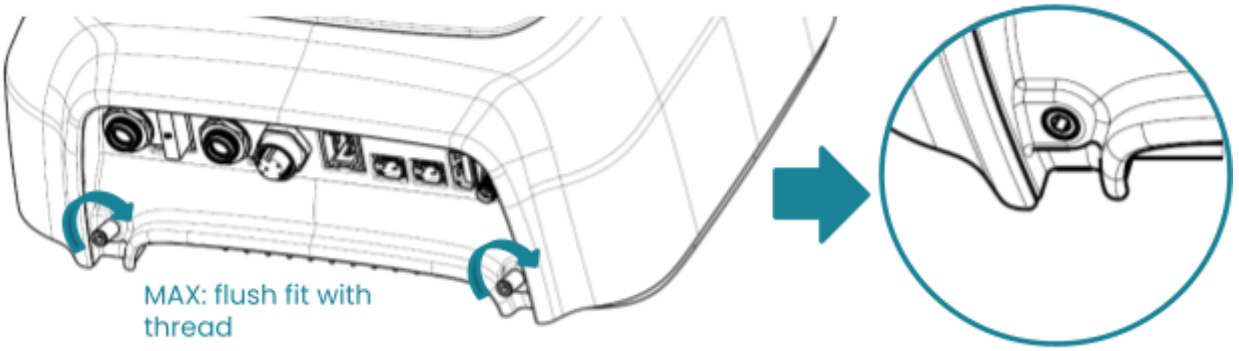


Screw the *Mounting Adapter (4)* to the wall with the 4 included *Torx screws (2)*.

3. Attach the *Processing Unit (1)* to the *Mounting Adapter (4)*



Fit the *Processing Unit (1)* to the *Mounting Adapter (4)*. Hold the *Processing Unit (1)* in a slightly tilted angle and slide it from above until it fits to the hooks. Release the *Processing Unit (1)* carefully.



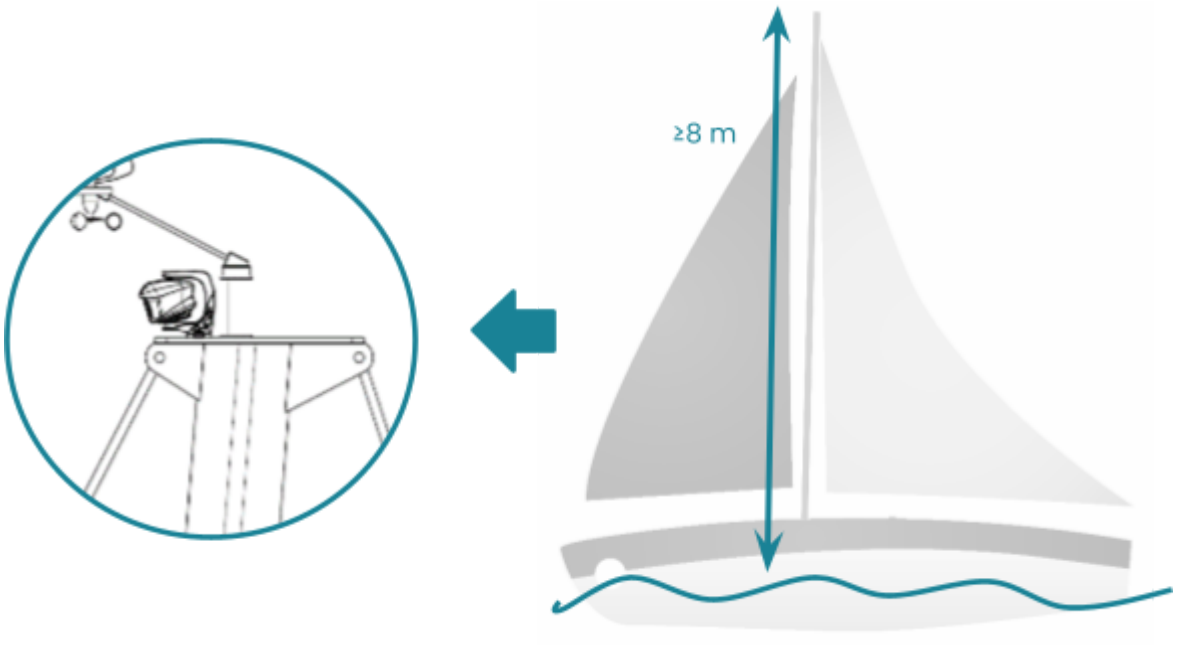
Now carefully tighten the 2 grub screws of the *Processing Unit (1)* until flush fitted.

ATTENTION: Do not tighten the screws too much – It is tight enough as soon as you cannot move the *Processing Unit (1)* anymore.

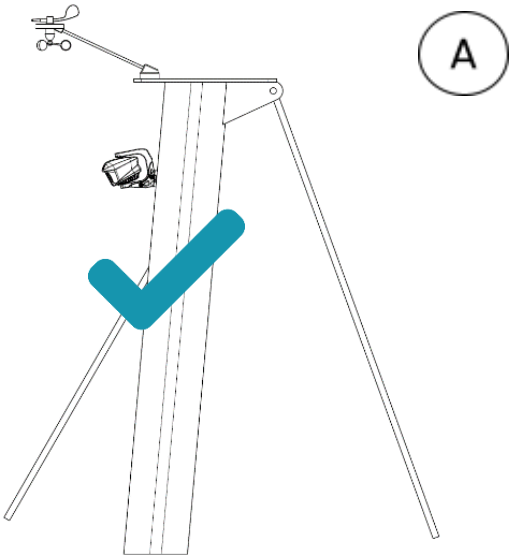
4. Vision Unit

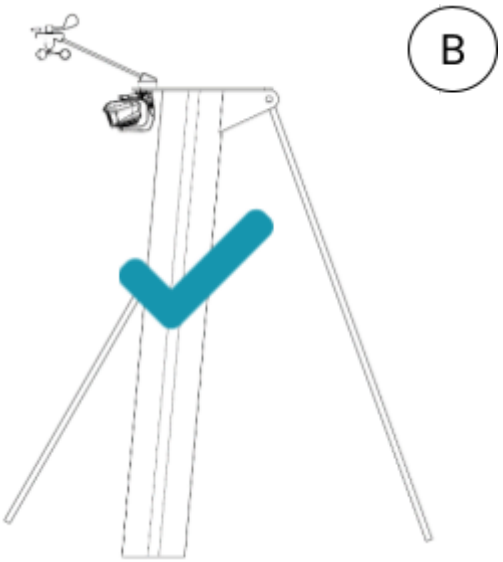
4.1. Preparation

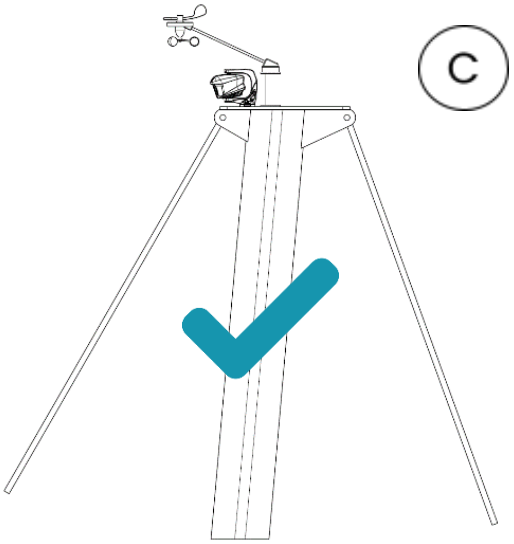
The *Vision Unit (1)* needs to be installed either on top of the mast or signal mast at a minimum height of 8 m above the water surface. The *Vision Unit (1)* has to be placed with no danger of getting harmed (e.g. from a spinnaker, a halyard, or other ropes) and with a clear view to the front and to a point on water surface max. 20 m in front of the bow.



Do's and Don'ts



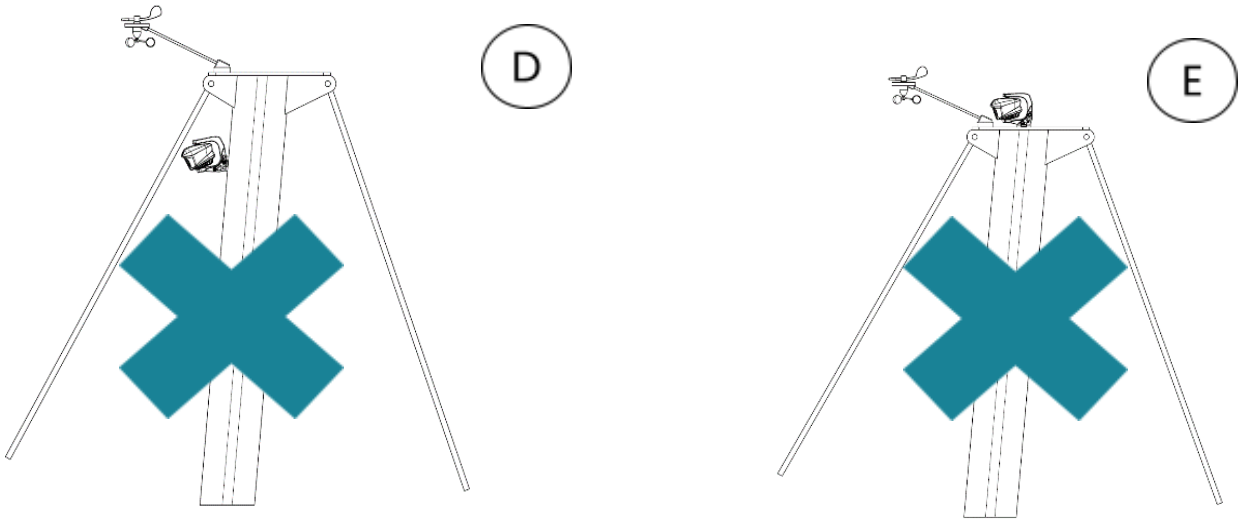




(A) Position between forestay & masttop (beware of spinnaker or Code 0 halyards)

(B) Position hanging from masttop if there is no spinnaker

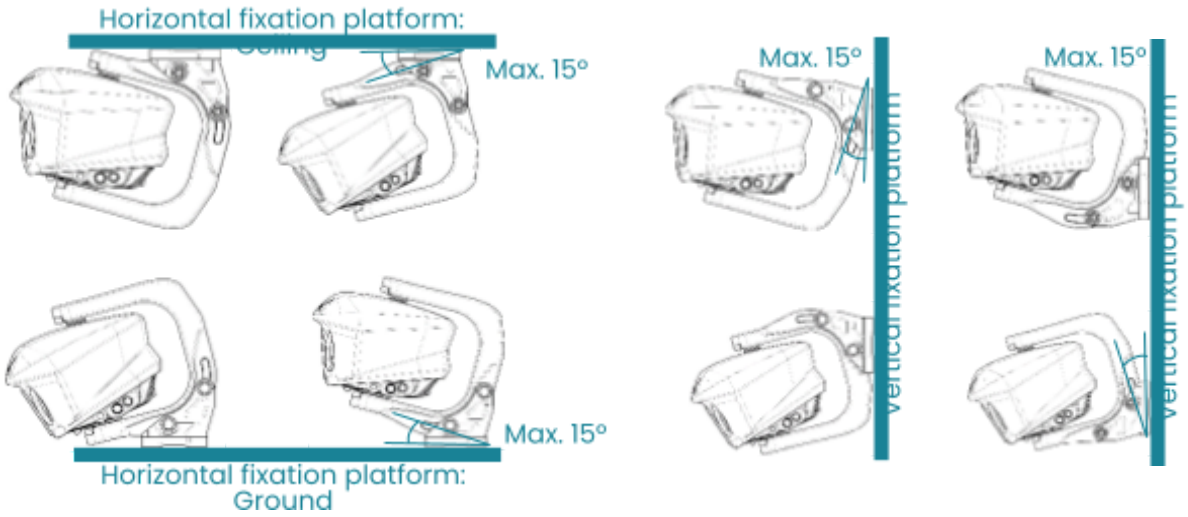
(C) Position on masttop flush with front-end



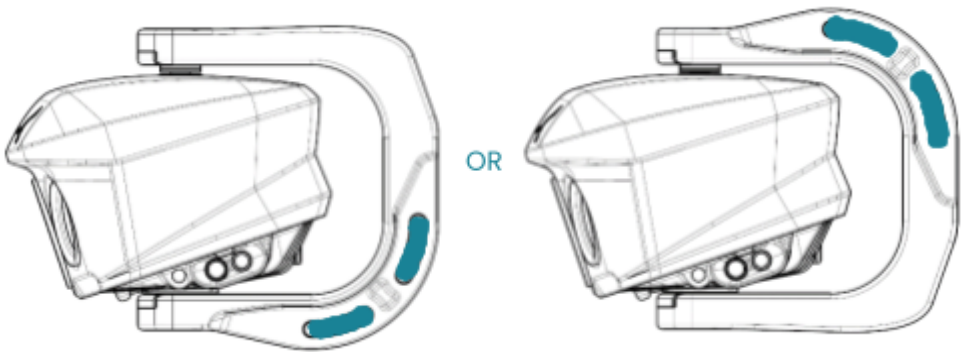
(D) Don't: Position behind ropes or forestay

(E) Don't: Position behind any other instrument (e.g. wind sensor, antenna, lights)

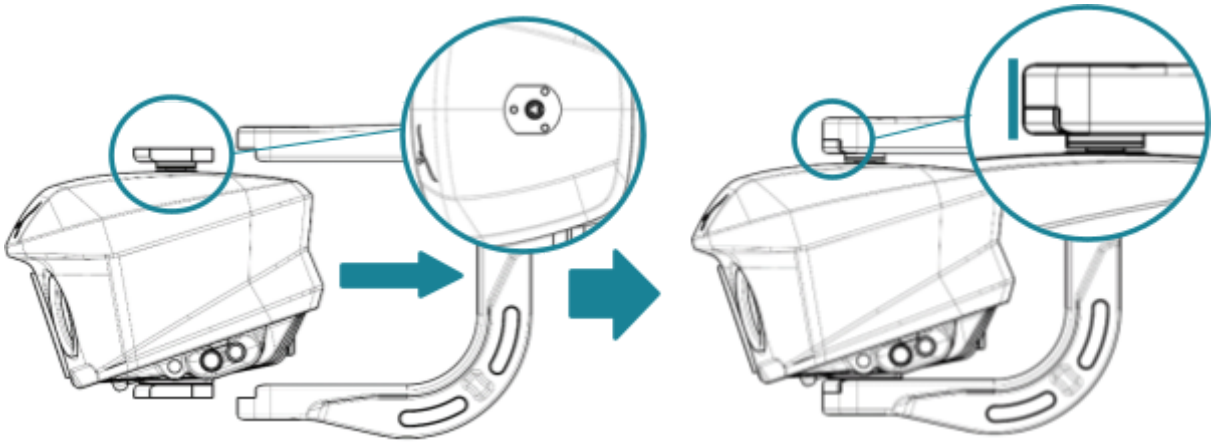
Depending on the orientation of your mounting surface you have the following mounting options and moving angles for the *Adjustable Mounting Adapter (6)* and *Bracket (3)*:



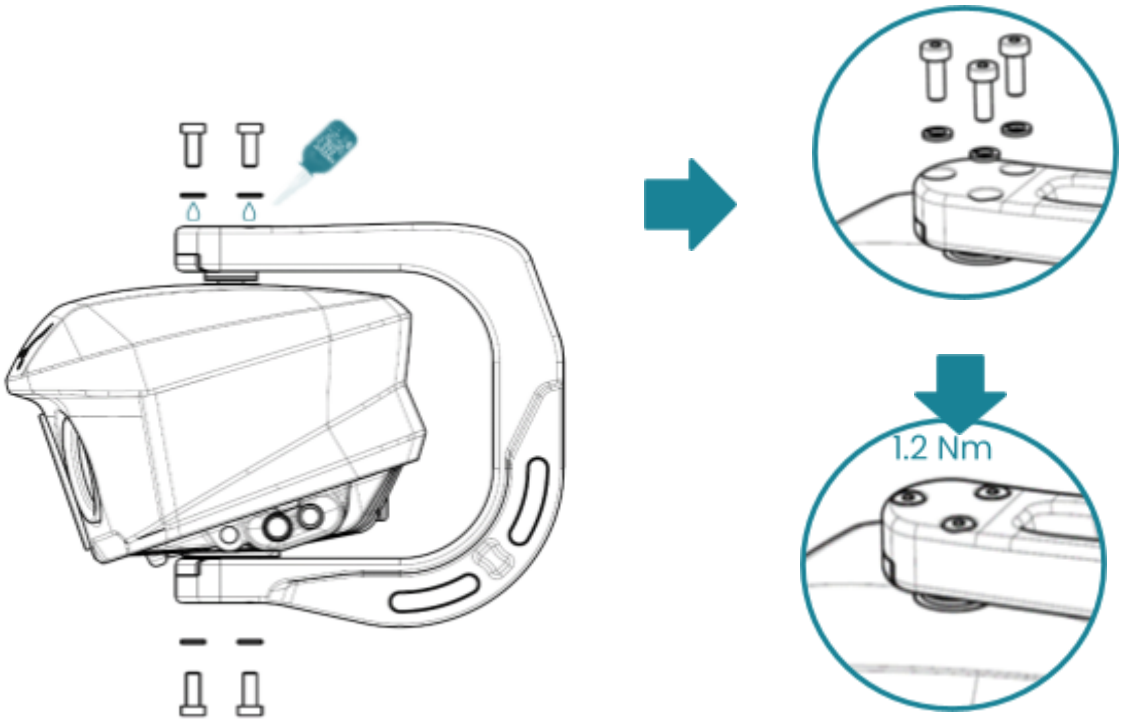
This determines the orientation of the *Bracket (Fixing Bracket – Part 1) (3)* and *Adjustable Mounting Adapter (Fixing Bracket – Part 2) (6)*. Make sure you attached the two components according to the fixing position.



Connect the *Vision Unit (1)* with the adjustable part of the *bracket (3)*. Align the rotating support of the *Vision Unit (1)* as shown in the sketch below

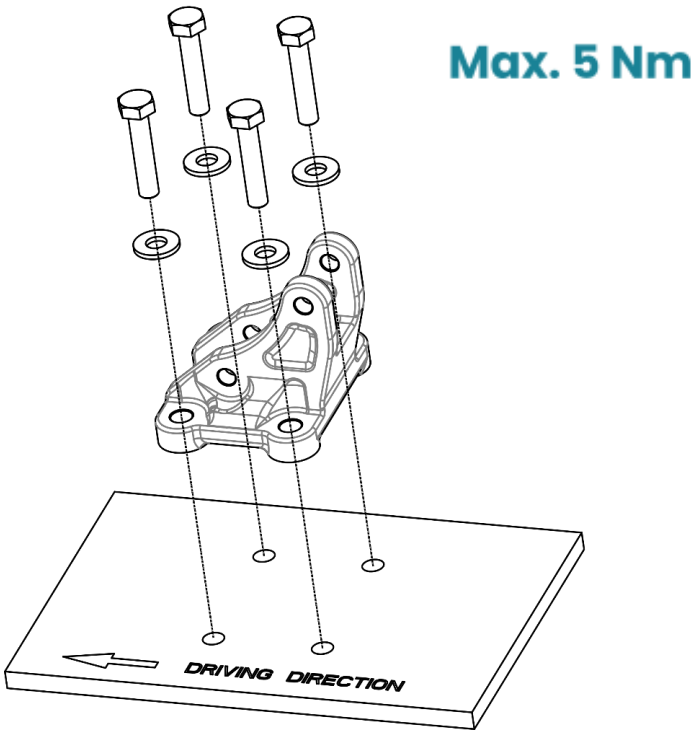


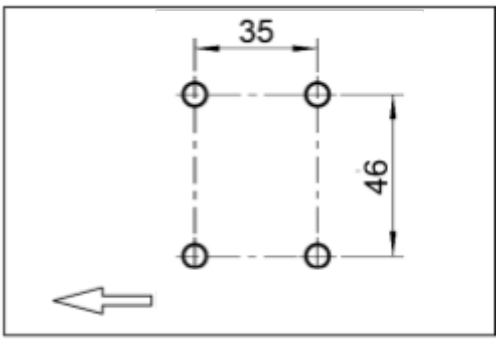
First attach the *6x Spring Washer (5)* to the *6x Screws M4x10 (4)*.
Put medium screw adhesive (e.g. Loctite 243) on each screw and tighten with 1.2 Nm.



Mounting the fixed part of bracket
Before climbing on the mast / signal mast, prepare the following material to take along:

- fixed part of bracket *(6)*
- *2x Flange Screw M5x40 (7)*
- *2x Flange Nut M5 (8)*
- *Vision Unit (1)* now fixed to the *Bracket – Part 1 (3)*
- Torque wrench including socket wrench Size 8
- 4x Screws M6 for adjustable fixing bracket + torque wrench
- Marker/Pencil
- Driller M6

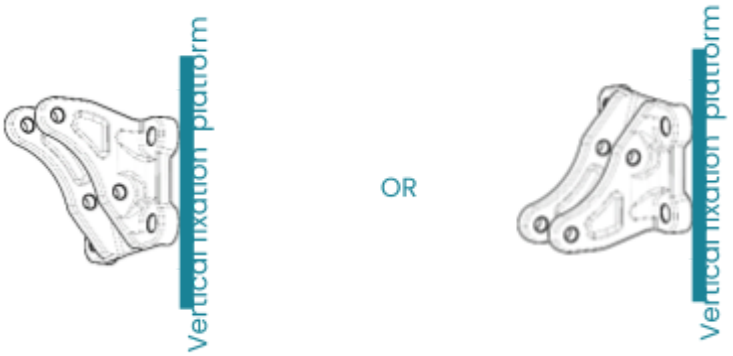




ATTENTION: Use proper screws and screw locking to mount the bracket on the mast! Do not use wood-screws (spax-screws).

Attach the fixed part of the bracket with 4 Screws M6 and 4 washers (tightening torque 5 Nm)

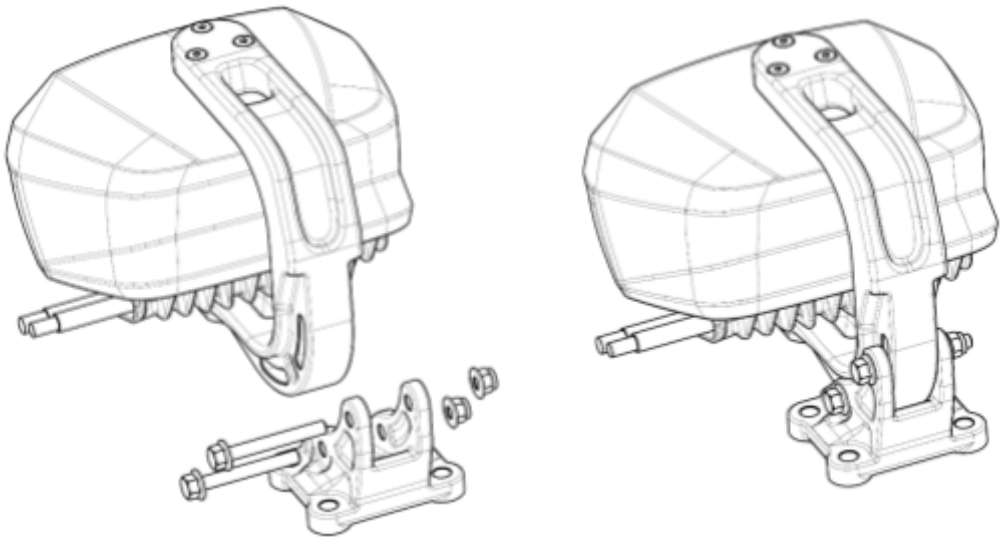
ATTENTION: Use the correct orientation according to your chosen mounting option



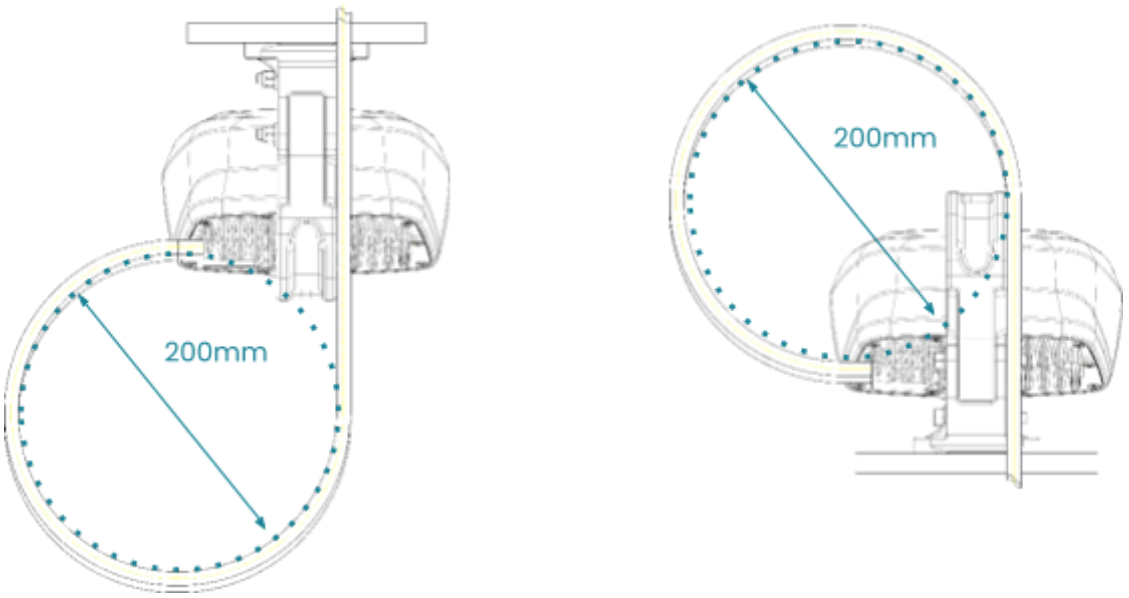
Now attach the *adjustable bracket part (3)* with the *Vision Unit (1)* horizontal to the *fixed bracket part (6)* with the *2 flange screws M5x40 (7)* and slightly tighten the *2 flange nut M5 (8)*.

ATTENTION: *During the OSCAR installation Setup the VU will be checked if it is aligned properly or if the VU must be tilted up or down.* (see chapter Setup User Interface - Setup)

After Setup is finished, tighten the 2 flange screws and nuts to fix the VU.



Connect the network cables from the *Processing Unit (1)* and the *Vision Unit (1)*.



Secure the cables properly with a cable tie. The Vision Unit needs to rotate freely without harming the cables nor interfere with the view of the cameras.

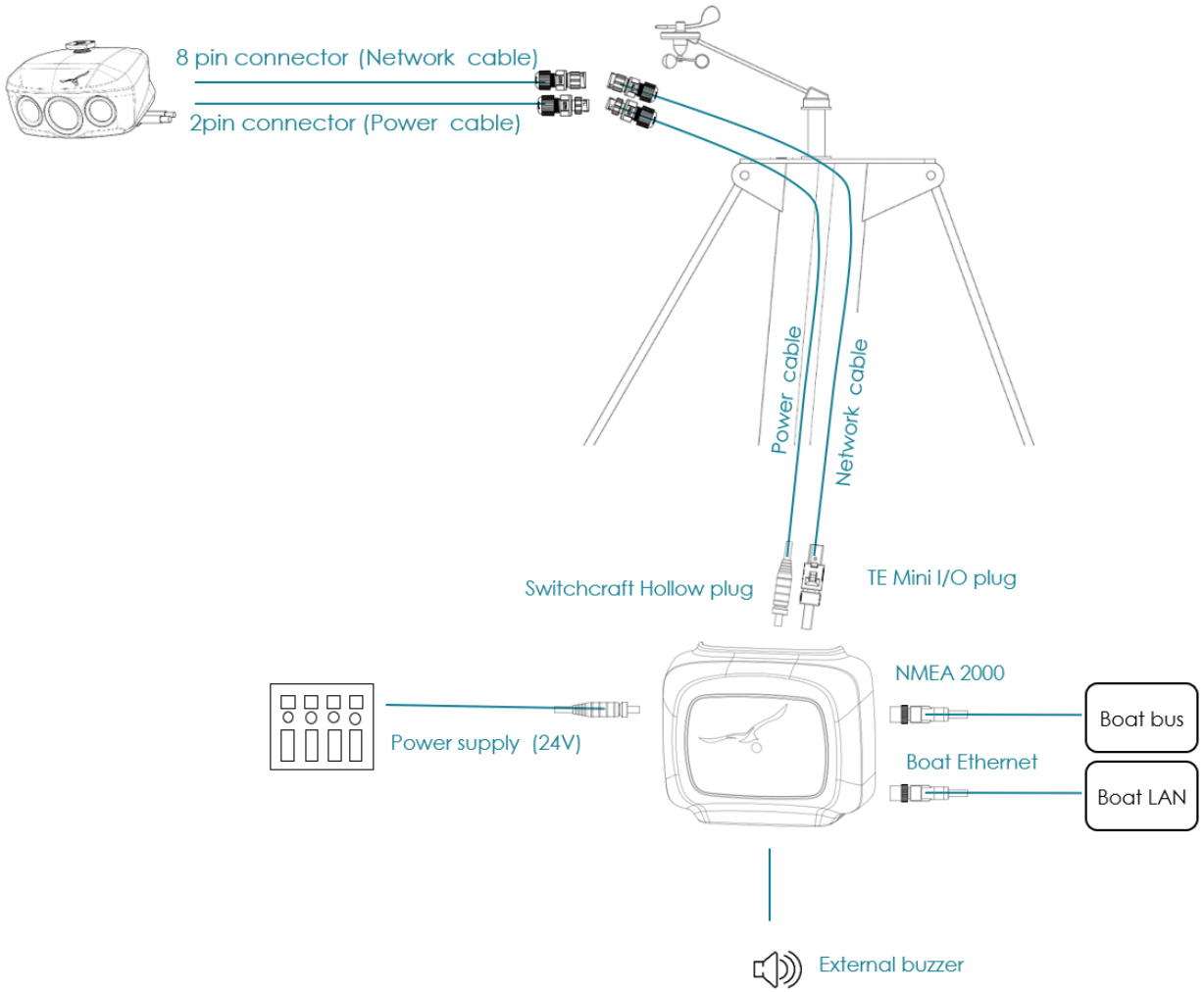
- Do not bend the cables excessively
- Leave enough cable for the Vision Unit to be able to horizontally rotate in a range of +/- 50° without stretching the cables

5. Wiring

Please install original OSCAR cables and plugs only.
Signal quality and performance will be reduced with incorrect cabling.

***(ATTENTION**: Special wiring for racing boats see in chapter 5.8 on page ff.)*

5.1. Overview



5.2. Description

You need to set up at least 3 cable connections.

Vision Unit to Processing Unit

The Vision Unit needs to be installed either on top of the mast or signal mast with no danger of getting harmed (e.g. from the rope of the spinnaker) and a free view to the front. It comes with a 700 mm long network & power cable and plug (2 & 8 pin-connectors RMV3). The Processing Unit will be installed within the boat – so you need to wire a power cable as well as a network cable through the mast and boat which has the right connectors to the Vision Unit (Amphenol circular connectors 2 pin & 8 pin) as well as the Processing Unit (TE Mini I/O for the network cable and Switchcraft hollow plug for the power supply).

Processing Unit to power supply

Make sure you have enough space on your switch panel to make the system able to be switched on & off. To connect the power supply to the Processing Unit you need a Switchcraft hollow plug. Check + and – before you plug in the power supply. Switching “+” and “-“ can damage the system

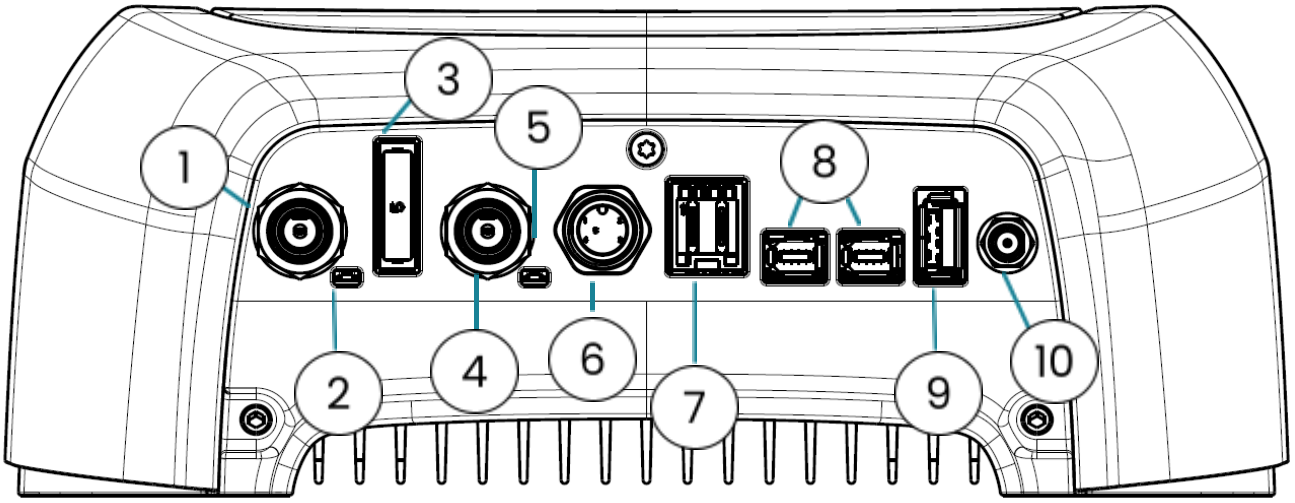
Processing Unit to boat bus

NMEA 2000 cable to connect your NMEA 2000 compatible boat bus.

Processing Unit to Boat Network – Chart Plotter (Ethernet)

To run OSCAR on an MFD (chart plotter), connect the Processing Unit to the Boat Network HUB or directly to the MFD. Please check the compatible systems and MFDs. The necessary cable depends on the system you use (B&G, Garmin, Furuno, Raymarine....) and can be provided by BSB as an accessory.

5.3. Connection Processing Unit



(1) Switchcraft Hollow plug – for power supply connection of switch panel
(2) Power LED
(3) Fuse Holder
(4) Switchcraft hollow plug – for power supply connection to Vision Unit
(5) Status LED
(6) NMEA 2000 – Boat bus
(7) Output external Buzzer
(8) 2x TE Mini I/O – Network – for Vision Unit and optional to your computer
(9) USB Slot
(10) WIFI Antenna

Connect the Processing Unit with the boat bus through the *NMEA 2000 plug (6)*

Connect the Processing Unit with the network of the Vision Unit through *TE Mini I/O Plug (8)*

Connect the Processing Unit with the power cable from the Vision Unit through the *Switchcraft Hollow plug (1)* – (it makes a “click”) and secure by turning to the right.

Optional: Connect your *external buzzer (7)* – use two crimp contacts, i.e. 5-160447-5 from TE-Connectivity.

Finally connect the Processing Unit with the power cable of the switch panel through the *Switchcraft hollow plug (4)* – (it makes a “click”) and secure by turning to the right and switching on electricity.

If the *Power LED* is red the system is turned on.

5.4. Cable specification

Generic

The cable dimensions must not exceed an outer diameter of minimum 4.5 mm and a maximum of 7.1 mm. The coating needs to resist harsh maritime conditions.

Power cable

The two wires need a cross section of 1.5 mm² and the material is tinned copper.

Recommended: LAPP ÖLFLEX® 440 P 0012837

Ethernet cable

Four copper wires each two twisted with a minimum cross section of 0.14 mm². The twisted pairs need an overall shielding.

Recommended: LAPP UNITRONIC® ROBUST C (TP) 1032102

5.5. Connectors

Power

- Amphenol AD-02BFFA-LL7001
- Switchcraft S761KS17

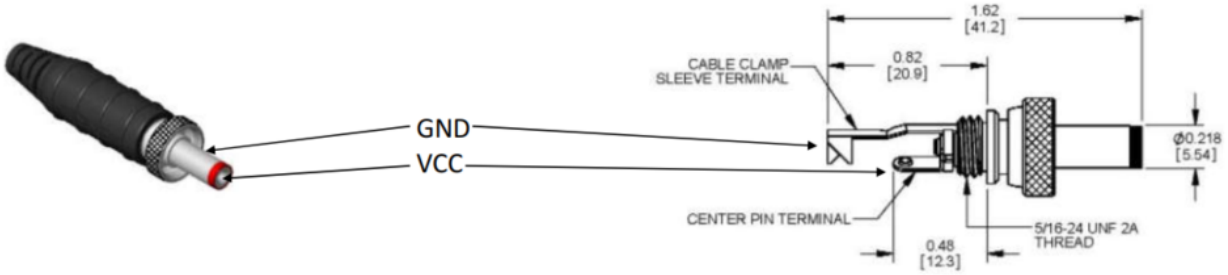
Ethernet

- Amphenol BD-08BFFA-LL7001
- TE-Connectivity 2201855-1

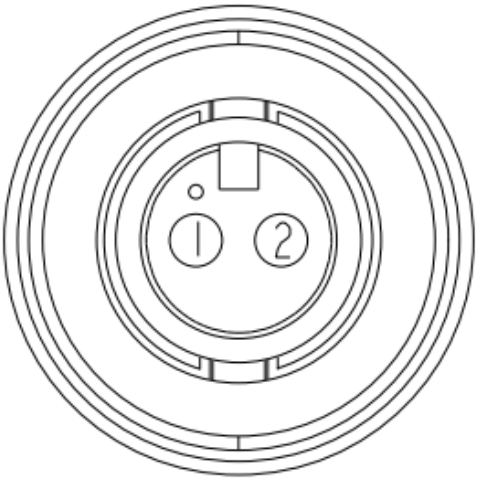
5.6. Pin configuration

Power

Connect the pins as described below



Switchcraft S761KS17



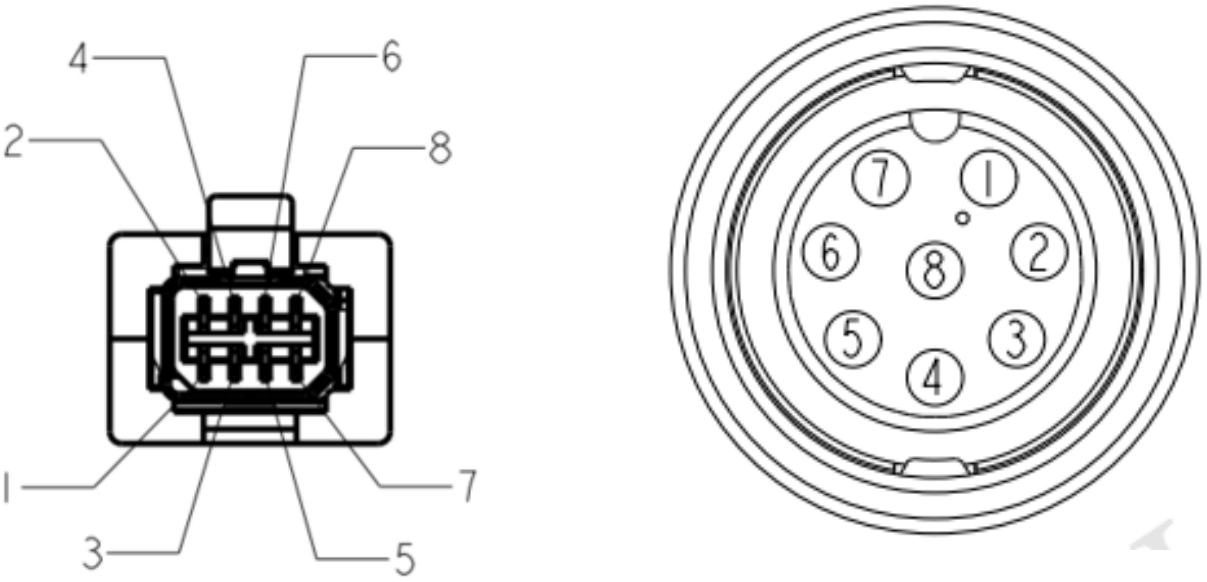
Amphenol AD-02BFFA-LL7001 – Front view

Pin	Description – LAPP cable
1	GND – wire 1
2	VCC – wire 2

Put the housing of the connector onto the cable. Strip the insulation of the cable and the wires and solder them to the correct pin.

Ethernet

If you have different coloured wires in the cable used for the ethernet connection, make sure to connect the twisted pairs this way: TP1 – pin 1&2; TP2 – pin 3&6; TP3 and TP4 not connected.



TE Connectivity 2201855-1 and Amphenol BD-08BFFA-LL7001 – Front view

Pin	Description – LAPP Robust	Description – Type 568B – CAT5e/CAT6	B&G
1	brown	orange/white	blue
2	white	orange	blue/white
3	green	green/white	orange
~~4~~	~~blue~~	~~blue~~	
~~5~~	~~red~~	~~blue/white~~	
6	yellow	green	orange/white
~~7~~	~~pink~~	~~brown/white~~	
~~8~~	~~grey~~	~~brown~~	

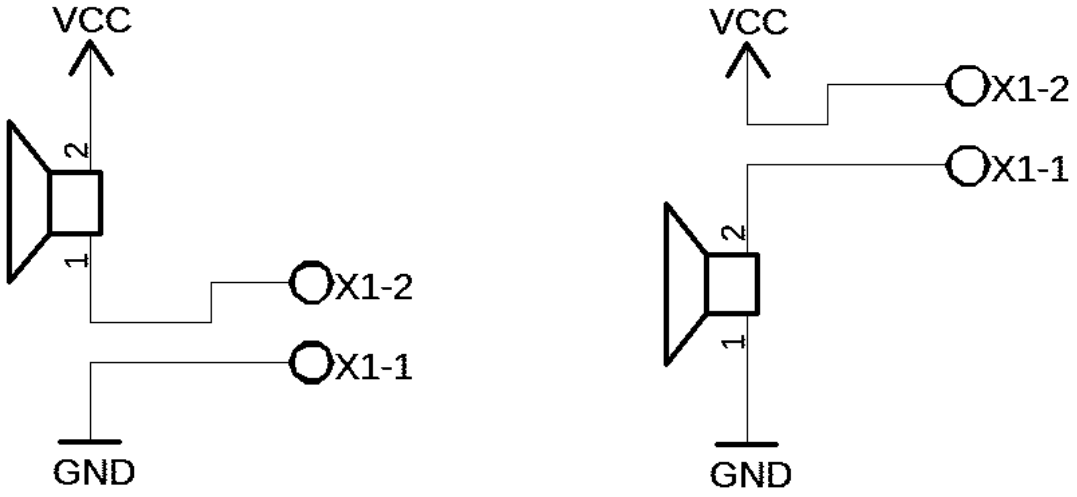
The pins 4,5,7 and 8 are not connected.

Check the continuity with a multimeter for each pin separately or with a cable tester and our adaptor cables.

5.7. External Buzzer

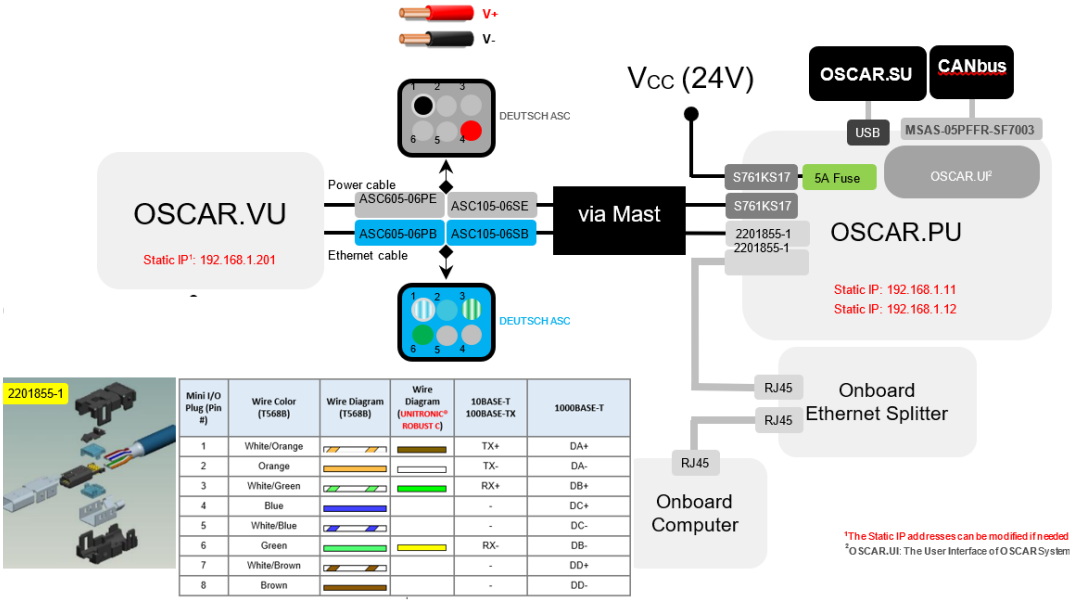
Use two crimp receptacles like TE-Connectivity 9-160583-2 to connect two wires with cross section 1mm² to the external buzzer output (7) of the Processing Unit.

Choose left or right method to connect to the buzzer.



X1-1 and X1-2 is the external buzzer output on the Processing Unit. Both pins are equal – they can be switched**. (ATTENTION:** *max. amperage: 1 A, max. voltage 250 V)*

5.8. Wiring with Deutsch Connectors **(for Racing Boats only!)**



Mini I/O Plug (Pin #)	Wire Color (T568B)	Wire Diagram (T568B)	Wire Diagram (UNITRONIC® ROBUST C)	10BASE-T 100BASE-TX	1000BASE-T
1	White/Orange			TX+	DA+
2	Orange			TX-	DA-
3	White/Green			RX+	DB+
4	Blue			-	DC+
5	White/Blue			-	DC-
6	Green			RX-	DB-
7	White/Brown			-	DD+
8	Brown			-	DD-

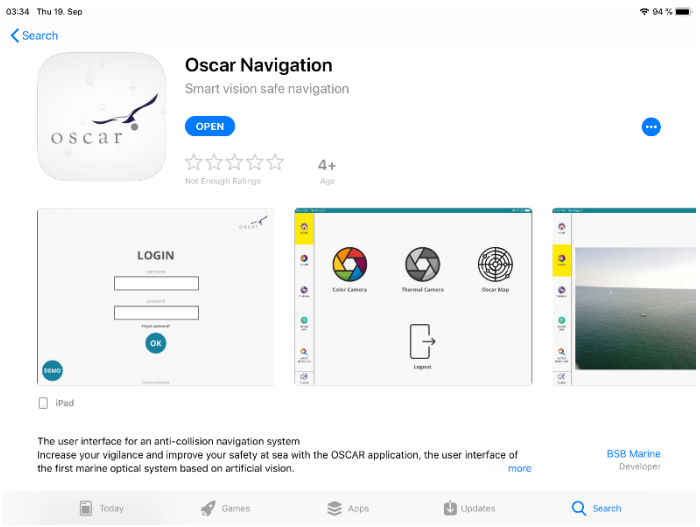
Parts		
Manufacturer/Part Number	**Description**	
OSCAR.VU	The **V**ision **U**nit of **OSCAR** System	R
OSCAR.PU	The **P**rocessing **U**nit of **OSCAR** System	R
OSCAR.SU	The **S**torage **U**nit of **OSCAR** System	R
Alpha Wire/25052 BK005	Industrial Power Cable (34g/m, Connected to OSCAR.VU)	R
Lapp Group/UNITRONIC® ROBUST C (TP)/1032102	CAT5E F/UTP Standard Ethernet Cable (46g/m, Connected to OSCAR.VU)	R
TE Connectivity/ASC605-06PE TE Connectivity/ASC605-06PB	DEUTSCH ASC Connector (Connected to the cables of OSCAR.VU)	R
CAE Multimedia/SGBP41	CAT5E F/UTP Standard Ethernet Cable (38g/m, via the mast)	☐
KAE Groupe/KU0524	Industrial Power Cable (13.5g/m, via the mast)	☐

TE Connectivity/ASC105-06SE TE Connectivity/ASC105-06SB	DEUTSCH ASC Connector (Connected to the power and Ethernet cables on top of the mast)	☐
Switchcraft/S761KS17	DC Power Connector	☐
TE Connectivity/2201855-1	Industrial Ethernet Connector	☐
Amphenol/MSAS-05PFFR-SF7003	NMEA2000/M12 Circular Metric Connector	☐

6. Setup User Interface

6.1. Preparation

- OSCAR: Wifi name
- OSCAR: Serial password
- Height of Vision Unit (see chapter Preparation)
- Horizontal distance from mast / signal mast to bow (+/- 1 m) (see chapter Preparation)
- Mast rake (see chapter Preparation)
- Download App „OSCAR Navigation“ to your tablet.



6.2. Setup OSCAR

- Connect your tablet / other device with the OSCAR-WiFi.
- Open the OSCAR Navigation-App or use Chrome or Firefox in the latest version and go to http://192.168.1.11:8080/com.bsb-driveline.eye-sea.server-development/WebContent/index.html
- Follow the instructions in the app to configure your OSCAR system.
- To run OSCAR on your chart plotter (MFD) select your brand in the OSCAR App (Settings – Setup -Select MFD BRAND)

7. LEDs

Issue	Possible cause and remedy
Power LED red	- System is turned on
Power LED off	- Check the power supply, cables and connectors
⚠	- Follow the instructions within the App or web browser
System restart	- Restart the system through the switch on the switch panel

8. OSCAR maintenance

The system shall always run the latest available software.

Updating your software will frequently provide feature and performance enhancements.

Software can be updated via the OSCAR APP or the web browser.

The camera housing and lens will require occasional cleaning. Clean the lens when image quality degradation is noticed or excessive contaminant build up is seen.

When cleaning this product:

Do NOT wipe the lens windows with a dry cloth, or with 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.

Particular care should be taken when cleaning the lens window, this has a protective anti-reflective coating which may be damaged by improper cleaning.

Clean the vision unit body with a clean, soft cotton cloth. You can moisten the cloth and use a mild detergent if required.
Clean the camera lenses.

Rinse the lens with fresh water to remove all dirt particles and salt deposits, and allow to dry naturally.

If any spots or smears remain, very gently wipe the lens window with a clean microfibre cloth or soft cotton cloth.

If necessary, use isopropyl alcohol (IPA) or a mild detergent to remove any remaining spots or marks.

9. Contact for support

Contact us for support

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Credits

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