BLUENAV

English version

Installation guide

BlueSpin 8kW electric motor

BlueSpin **Outboard**

BlueSpin **Inhull**

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Version N°	Date (MM/DD/YYYY)	Changes
1	8/25/2025	Creation of the document

Table of contents

1. INTRODUCTION

1.1 About

This manual contains installation instructions for the following motorization systems:

- BlueSpin 8 kW Outboard
- BlueSpin 8 kW Inhull

For practical reasons, it is not possible to include detailed information covering all alternatives for installation, operation, or maintenance. The drawings and images in this manual are shown for explanatory purposes only.

In the event of differences of interpretation between the multilingual versions of the manual, the French version shall prevail. BlueNav is the sole right owner of the final interpretation of this manual.

The contents of this manual relate strictly to the installation of the BlueSpin system. The integration of the energy system (batteries, Battery Management System, chargers) is independent and described in the manuals supplied by their manufacturers.

In the event of any discrepancy between the products supplied and this manual, or in case of doubt, please visit www.bluenav.com or contact us at support@bluenav.com.

1.2 Intellectual Property

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2. SECURITY

2.1 General safety instructions

This manual explains how to install the BlueSpin system in a simple and safe way. However, specialized knowledge is required for working and modifying the boat's hull. Call an expert if necessary.

Read the entire manual carefully before installing and operating the system. Failure to follow the instructions may result in serious property damage and/or personal injury. The BlueSpin system must be installed in accordance with the installation recommendations described in the documents supplied.

BlueNav accepts no responsibility for any damage caused by actions other than those described in this manual. Modifications to the hull of the boat should only be carried out by professional builders and architects. Compliance with local standards and regulations is mandatory.

Please observe the following general safety instructions:

The boat on which the BlueSpin system is installed must be stable.
The boat must be compatible with the installation and the use of the BlueSpin system, as verified beforehand during project commissioning.
To prevent corrosion and ensure lasting waterproofness, consider the hull material, and provide the appropriate sealants and fastening materials.
Bores and holes in the boat's hull can affect the structure and stability of the hull. Make sure you have suitable fastening equipment.
Use the appropriate lifting equipment to move heavy elements.

2.2 Graduation of safety instructions

Safety instructions are scaled on 2 levels. They are classified according to the seriousness of the risks incurred if the instructions are not followed. BlueNav accepts no liability for any damage caused by actions not complying with these instructions.

Apart from the safety instructions, additional information is indicated by a "NOTE".

DANGER!

Immediate danger of death or of serious injury.

WARNING!

Danger of personal injury or material damage.

NOTE

Useful additional information: assembly advice, description of a component, specific recommendation, etc.

3. DELIVERED MATERIAL

3.1 Contents of delivery

Element		Quantity			
		Outboard single-motor	Outboard twin-motor	Inhull single-motor	Inhull twin-motor
Main Elements					
Propulsion Unit with cable harness: - DRV cable - SIG cable - Yellow motor phase cable - Orange motor phase cable - Red motor phase cable		1	2	1	2
CCU (Communication and Control Unit)		1	1	1	1
Command Panel		1	1	1	1
Power Unit* *Identified "portside" and "starboard" in case of twin-motor configuration.		1	2	1	2
Wiring					
"CCU Power Supply" cable		1	1	1	1
"Remote 1" cable		1	1	1	1
"Remote 2" cable		0	1	0	1
COMMAND PANEL WITH THROTTLE(S)	Extension cable "A"	0	1	0	1
	Extension cable "C"	1	1	1	1
	Cable harness "B" - "KILL SWITCH – M" cable x2 - "ON/OFF" cable - "ELEC M" cable - "DOCKING" cable - "BUZZER" cable - "JOYSTICK" cable	1* *Without the "DOCKING" cable	1	1* *Without the "DOCKING" cable	1

COMMAND PANEL WITH JOYSTICK	Cable harness “A/B/C” - “KILL SWITCH – M” cable x2 - “ON/OFF” cable - “UP/DOWN” cable - “DOCKING” cable - “BUZZER” cable - “JOYSTICK” cable	X	1	X	1
Protective covers for the bulkhead connectors of the Power Unit		5	10	5	10
WEIPU connector 2-pin		1	2	1	2
Screw and bolts					
M10 nylon shoulder washers		4	8	0	0
Accessories					
External covers (already installed on the corresponding unit)		5	10	0	0
Fixed chassis (with mobile chassis already installed)		1	2	0	0
Centering template 05-10-0009		0	0	1	1
Drilling template 05-10-0011-B		1	1	0	0
Watertight gasket		0	0	1	2

NOTE

Some cables, connectors and screws and bolts necessary for the installation of components are not supplied. For more information, refer to p.11.

3.2 Storage conditions

If the BlueSpin system is not immediately installed, it must be stored in its transport packaging in a dry, clean, and dust-free environment.

Please observe the following criteria:

- Ambient temperature between 5°C and 40°C;
- Relative humidity below 60%;
- No sudden changes in temperature, vibration, gas, or corrosive agents;
- Maximum stackable weight on packaging does not exceed 220kg.

⚠ WARNING!

Always handle and move the BlueSpin vertically in its original packaging.

4. NON-DELIVERED MATERIAL REQUIRED

The BlueSpin system is designed to be installed into a boat already equipped with a thermal propulsion system. Due to the many different characteristics of each boat, some of the components required for installation are not supplied by BlueNav on delivery, but must be present on board.

If you have any doubts about the compatibility of the material listed below, please contact BlueNav after-sales service.

4.1 DC 12V - 1A Power supply

A power supply of 12V DC - 1A is required on board to power the CCU. This power supply can be the service battery on board. Refer to p.33 for the wiring procedure.

4.2 Multifunctional Display (MFD)

A Multifunctional Display (MFD) is required on board to display the BlueNav application. The BlueNav application is part of an HMI (Human-Machine Interface) allowing the user to steer the BlueSpin system. Refer to p.41 for the wiring procedure.

4.3 NMEA 2000® Network

The boat's NMEA 2000® CAN bus network is used to transmit data between devices of several types and from different manufacturers, such as GPS, compass, wind, depth, AIS, speed, or motor data. It is set up prior to the BlueSpin system installation.

The CCU of the BlueSpin system must be wired to the backbone of the NMEA 2000® Network on board to guarantee good data communication. Refer to p.40 for the wiring procedure.

4.4 Batteries

NOTE

BlueNav can provide advice for choosing the batteries. Contact the after-sales service.

The BlueSpin system is an electrical propulsion system. Thus, it is powered by batteries. The batteries must meet the following requirements:

Specifications	Value
Rated voltage	48 V
Current type	Direct current
Rated current	170 A
Discharge capacity	High

Batteries are wired to the Propulsion Units of the BlueSpin system. Count 170 A per motor of the BlueSpin system. Refer to p.37 for the wiring procedure.

4.5 Unsupplied screws and bolts for the mechanical installation

Equipment	Quantity	Corresponding Procedure	Outboard	Inhull
M10 type bolt (INOX 14/A4 316L)	4	p.23 (step 3)	X	
M8 type screw	14	p.26 (step 2)		X
M5 type screw	4	p.28 (step 1)	X	X
M5 type screw	2 to 6*	p.30 (step 1)	X	X
M5 type screw	4 to 6*	p.30 (step 5)	X	X

*Depends on the drilling environment.

⚠ WARNING!

All screws and bolts not supplied must be compatible with the mounting environment. In case of doubt, contact BlueNav after-sales service.

4.6 Unsupplied cables and connectors for the wiring

The table below summarizes the items needed in addition to the hardware supplied, depending on the configuration of the BlueSpin system ordered. Refer to the wiring procedures for further details.

Element	Quantity		Corresponding Procedure
	single-motor	twin-motor	
Ethernet cable	1	1	Refer to p.41
NMEA 2000® Micro-C cable	3	5	Refer to p.38
CAN Bus T-connector	2	3	
CAN Bus female termination 120 Ω	1	1	
CAN Bus male termination 120 Ω	1	1	
CAN Bus M12 F/M cable	1	3	Refer to p.40
+48V power cable	1	2	Refer to p.37
-0V power cable	1	2	

4.7 Required tools for mechanical installation

This list is indicative and non-exhaustive. Additional tools may be required depending on the installation of components not supplied (refer to p.10) and the specific characteristics of the boat on which the BlueSpin system is installed.

Tool	Use	Outboard	Inhull
Lifting table	Move the Propulsion Unit	X	X
8mm Allen wrench	Manually lower the propeller	X	X
Torque wrench	Fasten components with the correct torque	X	X
Sealing product*	Seal the holes in the hull	X	X
70mm hole saw	Drill the cable entry in the hull	X	
Phillips screwdriver	Tighten the screws of the Power Unit and of the Command Panel (p.28 and p.30)	X	X
Flat head screwdriver	Unscrew the caps of the Junction Box	X	X

*Depends on the drilling environment.

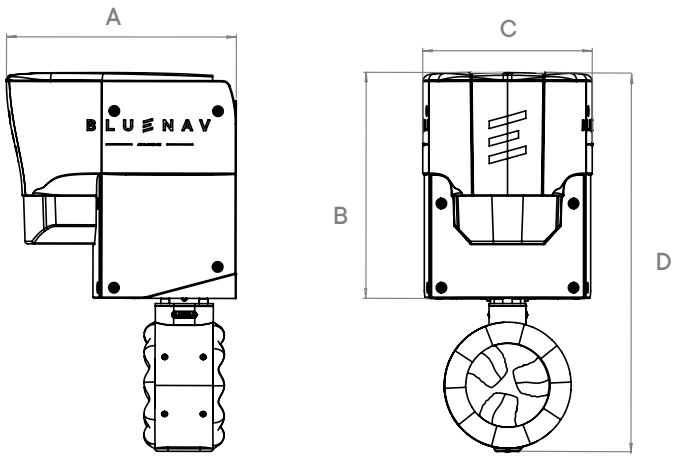
5. SPECIFICATIONS

Propulsion Unit rated power *The maximum power and the maximum motor rotation speed depend on the boat-motor-propeller combination. Depending on the use, maximum motor speed may not be reached.*		8 kW
Propulsion Unit thermic outboard equivalent (estimation)		15 hp
Rated voltage		48 V DC
Rated current		170 A
Maximum current		210 A
Maximum motor rotation speed		2000 rpm
Length of the cable harness coming from the Propulsion Unit (SIG cable, DRV cable, yellow motor phase cable, orange motor phase cable, red motor phase cable)		2.5 m
Length of the “CCU Power Supply” cable		3 m
Length of “Remote 1” and “Remote 2” cables		9 m
Length of white “THR_L” and green “THR_R” extension cables (in case of a Command Panel with throttle(s))		2 m
Weight of the Propulsion Unit	Outboard	43 kg
	Inhull	43 kg
Weight of the CCU		1.1 kg
Weight of the Command Panel	throttle (single)	1.1 kg
	throttles (twin)	1.8 kg
	joystick	323 g
Weight of the Power Unit		7.8 kg
Propeller Protection Index		IP68 - seawater resistant

Command System	Push buttons + EITHER: Direction joystick and single throttle EITHER: Direction joystick and throttles (port/starboard) EITHER: 3-axis joystick

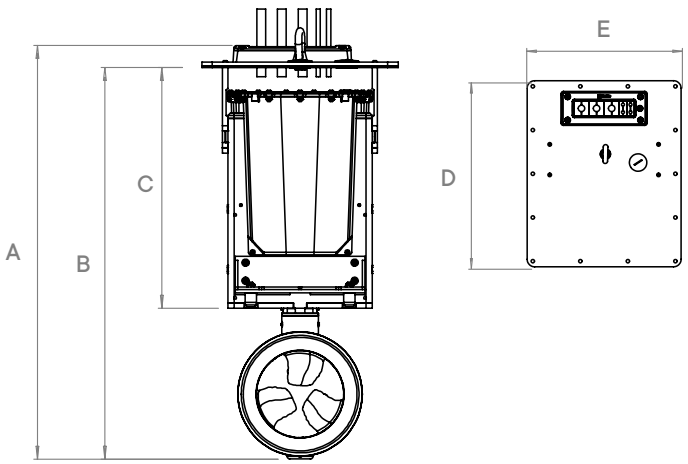
6. PRODUCT DIMENSIONS

Dimensions of the Outboard Propulsion Unit



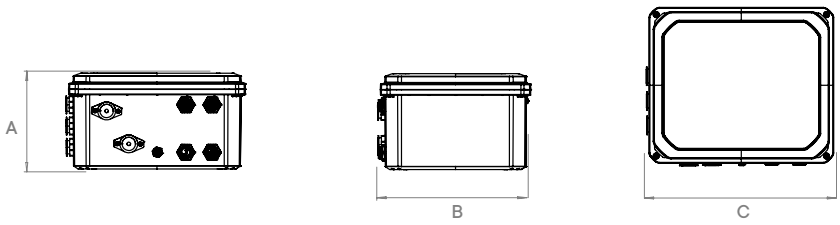
A	436 mm
B	431 mm
C	328 mm
D	723 mm

Dimensions of the Inhull Propulsion Unit



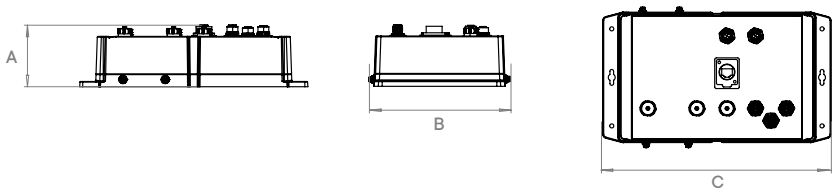
A	797 mm
B	755 mm
C	464 mm
D	494 mm
E	408 mm

Dimensions of the Power Unit



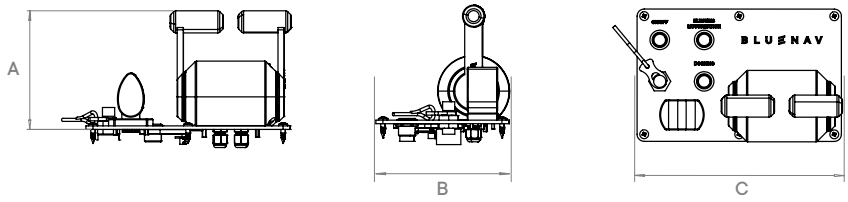
A 183 mm
B 291 mm
C 341 mm

Dimensions of the CCU



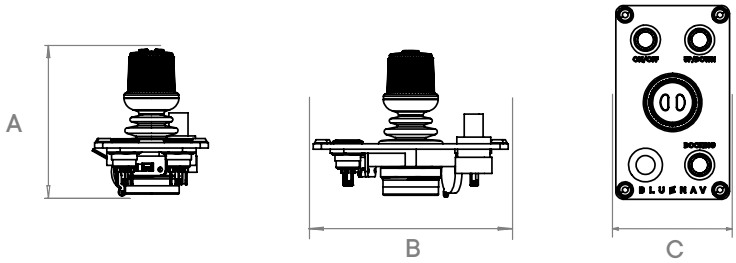
A 80 mm
B 161 mm
C 280 mm

Dimensions of the Command Panel (throttles)



A 135 mm
B 150 mm
C 230 mm

Dimensions of the Command Panel (joystick)



A 108 mm
B 144 mm
C 84 mm

7. PRODUCT DESCRIPTION

The BlueSpin system is an electrical propulsion system designed to be used as a secondary motor to hybridize a boat's pre-existing thermic propulsion.

It is available in two models:

- The Outboard BlueSpin 8 kW: outboard motor.
  - Monomotor version (“Single")
  - Bimotor version (“Twin”)
- The Inhull BlueSpin 8 kW: installed within the hull, in a well.
  - Monomotor version (“Single")
  - Bimotor version (“Twin”)

The features of the Inhull BlueSpin system are identical to the Outboard BlueSpin system. Only the external aspect and the installation instructions of the Propulsion Unit change.

The two models are equipped with a retractable RIM Drive propeller. When in use, the RIM Drive propeller is lowered through the underside of the Propulsion Unit. After use, the RIM Drive propeller retracts within the Propulsion Unit.

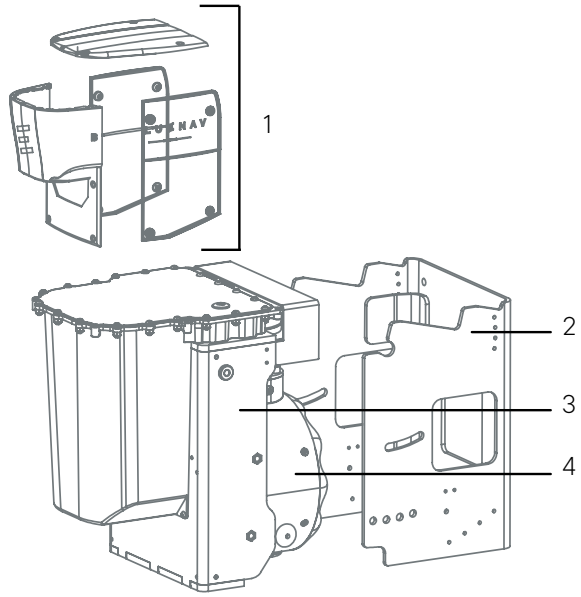
NOTE

The diagrams in this installation manual can depict the RIM Drive propeller as lowered (“using mode”) for illustration or explanation purposes only. The RIM Drive propeller is retracted by default within the Propulsion Unit when the system is delivered.

The BlueSpin system, whether it’s an Outboard or an Inhull model, consists of the following components:

Elements	Quantity	
	single-motor	twin-motor
Propulsion Unit	1	2
Power Unit	1	2
CCU (Communication and Control Unit)	1	1
Command Panel	1	1

7.1 Outboard Propulsion Unit



1 Covers
2 Mobile chassis
3 RIM Drive propeller
4 Fixed chassis

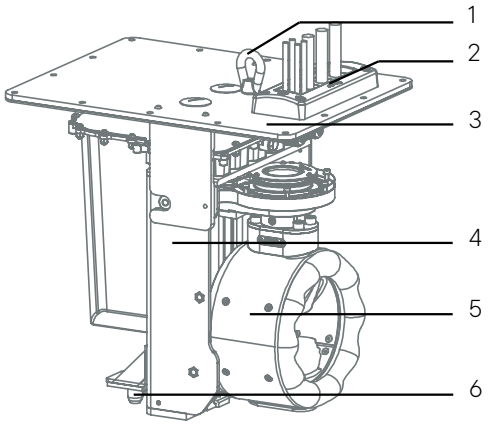
The Outboard Propulsion Unit of the BlueSpin system is designed for an outboard installation, against the hull.

It is made of a fixed chassis, of a mobile chassis and external covers. It also has a cable harness to be connected to the Power Unit (not shown in the diagram on the right).

Refer to p.21 for the detailed installation procedure.

Refer to p.36 for the detailed wiring procedure.

7.2 Inhull Propulsion Unit



1 Lifting eye
2 Watertight cable entry
3 Sealing plate (with gasket)
4 Chassis
5 RIM Drive propeller
6 Centering pins

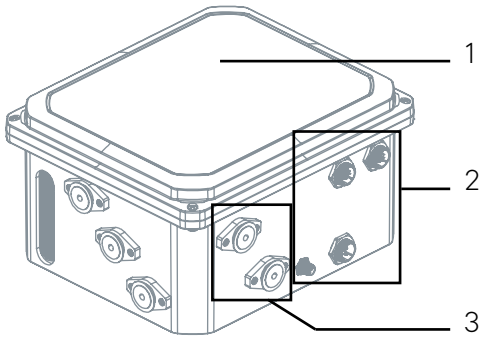
The Inhull Propulsion Unit of the BlueSpin system is designed to be installed within a well. This well is installed beforehand in the hull.

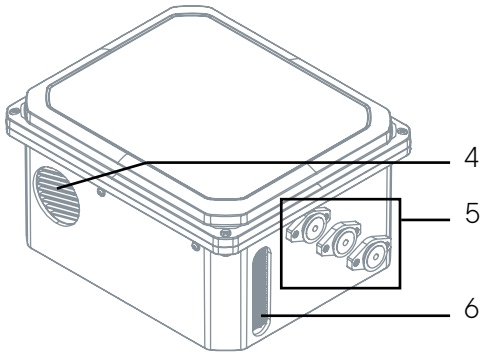
The Inhull Propulsion Unit is equipped with a sealing plate on its upper side. The sealing plate has a cable entry. The sealing plate is equipped with a lifting eye to move the Propulsion Unit.

Refer to p.25 for the detailed installation procedure.

Refer to p.36 for the detailed wiring procedure.

7.3 Power Unit





1 Box
2 Command connectors
3 48 V DC bulkhead connectors for the batteries
4 Fan opening (air sucked in)
5 Motor phase bulkhead connectors
6 Air opening (air blown out)

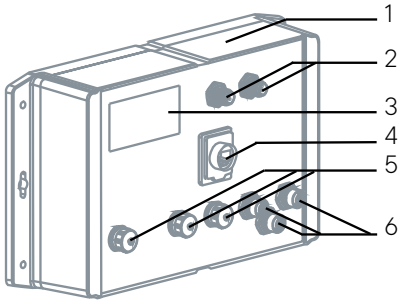
The detailed description of the connectors is given p.32.

The Power Unit enables the control of the motors within the Propulsion Units.

Refer to p.26 for the detailed installation procedure.

Refer to p.36-38 for the detailed wiring procedure.

7.4 CCU (Communication and Control Unit)



1 Box
2 M12 male connectors
3 Number plate
4 RJ45 female connectors
5 M12 female connectors
6 WEIPU male connectors

The Communication and Control Unit (CCU) is a control system and a communicative gateway. It transmits and emits information through the NMEA 2000® Network (refer to p.18).

Refer to p.30 for the detailed installation procedure.

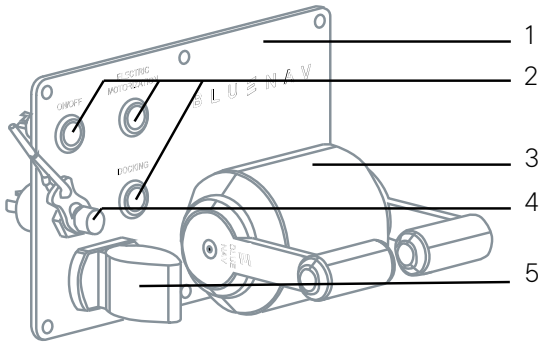
Refer to p.38-42 for the detailed wiring procedure.

7.5 Command Panel

The Command Panel is used to switch on and activate controls. It is available in a throttle(s) version or in a joystick version depending on the product ordered.

Refer to p.30 for the detailed installation procedure.

7.5.1 With throttles



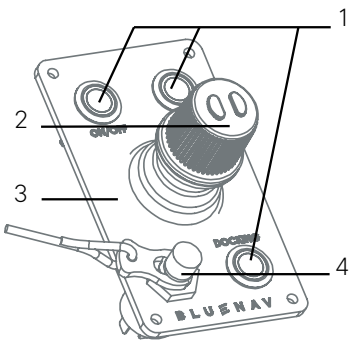
1 Panel of the Command Panel
2 Push buttons
3 Throttles
4 Cut-off switch
5 Direction stick

The Command Panel with throttles is supplied with two cables already welded on the rear connectors THR_L (identified in white) and THR_R (identified in green). Cable extensions are connected to the already welded cables to facilitate the wiring with the CCU (see p.42).

In case of a single motor BlueSpin propulsion system, the Command Panel is equipped with a simple throttle.

Refer to p.42 for the detailed wiring procedure.

7.5.2 With joystick



1 Push buttons
2 Joystick
3 Panel of the Command Panel
4 Cut-off switch

The Command Panel with joystick allows the user to control the propulsion and the gyration of the BlueSpin system with a single control feature: the 3-axis joystick.

Refer to p.42 for the detailed wiring procedure.

8. MECHANICAL INSTALLATION REQUIREMENTS

8.1 General requirements

The precise dimensions of the different elements supplied by BlueNav are available p.14. Make sure that these dimensions are compatible with the installation environment.

For the material that is required but not supplied, refer to p.10.

Observe the safety instructions to ensure a safe and correct installation of the BlueSpin system. Refer to p.7.

⚠ DANGER!

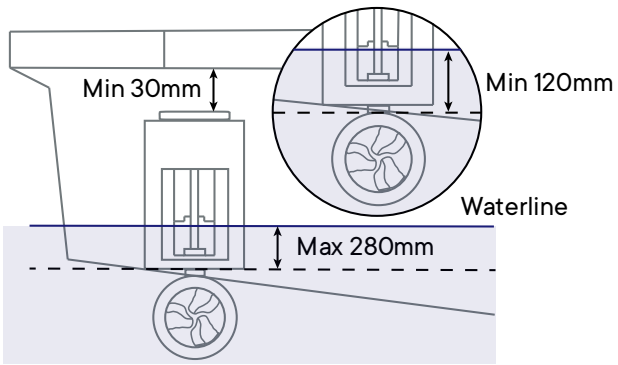
The boat and all its components must be isolated from sources of electrical voltage.
The mechanical installation work must be carried out on land only. The boat must be out of water.

⚠ WARNING!

The BlueSpin system requires an on-board power supply. Plan the position of the elements of the BlueSpin system so as not to affect sensitive electrical equipment (e.g., radios) or measuring instruments (e.g., compasses). Relocate those devices if necessary.

8.2 Position of the Propulsion Unit

The Propulsion Unit of the BlueSpin system is positioned against or within the hull, according to the following requirements:



- The chassis of the Propulsion Unit **does not protrude from the hull of the boat**;
- The chassis of the Propulsion Unit is immersed underwater at **a maximum of 280 mm** from its lowest point;
- In lowered position, the propeller is **completely under the hull and underwater**;

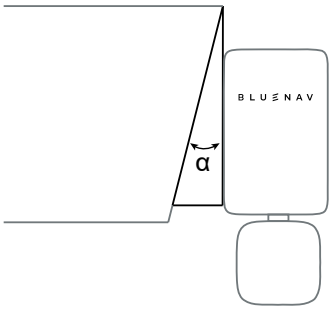
Regarding the Outboard Propulsion Unit, the drilling template must be placed against the hull to identify the drilling holes.

Regarding the Inhull Propulsion Unit, the installation well (refer to p.25) must comply with these requirements.

9. INSTALLATION OF THE OUTBOARD PROPULSON UNIT

The Outboard Propulsion Unit is installed outboard, against the hull of the boat.

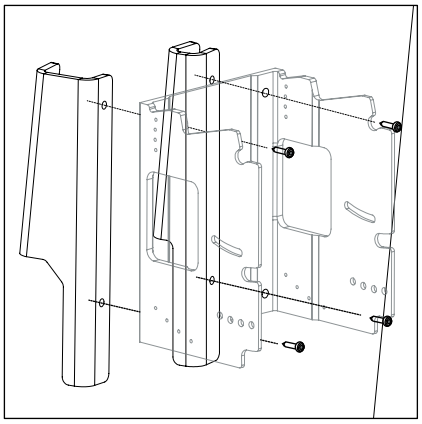
9.1 Verticality rework



α : vertical recovery angle

The Outboard Propulsion Unit must be mounted on a flat and vertical surface of the hull. The more vertical the surface, the more optimal the performances.

The surface of the hull in contact with the fixed chassis of the Outboard Propulsion Unit must be flat with a 2 mm / m tolerance.



An example of angle brackets against the hull.

If the surface on which the engine is installed against the hull is not perpendicular to the waterline, install angle brackets (folded aluminum is recommended) adapted to the angle of the hull. These angle brackets allow you to rework the verticality, and to unbolt the fixed chassis without resealing the hull, especially the cable entry.

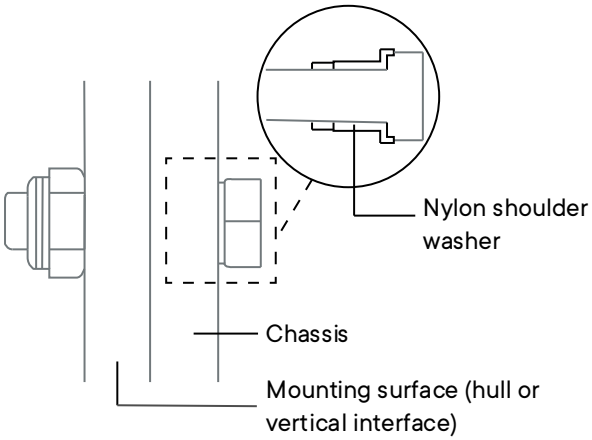
Depending on the environment, if the interfacing wedge is made of stainless steel, use M12 nylon shoulder washers between the Propulsion Unit and the interfacing wedge to prevent metal-on-metal contact.

NOTE

The Outboard Propulsion Unit is made of a mobile chassis already installed on a fixed chassis. This fixed chassis must be mounted on a flat and vertical surface of the hull.

Once the fixed chassis is installed in accordance with the verticality requirements above, install the mobile chassis. The mobile chassis must be vertical when compared to the boat. Refer to the installation procedure p.23.

9.2 Galvanic protection



Galvanic corrosion is a common phenomenon in metallic structures that causes severe damage. This electrochemical process occurs when two dissimilar metals come into contact in a conductive environment such as a liquid, a soil or within atmospheric humidity.

The fixed chassis of the Propulsion Unit is made of anodized aluminum. To avoid corrosion, BlueNav supplies nylon shoulder washers for installing the motors as shown.

The bolts used to secure the chassis are of the following type: M10 INOX 14/A4 316L (refer to p.11).

⚠ WARNING!

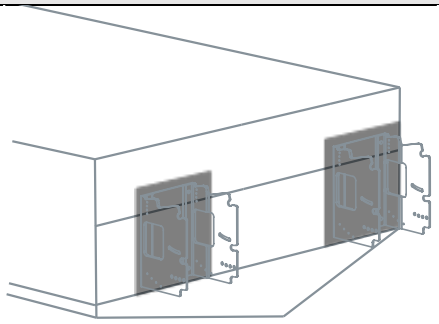
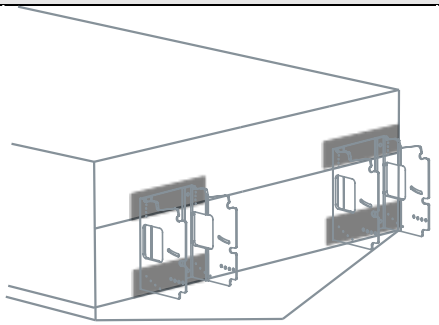
If the hull is in a metal other than aluminum, plan a galvanic protection between:

- The hull and the chassis;
- The hull and the bolts.

9.3 Supporting plate behind the hull

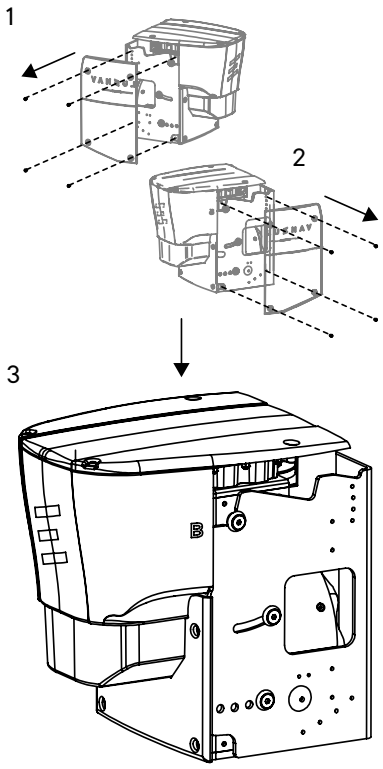
To strengthen the fixed chassis installation, a supporting plate can be added behind the hull, into which the bolts can be screwed in. This solution is recommended to reinforce the mounting of the motors against the hull (fiber hull, wooden hull, etc.).

The supporting plate(s) must be placed inside the hull, in front of the drill holes indicated by the drilling template (reference 05-10-0011, dimensions available in **appendix 14.2** at p.45).

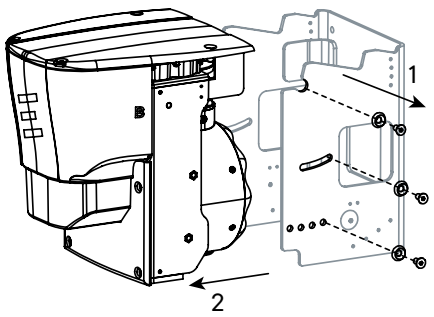
Option 1	Option 2
	

9.4 Mounting procedure of the Outboard Propulsion Unit

1. Remove the two external lateral covers of the Propulsion Unit as shown in the diagram. Keep the screws aside (x4 screws / cover).

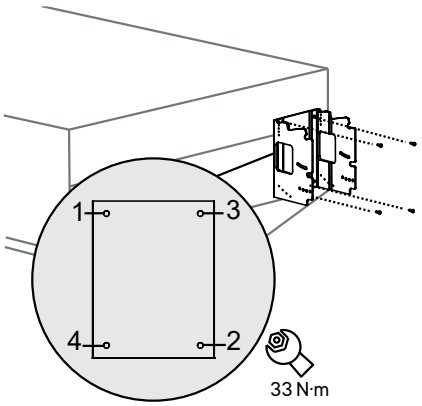


2. Remove the fixed chassis from the mobile chassis by unscrewing the components shown in the diagram (2x3 FHC M10 screws). Keep the screws aside.



3. Using the template (reference 05-10-0011, dimensions available in **appendix 14.2** at p.45), drill 4 holes for M10 bolts on the surface of the hull chosen for installing the fixed chassis. Using M10 bolts and nuts, install the fixed chassis in the specified order. The recommended torque is 33 N·m. Adapt this torque to the hull material if necessary.

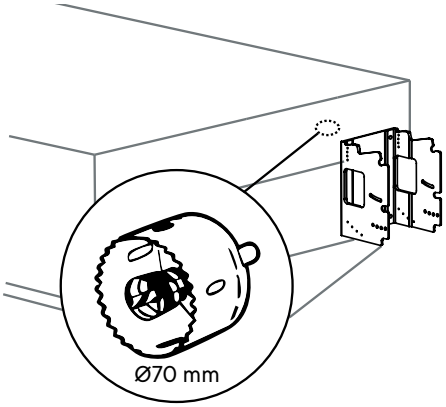
Adapt the bolts and nuts used to the installation surface: see 9.2 and 9.3 p.22.



⚠ WARNING!

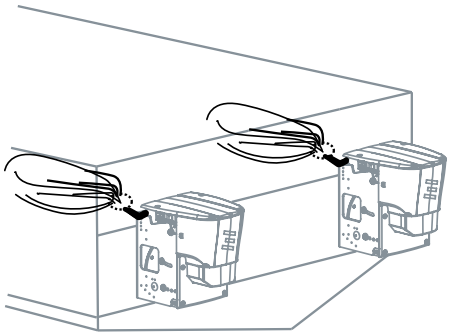
Use only A4 / 316 L stainless steel bolts (M10). If the hull is not vertical, use angle brackets as shown on p.21.

4. Mark the desired cable entry point in the hull. Using a Ø70mm hole saw, drill the hull according to this parameter.



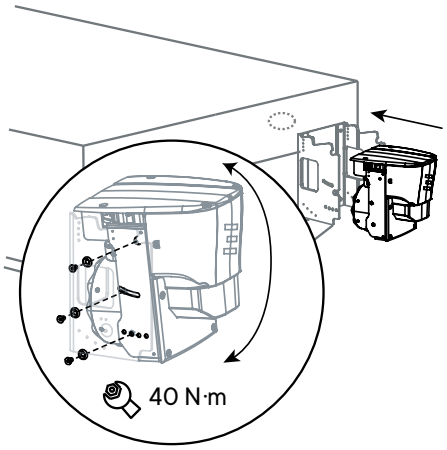
⚠ WARNING!

When facing the boat from behind, the cable harness of the BlueNav Outboard motor sticks out from the left of the chassis. See diagram:

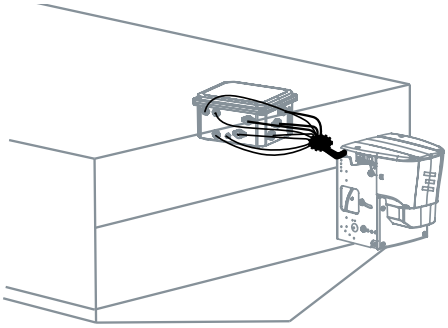


Take this into account when drilling the hull.

5. Using the bolts previously removed (step 2), install the mobile chassis onto the fixed chassis. Adjust the vertical angle of the chassis during this step: the mobile chassis of the Propulsion Unit must be vertical in relation to the boat. The torque for the bolts is 40 N·m.



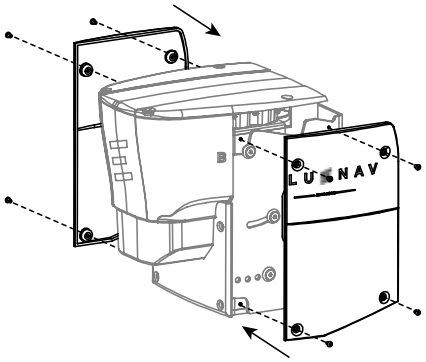
6. Guide the cable harness of the Propulsion Unit through the hole drilled at step 4. Refer to p.36 for the detailed wiring procedure to the Power Unit. The cables must not be twisted.



⚠ WARNING!

Always seal the cable entry after wiring.

7. Using the screws previously removed (step 1), drill back the external covers onto the Propulsion Unit (torque is 4 N·m).



10. INSTALLATION OF THE INHULL PROPULSON UNIT

The Inhull Propulsion Unit is designed to be installed within a well, within the hull of a boat.

The position and dimensions of the well must allow the Inhull Propulsion Unit to comply with the position requirements (refer to p.20).

10.1 Well creation

⚠ WARNING!

The creation of the well generates structural modifications of the boat. It must be carried out by professionals only.

The well of the Inhull Propulsion Unit is created beforehand and complies with the structural requirements of the boat. These requirements are discussed beforehand during the project commissioning phase. Refer to the information provided by BlueNav teams at this stage.

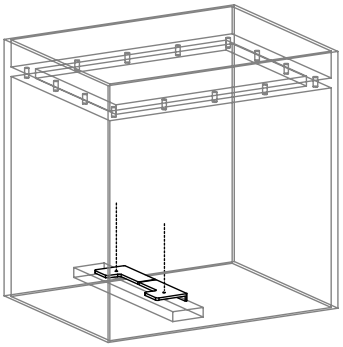
The blueprint for the creation of the well is available in the appendix p.44.

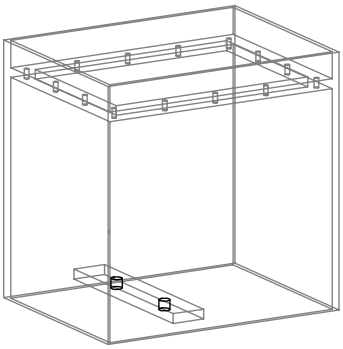
The well of the Inhull Propulsion Unit must:

- Comply with the positioning requirements of the Propulsion Unit described at p.20;
- Be made in a watertight material;
- Allow the full gyration and lowering of the RIM Drive propellers when the system is in use.

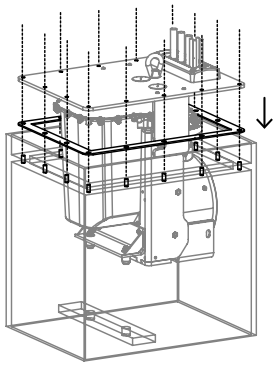
10.2 Mounting procedure of the Inhull Propulsion Unit

1. Using the 05-10-0009 template, drill 2 holes with a diameter of Ø 22 mm on the wedge at the bottom of the well.



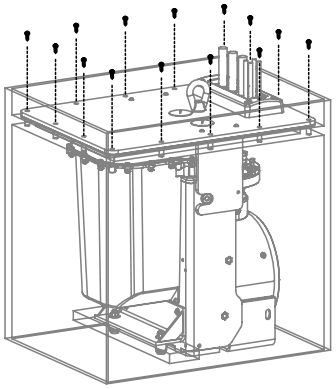


2. Position the flat gasket on the rim of the well and under the sealing plate of the Propulsion Unit. Using the lifting eye, guide the Propulsion Unit down into the well. The holes of the gasket line up with the holes of the sealing plate and of the well.



Check that the flat gasket is correctly positioned between the sealing plate of the Propulsion Unit and the rim of the well. Incorrect installation is detrimental to motor installation and sealing.

3. Screw the sealing plate to the rim of the well with 14 M8 screws. The torque depends on the chosen M8 screws and on the mounting environment.



11. INSTALLATION OF THE POWER UNIT

The Power Unit is designed to be installed within the hull of the boat.

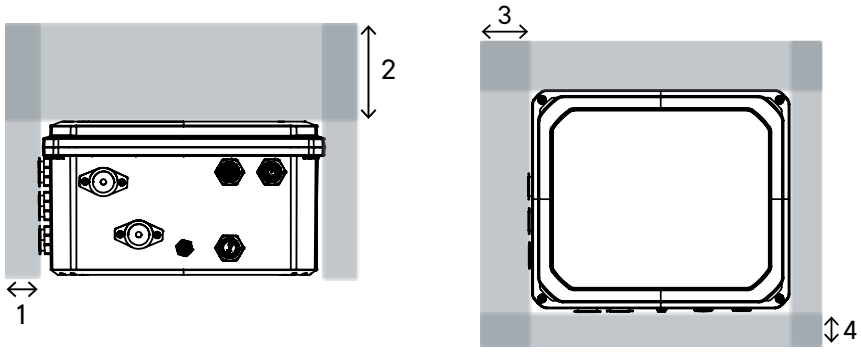
The Power Unit should be installed in a place:

- As close as possible to the corresponding Propulsion Unit to allow wiring (refer to p.36). The motor power and control cables have a standard length of 2.5 m. Check that the chosen location is compatible with this length.
- Dry and sufficiently ventilated.
- Protected from water splashes.
- Accessible for future maintenance or update operations (the cover of the box must be able to be opened).
- Where the temperature does not exceed 40°C.

The Power Unit can be installed horizontally or vertically, provided the above requirements are met. However, vertical installation is recommended. The mounting procedure remains identical. Refer to p.28.

11.1 Space taken by the Power Unit

During the installation of the Power Unit, comply with the following dimensions:



1 150 mm minimum
2 450 mm minimum
3 200 mm minimum
4 150mm minimum

⚠ WARNING!

The fan opening (side with a round hole) sucks in air. The air opening blows out hot air. The temperature of the place must not exceed 40°C.

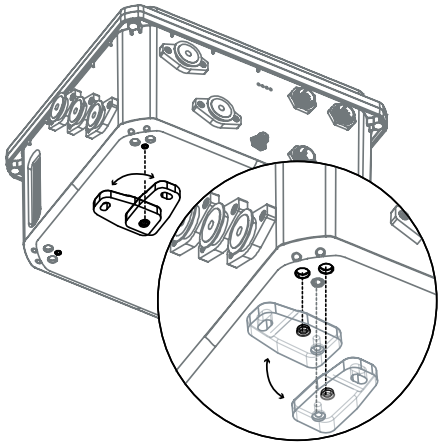
⚠ WARNING!

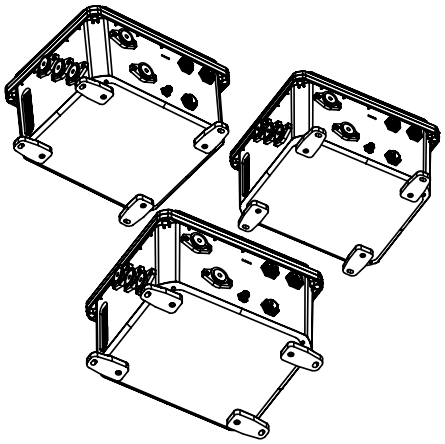
If the BlueSpin system is a twin-motor system, each Power Unit is identified “port” and “starboard”. **Each Power Unit must be installed on board according to their port/starboard identification.** Each Power Unit is wired to its corresponding Propulsion Unit.

11.2 Mounting procedure of the Power Unit

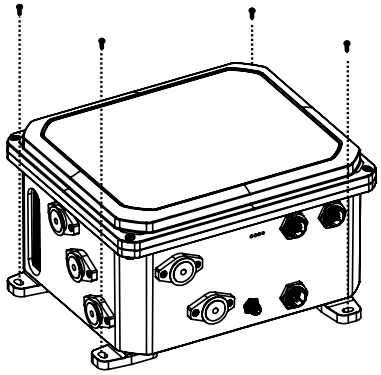
The Power Unit is supplied with 4 flat brackets to be screwed in by the installer. 4 M5 screws are supplied to install those flat brackets on the Power Unit.

1. Using the 4 M5 screws supplied and the centering template, fasten each of the flat brackets onto the Power Unit in the chosen angle (two positions are possible).





2. Install the Power Unit in the hull. Use ∅ 8mm diameter screws adapted for the mounting surface.



12. INSTALLATION OF THE COMMAND PANEL AND THE CCU

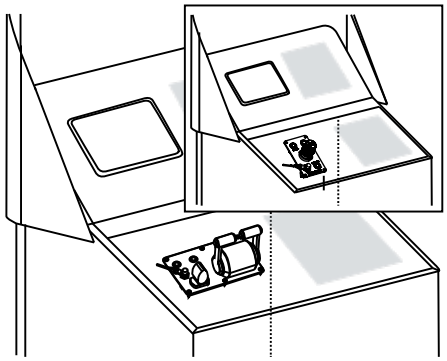
12.1 Position of the CCU

The CCU is designed to be wired to a power supply of 12V DC on board. It acts as a gateway between the BlueSpin system and the NMEA 2000® Network on board. Its position is determined depending on the length of the cables supplied and the cables that are not supplied. Refer to p.34-35.

To reduce the risks of electromagnetic interferences, install the CCU as far away as possible from motors, generators, propellers, or power cables.

Do not place the CCU in contact with a metal plate or compartment.

12.2 Position of the Command Panel

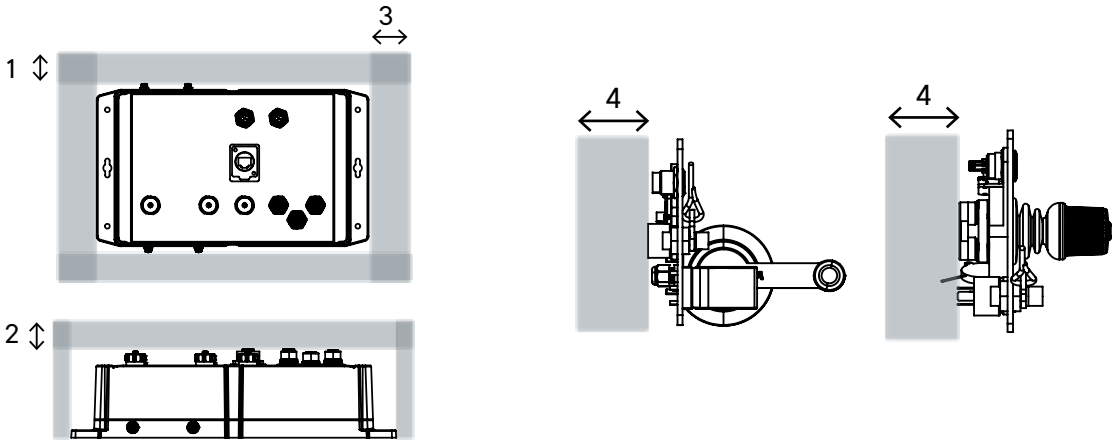


The Command Panel must be installed at the steering station, close to the multifunctional display, as shown.

The installation of the Command Panel depends on the length of the cables supplied. Install the Command Panel as close as possible to the CCU.

12.3 Space taken by the Command Panel and the CCU

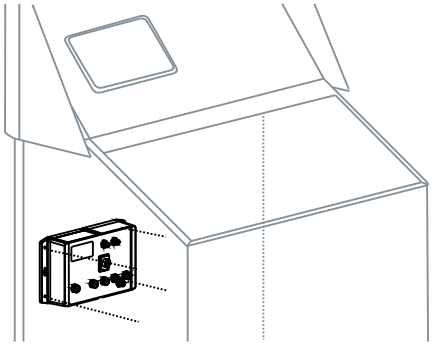
Respect the reserved spaces below for the installation of the Command Panel and of the CCU.



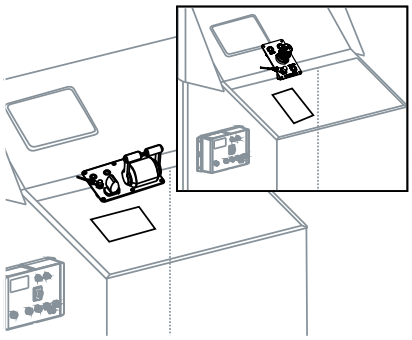
1	150 mm minimum	3	150 mm minimum
2	50 mm minimum	4	80 mm minimum

12.4 Mounting procedure of the Command Panel and of the CCU

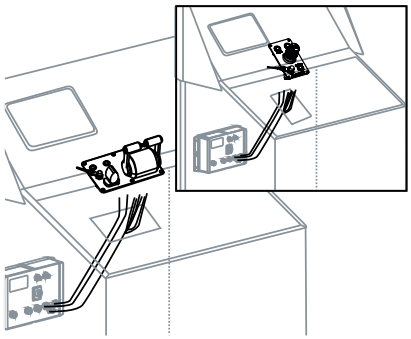
1. Install the CCU close to the multifunctional display and to the Command Panel. Use M5 screws adapted for the mounting surface. Refer to p.11.



2. At the steering station, drill a cable entry (refer to p.45-47) for the Command Panel wiring.



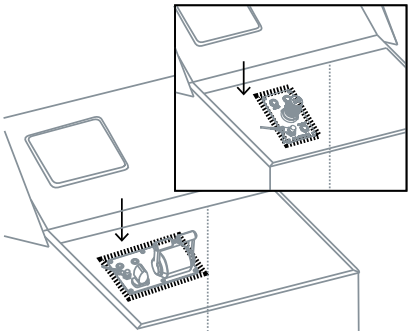
3. Wire the Command Panel and the CCU. Refer to p.42.



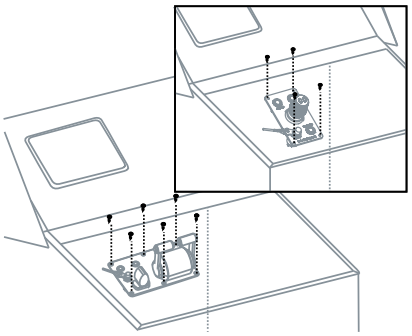
⚠ WARNING!

Before moving on to step 4, make sure the wiring is correct.

4. Once the wiring is done, seal around the panel and screw holes. The product to be used depends on the mounting environment.



5. Screw in the panel of the Command Panel. Use M5 screws adapted for the mounting surface. Refer to p.11.



13. WIRING

The BlueSpin system is designed to operate with a nominal voltage of 48V DC. The system is ready for wiring:

- On pre-existing components on board: refer to p.10.
- Between each component of the BlueSpin system.

The cables supplied are identified by a label or a color. Refer to p.8 for a description of the cables supplied.

BlueNav does not supply all the cables, connectors and terminators required for wiring the entire BlueSpin system. This applies to items already owned by the customer or items that require a specific cable length because of the configuration of the boat. Refer to p.11.

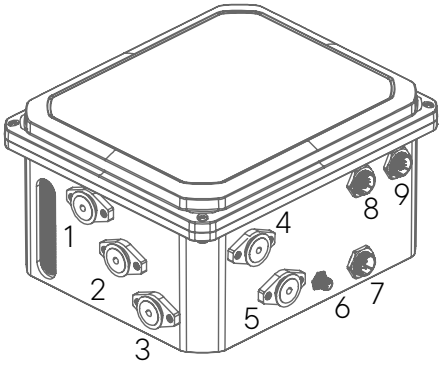
Refer to the overall wiring diagram for a wiring overview (see p.34-35).

DANGER!

Always work with the power switched off and with suitable electrical protection equipment. Ensure the cable length is correct and suitable for marine environments.

13.1 Identification of the connectors of the Power Unit

To facilitate the wiring procedures of the Power Unit, refer to the identification table below.

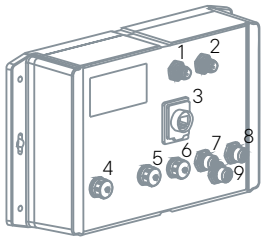


N°	Name or type of cable	Wired to...	Detailed procedure
1	Yellow phase motor cable (supplied)	Propulsion Unit	p.36
2	Orange phase motor cable (supplied)	Propulsion Unit	
3	Red phase motor cable (supplied)	Propulsion Unit	
4	+48V power cable (not supplied)	Batteries	p.37
5	-0V power cable (not supplied)	Batteries	
6	CAN Bus cable (not supplied)	CCU	p.38
7	“Remote” cable	CCU	p.38
8	DRV (supplied)	Propulsion Unit	p.36
9	SIG (supplied)	Propulsion Unit	p.36

The details regarding the cables not supplied are available p.11.

13.2 CCU connectors identification

To facilitate the CCU wiring procedures, refer to the identification table below.

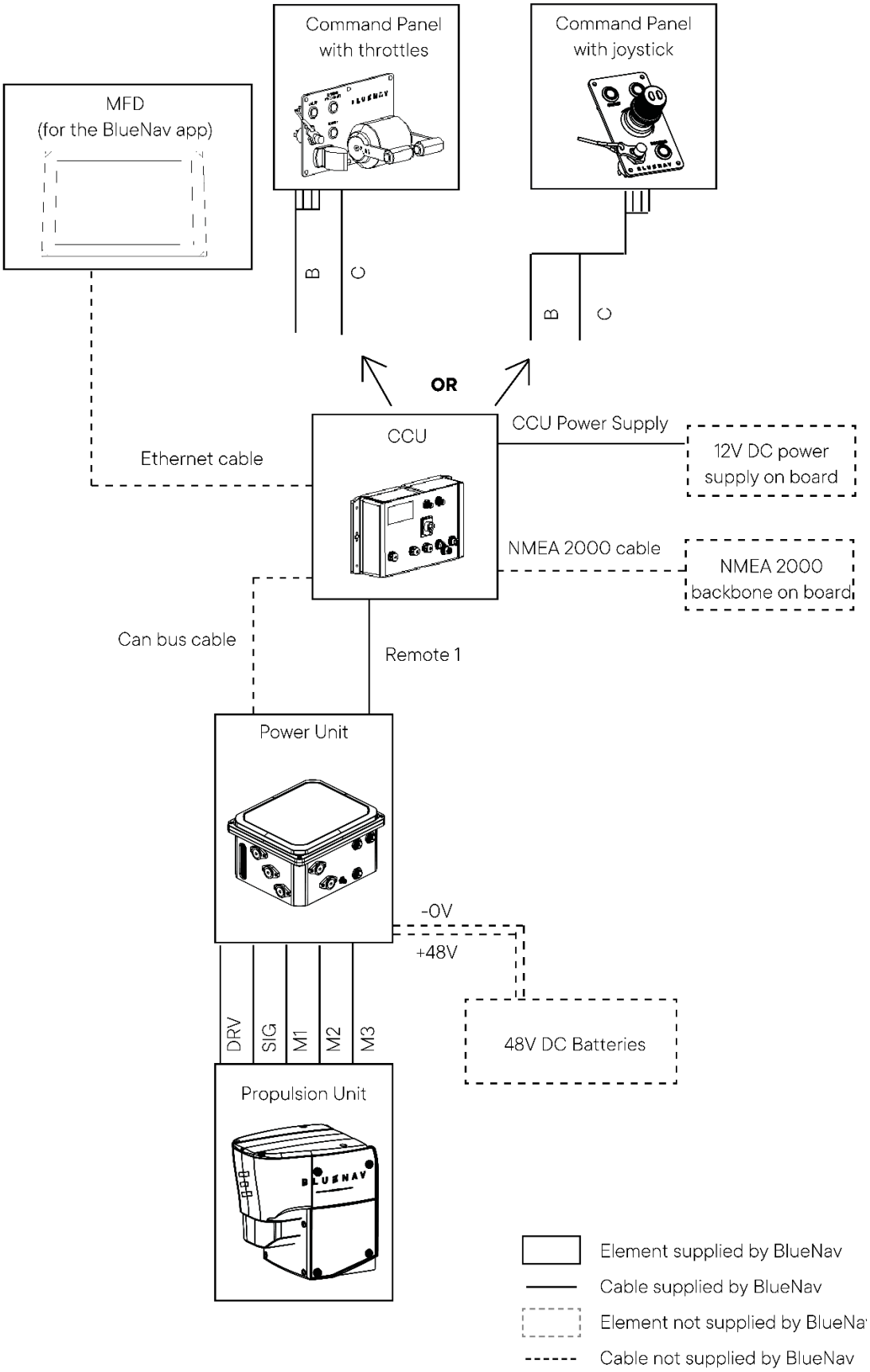


N°	Name/color of the connector	Name or type of cable	Wired to...	Detailed procedure
1	NMEA	NMEA 2000® cable (not supplied)	Backbone of the NMEA 2000® network on board	p.40
2	CAN PROP	CAN cable (not supplied)	Power Unit	p.38
3	Ethernet	Ethernet cable (not supplied)	Multifunctional Display (MFD)	p.41
4	POWER SUPPLY	CCU Power Supply (supplied)	12V – 1A power supply on board	p.41
5	REMOTE 1	Remote 1 (supplied)	Power Unit	p.38
6	REMOTE 2*	Remote 2 (supplied)	Power Unit	p.38
7	“A” connector	“A” cable (supplied)	Command Panel	p.42
8	“C” connector	“C” cable (supplied)	Command Panel	p.42
9	“B” connector	“B” cable (supplied)	Command Panel	p.42

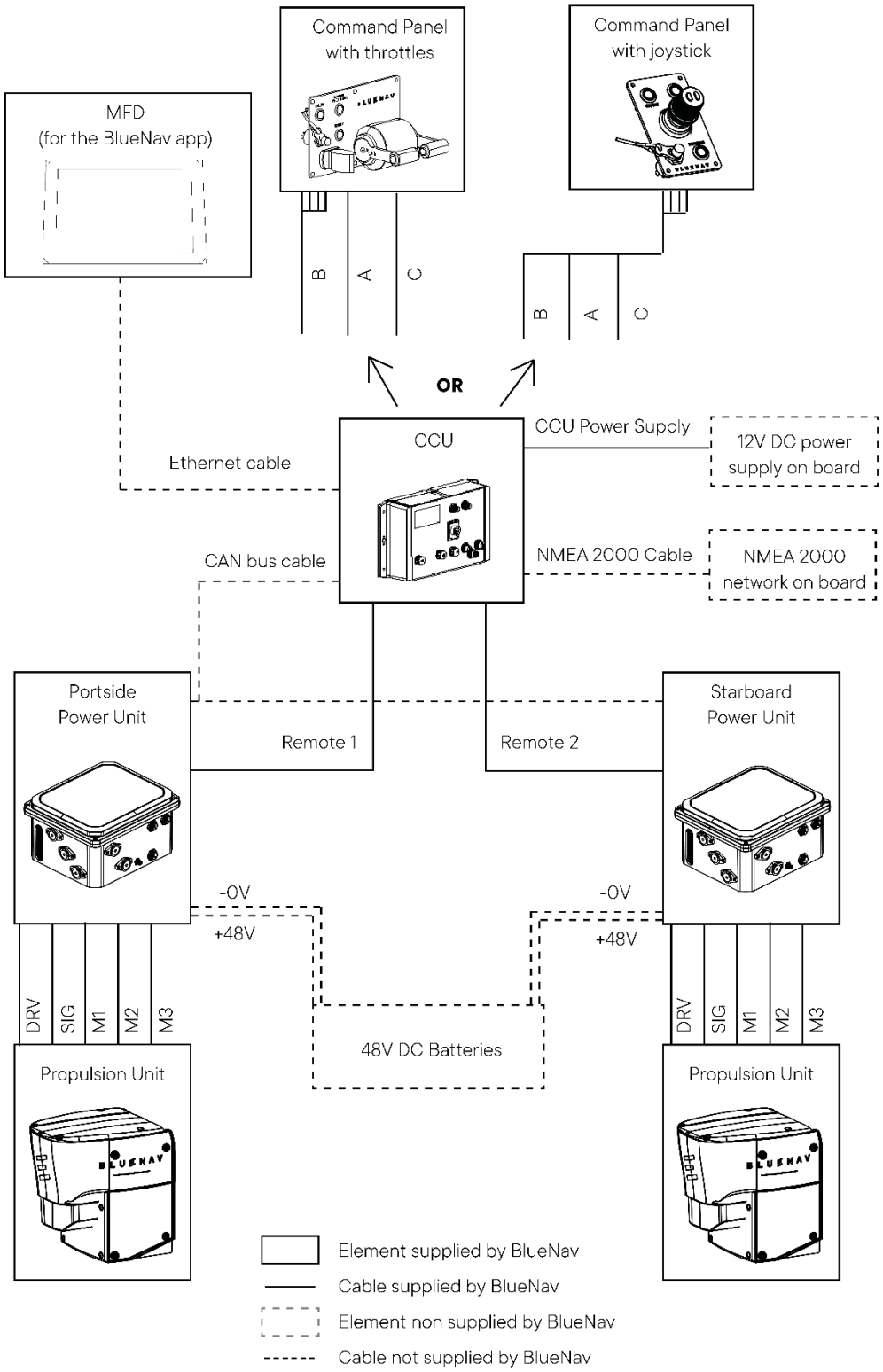
*Not used in single-motor configuration.

The details regarding the cables not supplied are available p.11.

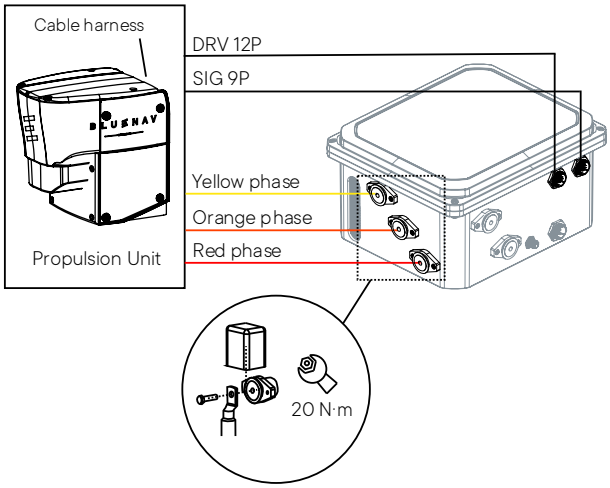
13.3 Global wiring of the single-motor 8kw BlueSpin



13.4 Global wiring of the twin-motor 8kw BlueSpin



13.5 Wiring of the Power Unit / Propulsion Unit



The cables of the Propulsion Unit (2.5 m standard length) are supplied by BlueNav. They are ready for wiring.

The location chosen for the mechanical installation of the Propulsion Unit and Power Unit must allow the wiring as shown.

If the BlueSpin system is a twin-motor system, repeat the wiring procedure for the second Propulsion Unit with the corresponding Power Unit.

⚠ WARNING!

If the BlueSpin system is a twin-motor system, each Power Unit is identified "port" and "starboard". **Each Power Unit must be installed on board according to their port/starboard identification.** Each Power Unit is wired to its corresponding Propulsion Unit.

The starboard/portside position of a Propulsion Unit is determined by its wiring with a starboard/portside Propulsion Unit.

13.5.1 Motor phase wiring (bulkhead connectors)

The wiring of the yellow, orange, and red motor power phase cables must be respected. It enables a correct forward/reverse propelling direction.

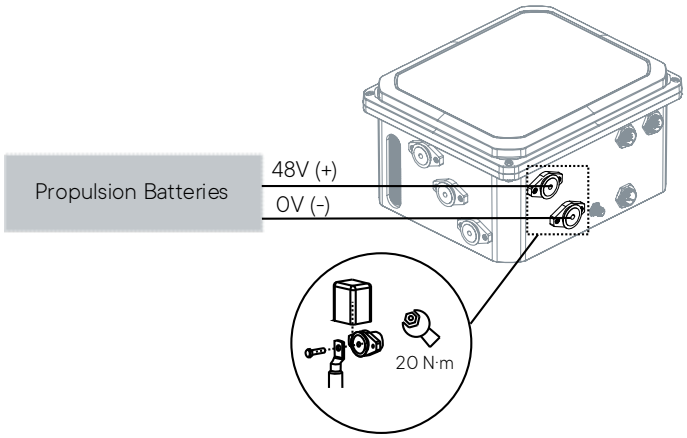
The bulkhead connectors wiring is carried out with the following procedure:

1. Unscrew the truss head screw (M8xM16) on the corresponding bulkhead. Remove the lock-washer and set it aside.
2. Place the cable end flat on the plain washer.
3. Place the lock-washer flat on the cable end.
4. Screw the truss head screw (M8xM16) to fasten the assemblage using a 5mm Allen wrench and a 20 N·m torque.
5. Place one of the caps supplied on the bulkhead connector.

⚠ DANGER!

To prevent overheating and a fire outbreak, the yellow, orange, and red motor phase cables must be wired to the bulkhead terminals in accordance with the specified torque. The washers on each side of the motor phase cables must be flat.

13.6 Wiring of the Power Unit / batteries



The +48V and -0V power cables for connecting the batteries are not supplied by BlueNav. Refer to p.11.

The client must provide a sufficient cable length, determined by the mechanical installation of the batteries and of the Power Unit in the boat.

Wire as shown in the left diagram.

13.6.1 Battery wiring (bulkhead connectors)

The bulkhead connectors wiring is carried out with the following procedure:

1. Unscrew the truss head screw (M8xM16) on the corresponding bulkhead. Remove the lock-washer and set it aside.
2. Place the cable end flat on the plain washer.
3. Place the lock-washer flat on the cable end.
4. Screw the truss head screw (M8xM16) to fasten the assemblage using a 5mm Allen wrench and a 20 N·m torque.
5. Place one of the caps supplied on the bulkhead connector.

DANGER!

To prevent overheating and a fire outbreak, the battery power cables must be wired to the bulkhead terminals in accordance with the specified torque. The washers on each side of the motor phase cables must be flat.

WARNING!

The BlueSpin system is designed to be wired to 48 V DC batteries. Please refer to the battery documentation for wiring, installation and charging specifications.

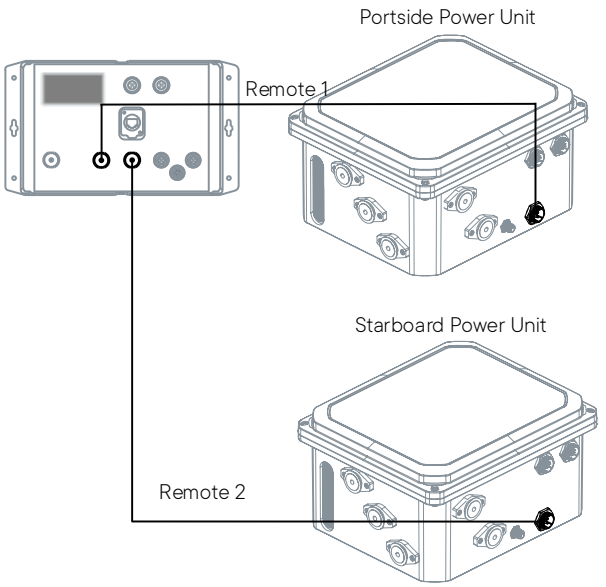
13.7 Wiring of the Power Unit / CCU – Remote cable(s)

The 9m “Remote 1” cable and “Remote 2” cable (in case of a twin-motor configuration) are supplied by BlueNav.

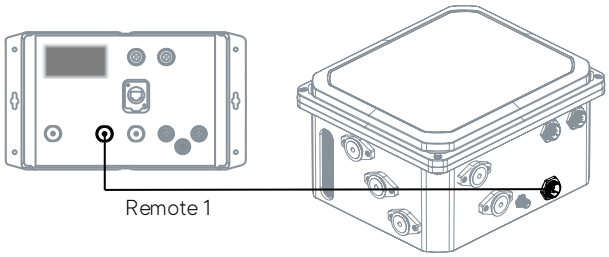
Each cable allows the CCU to be wired to the corresponding Power Unit thanks to a WEIPU connector with 2 pins, also supplied by BlueNav.

The wiring must be done as shown in the following diagrams:

Wiring of the Power Unit / CCU (twin-motor configuration)



Wiring of the Power Unit / CCU (single-motor configuration)



13.7.1 Wiring the Remote (1 or 2) cable to the WEIPU connector 2-pin

BlueNav provides a 9 m cable to connect the CCU to the Power Unit. A WEIPU connector 2-pin is provided to carry out this wiring. It must be connected to the Remote cable by the installer. This allows the installer to adjust the length of the Remote cable if the one supplied by BlueNav is not long enough (in that case, by adding an extension) or too long (in that case, by shortening the cable).

To install the connector on the Remote cable:

1. Strip the cable sheath.
2. Unscrew the different parts of the connector to reach the receptacle. Make sure to thread all the parts of the connector onto the cable so that they can be screwed back at the end of the procedure.
3. Insert each wire into a pin of the WEIPU connector receptacle. Number of pins: 2. Each pin is a non-polarized dry contact.
4. Using a 1,5 or 1,3 Allen wrench, tighten the horizontal mounting screw to secure the wires in the contact points.
5. Screw the different parts of the connector back together.

13.8 Wiring of the Power Unit / CCU – CAN PROPULSION network

The wiring of the CCU and the Power Unit(s) results in the creation of the CAN PROPULSION network of the BlueSpin system.

13.8.1 CAN network definition

A CAN network is a communication serial network allowing several peripherals to exchange data.

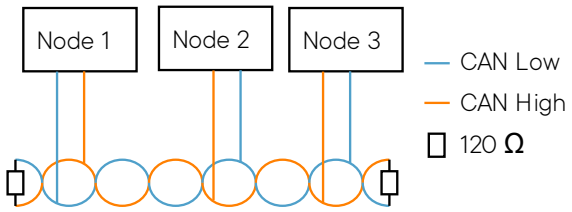


Figure 1. Linear topology of a CAN network.

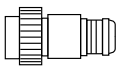
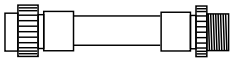
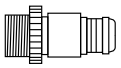
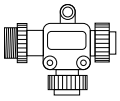
Each peripheral, called a node, is connected to a common path, called a backbone. The backbone is composed of two wires, CAN Low and CAN High, which transmit signals of differential voltage. 120 Ω terminations are placed at the ends of the backbone to stabilize the signal and transmit reliable data.

Together, they form a CAN network with a linear topology. This linear topology enables simplified, direct, and high-performance communication.

13.8.2 CAN PROPULSION network specific to the BlueSpin system

The CAN PROPULSION network of the BlueSpin system connects the CCU and the Power Unit(s). It is created during the installation of the BlueSpin system.

To create the CAN PROPULSION network of the BlueSpin system, the following components are required:

	CAN Bus female termination 120 Ω		CAN Bus cables
	CAN Bus male termination 120 Ω		CAN Bus T-connector

These components are not supplied by BlueNav. Refer to p.11 for the necessary amount depending on a twin-motor or single-motor configuration.

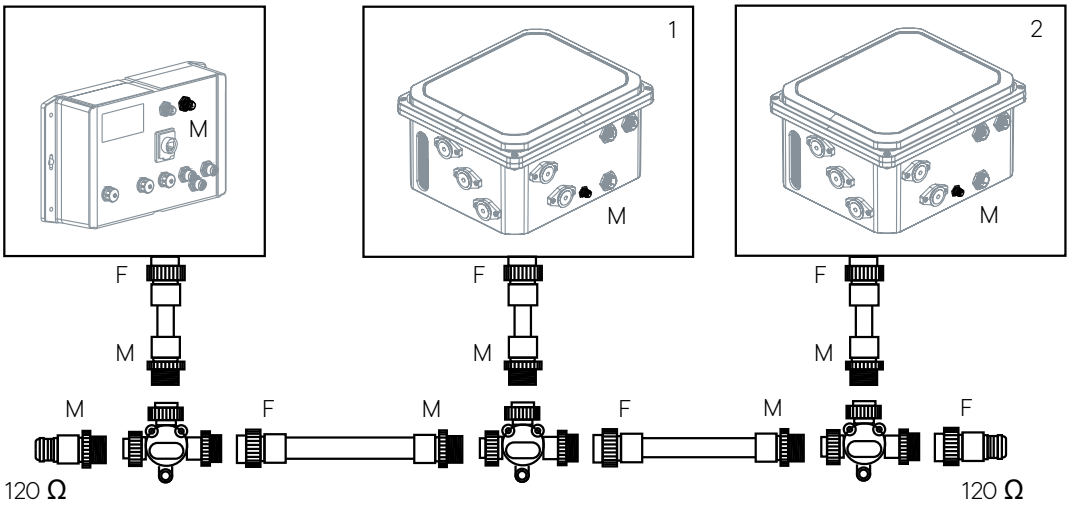
The length of the CAN Bus cables depends on the mechanical installation and the distance between the CCU and the Power Unit(s).

⚠ WARNING!

The CAN PROPULSION network of the BlueSpin system is based on a CAN bus protocol. This protocol must not be confused with the NMEA 2000® CAN bus network of the boat.

The NMEA 2000® CAN bus network is used to transmit data between devices of different types and from different manufacturers, such as GPS, compass, wind, depth, AIS, speed, or motor data. It is set up prior to the BlueSpin system installation. Refer to p.10.

Connect the wiring according to the following diagram:



⚠ WARNING!

Each end of the CAN PROPULSION network backbone must be equipped with 120 Ω terminators.

⚠ WARNING!

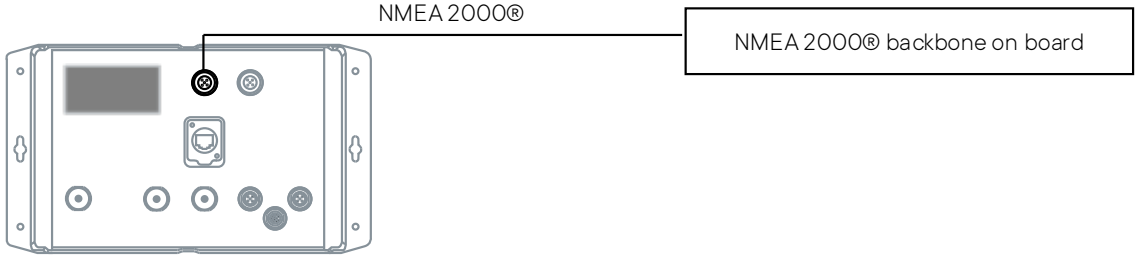
Do not confuse the CAN PROP and NMEA connectors on the CCU. The CAN PROP connector is for wiring the CAN PROPULSION network of the BlueSpin system. The NMEA connector is for wiring the NMEA 2000® CAN bus network (National Marine Electronics Association) of the boat.

13.9 Wiring of the CCU / NMEA 2000® network on board

NMEA 2000® is a plug-and-play communication standard used to connect marine sensors and display devices in boats. This standard applies to CAN bus networks (refer to p.39). The CCU of the BlueSpin system connects to the backbone of the NMEA 2000® network of the boat to exchange information.

The NMEA 2000® cable is not supplied by BlueNav. It is used to connect the CCU to the NMEA 2000® network on board (refer to p.10). The client needs a cable length that does not exceed 1 m, determined by the configuration of the NMEA 2000® network on board.

Connect the CCU to the backbone of the NMEA 2000® network on board as shown in the following diagram:



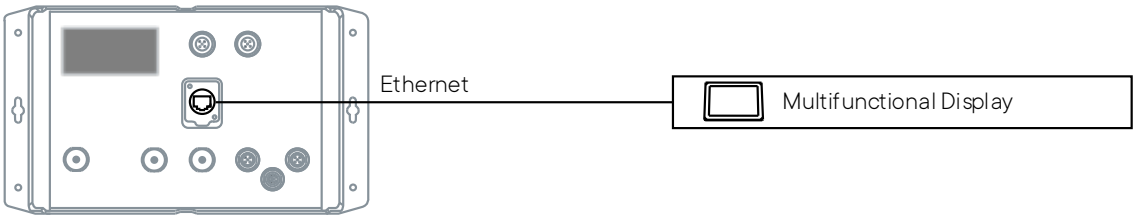
⚠ WARNING!

Do not confuse the CAN PROP and NMEA connectors on the CCU. The CAN PROP connector is for wiring the CAN PROPULSION network of the BlueSpin system. The NMEA connector is for wiring the NMEA 2000® CAN bus network (National Marine Electronics Association) of the boat.

13.10 Wiring of the CCU / MFD

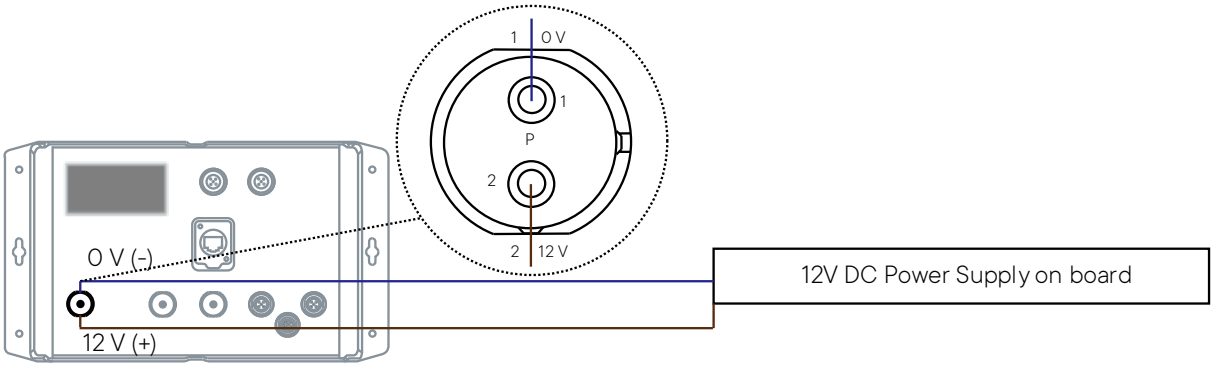
The Ethernet cable is not supplied by BlueNav. It is used to connect the CCU to the NMEA 2000® network on board (see p.10). For wiring, the installer needs a cable length suited to the mechanical installation.

Connect the Ethernet cable on the Ethernet port of the CCU and on the Ethernet port of the MFD as shown in the following diagram:



13.11 Wiring of the CCU / Power supply

The 3 m “CCU Power Supply” cable is supplied by BlueNav. It connects the CCU to the 12 V DC power supply on board (refer to p.10), as shown in the following diagram:



⚠ WARNING!

The CCU is protected internally by a 1.5A fuse. Use the same fuse for the power supply on board.

13.12 Wiring of the CCU / Command Panel

Refer to the wiring procedure specific to the version of the Command Panel supplied (throttles version or joystick version).

13.12.1 Command Panel with throttles

The VCU cable harness (marked blue) and the THR_L and THR_R extension cables (marked white and green respectively) are supplied by BlueNav. Cables coming out of the VCU harness are identified by labels.

Carry out the wiring according to the following diagrams and color identifications:

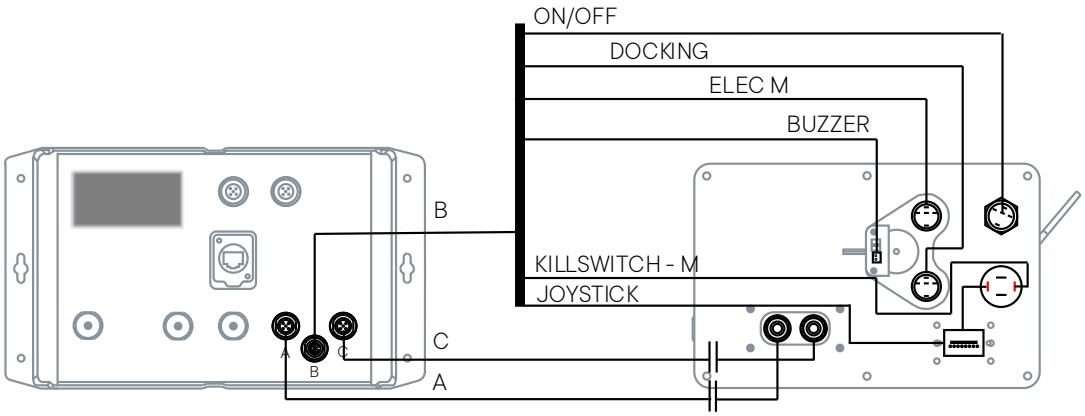


Figure 2. CCU / Command Panel (twin-motor) wiring.

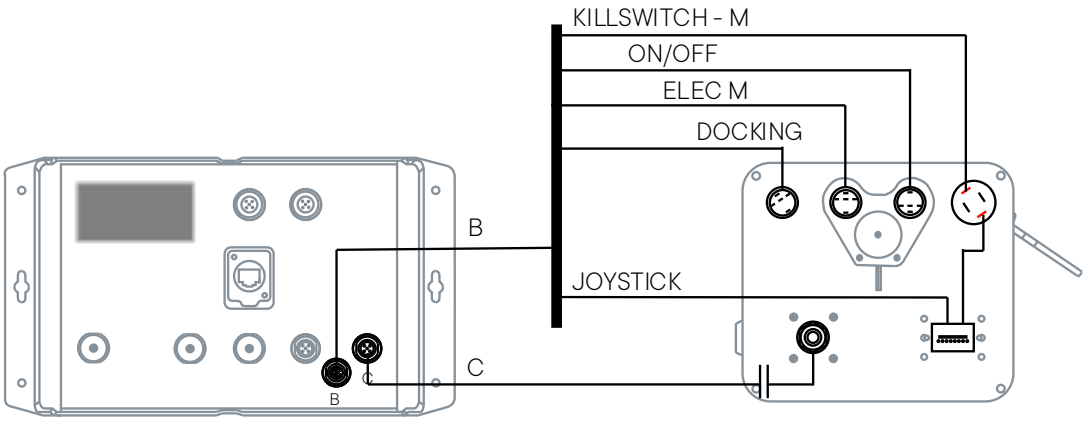
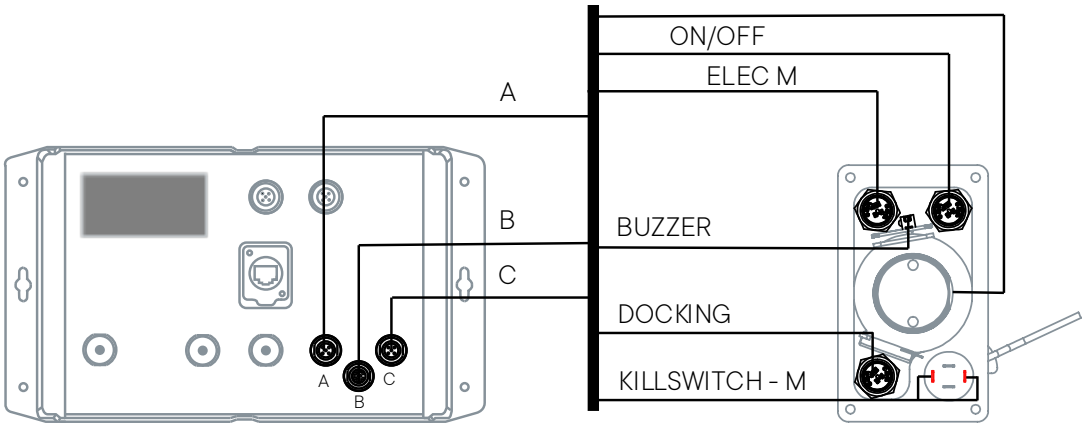


Figure 3. CCU / Command Panel (single-motor) wiring.

13.12.2 Command Panel with joystick

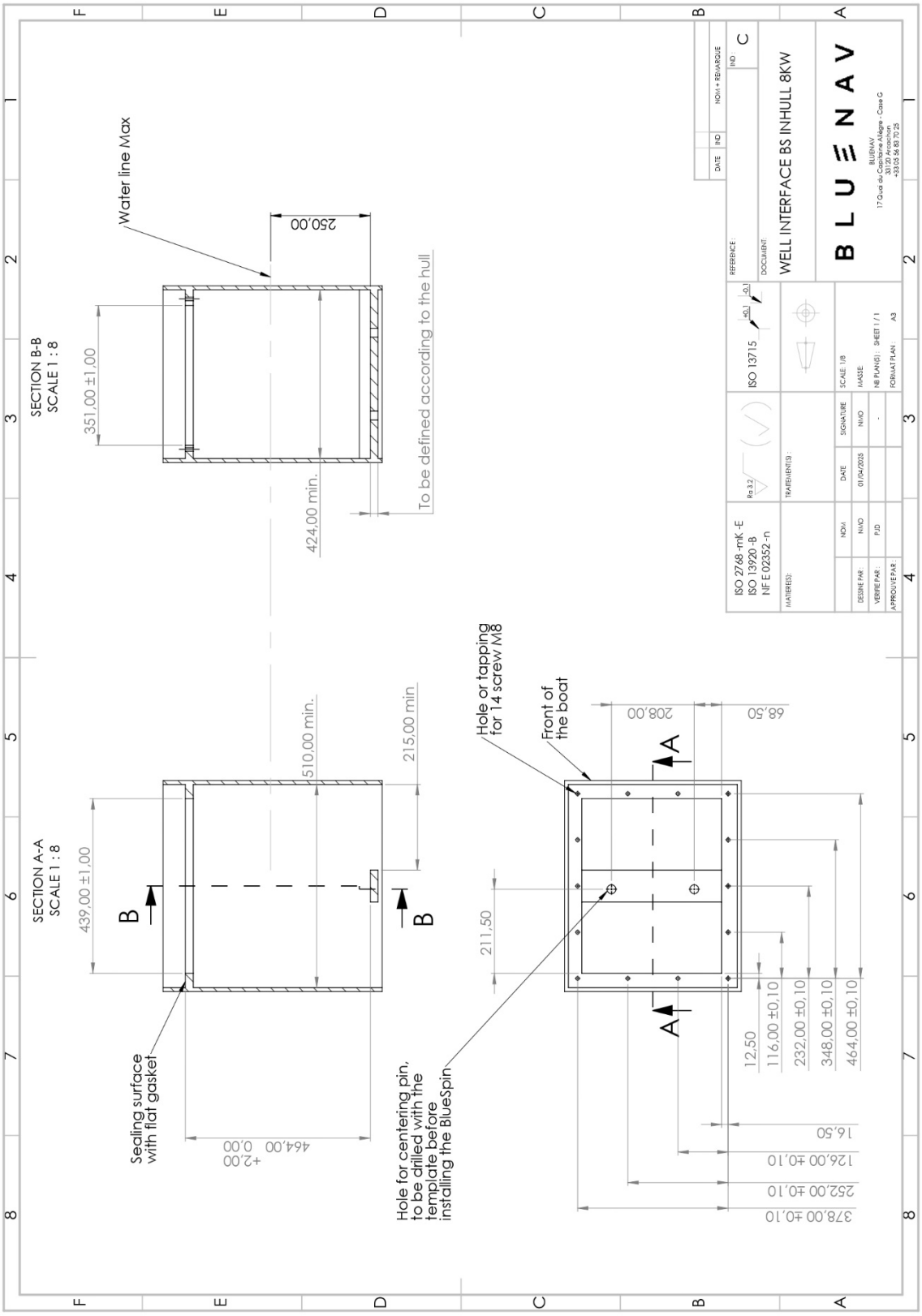
The VCU cable harness (marked blue) and the THR_L and THR_R extension cables (marked white and green respectively) are supplied by BlueNav. Cables coming out of the VCU harness are identified by labels.

Carry out the wiring according to the following diagrams and color identifications:


ON/OFF
ELEC M
A
B
BUZZER
C
DOCKING
KILLSWITCH - M
A
B
C

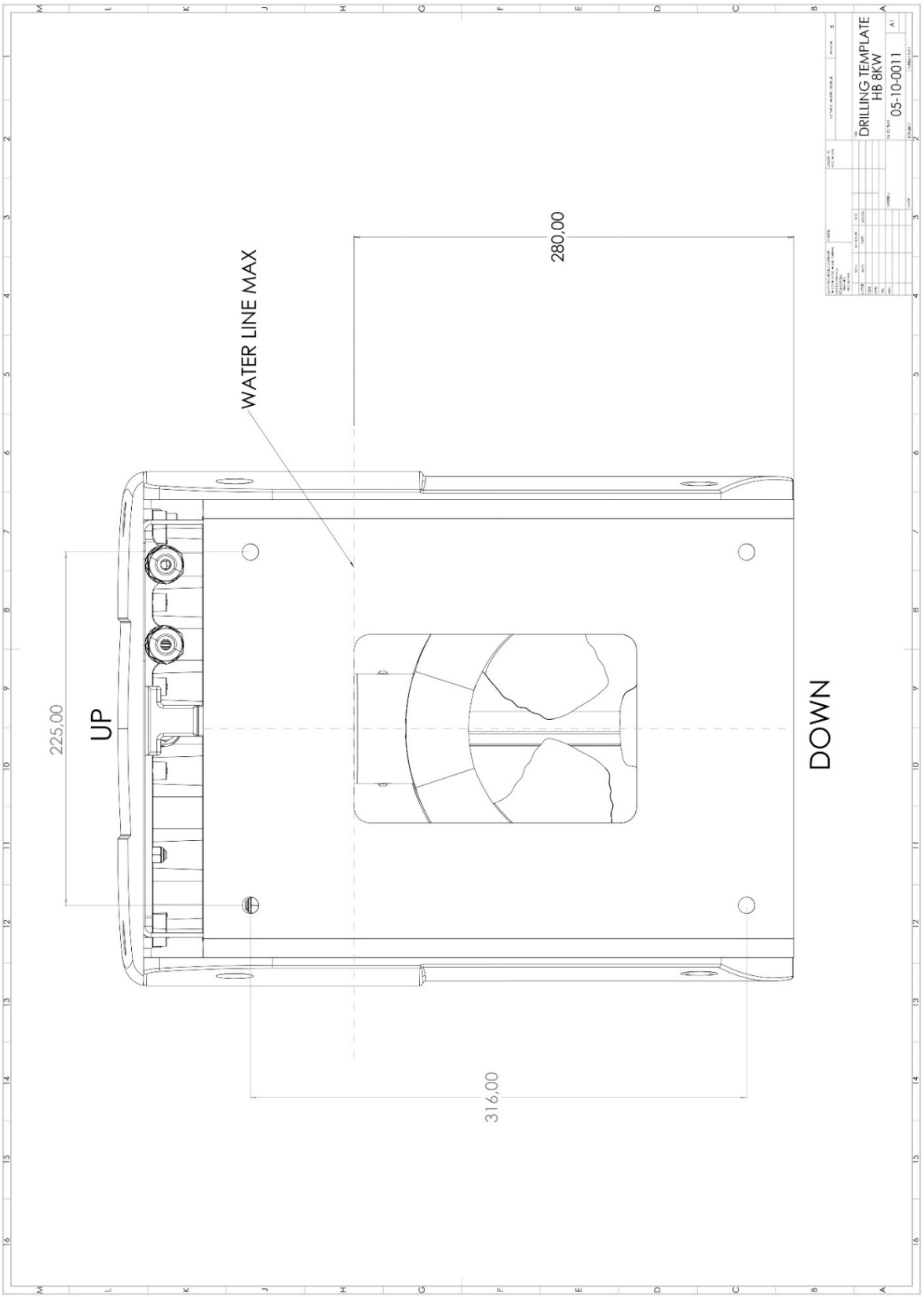
14. APPENDIX

14.1 Well blueprint (Inhull Propulsion Unit) 8kW

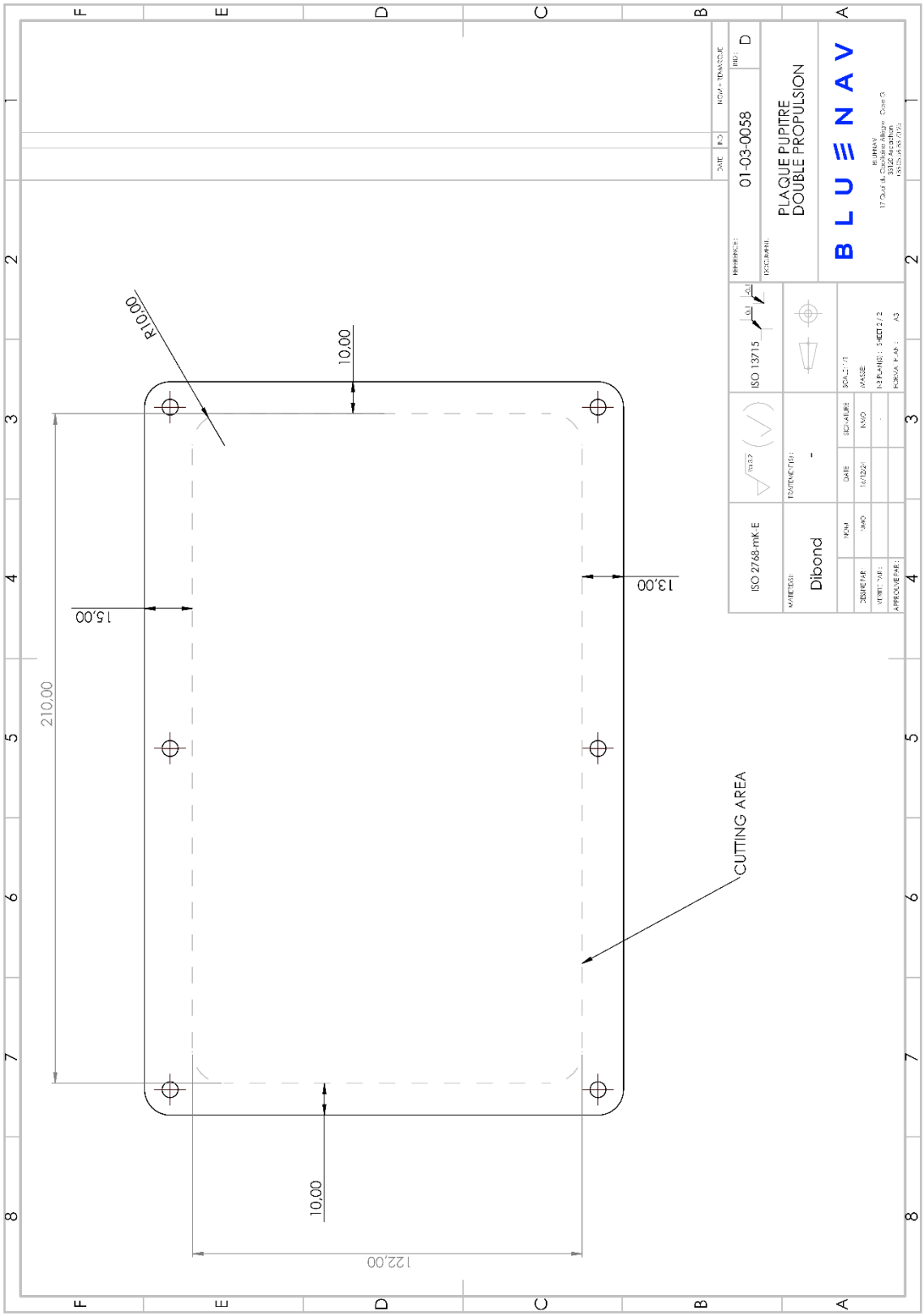


14.2 Drilling template (Outboard Propulsion Unit) 8kW

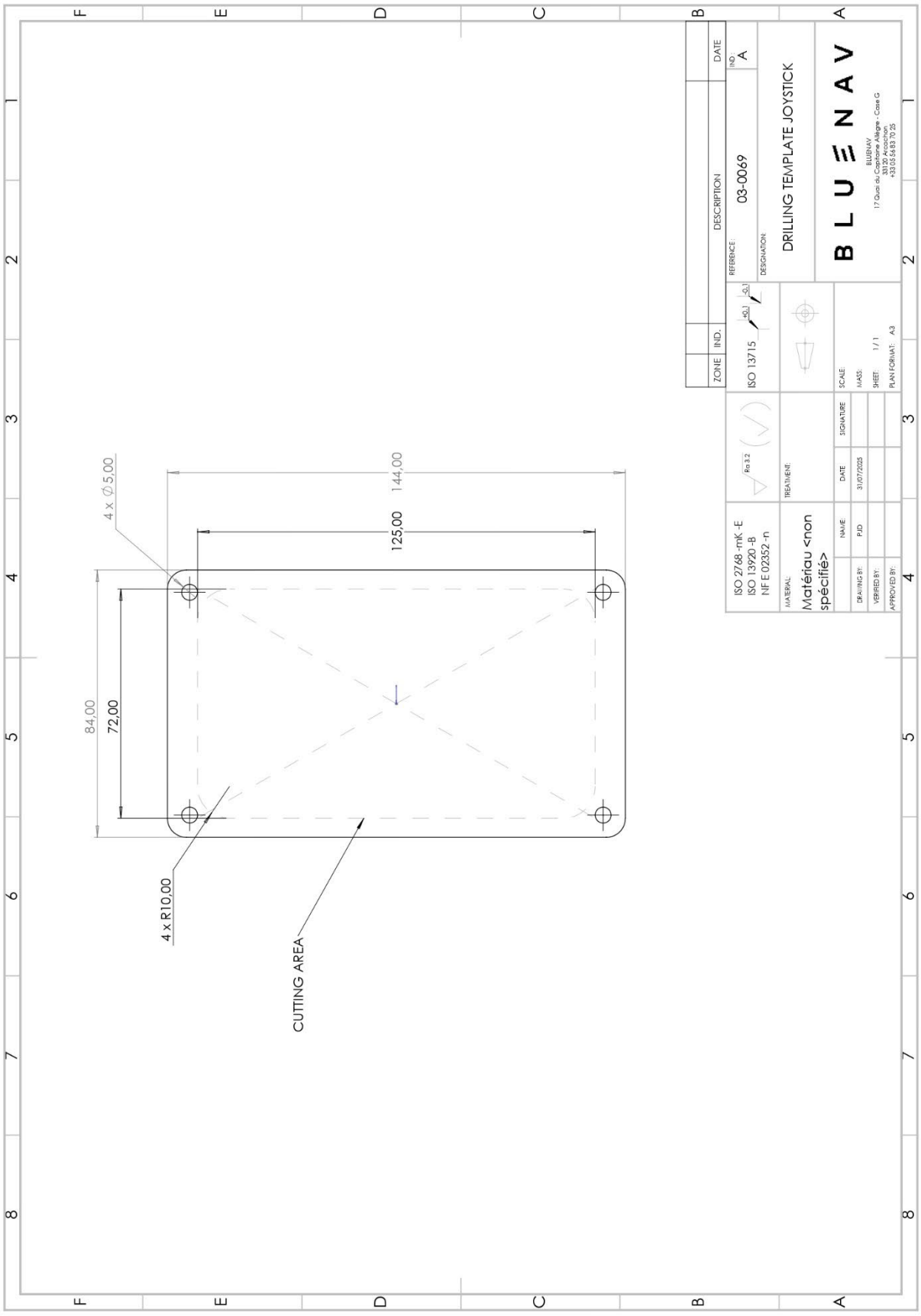
This template is available at a 1:1 scale in the packaging of the 8kW Outboard motor.



14.3 Dimensions of the Command Panel (throttles version)



14.4 Dimensions of the Command Panel (joystick version)



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