NavXP chartplotter Installation Instructions

Ver. 000017

1. Safety notices

The NavXP should be installed and used according to the provided instructions. Installation and use of the NavXP contrary to the recommendations specified in this document may result in loss of warranty and damage to the device, vessel, or operator.

WARNING: The customer must not disassemble or attempt to service the product. There are no user-serviceable parts. Any changes or modifications will result in voided warranty.

WARNING: Disconnect battery before starting the installation.

WARNING: The device has a voltage rating of 12V DC. Maximum operating voltage is 15V DC.

WARNING: The positive supply wire (BATTERY+) shall always be connected with a 5A fuse to the positive (+) terminal of the battery.

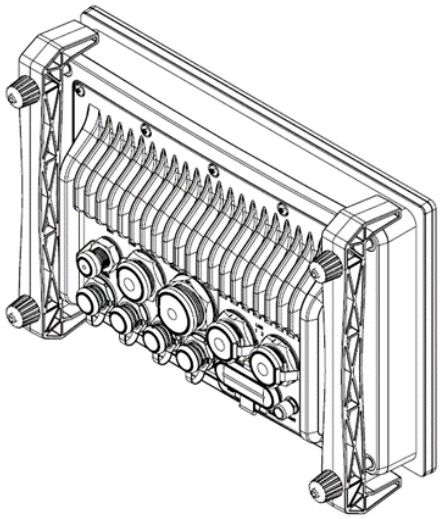
WARNING: Before connecting the NavXP to a power source, make sure that the device is grounded in accordance with the requirements of this manual. It is not possible to connect the NavXP to a circuit with positive grounding.

If you have questions about the installation or doubts about compatibility with other devices contact - support@nextfour.com.

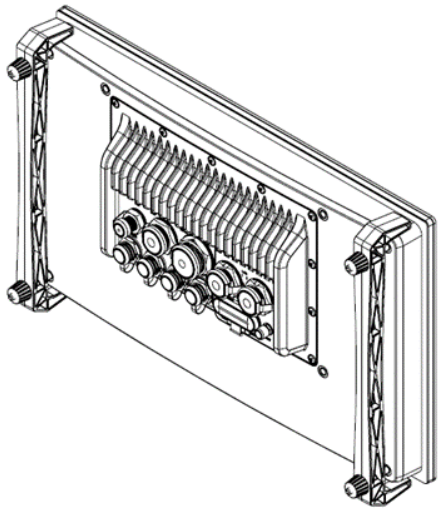
2. Applicable products

This document is applicable to the following products:

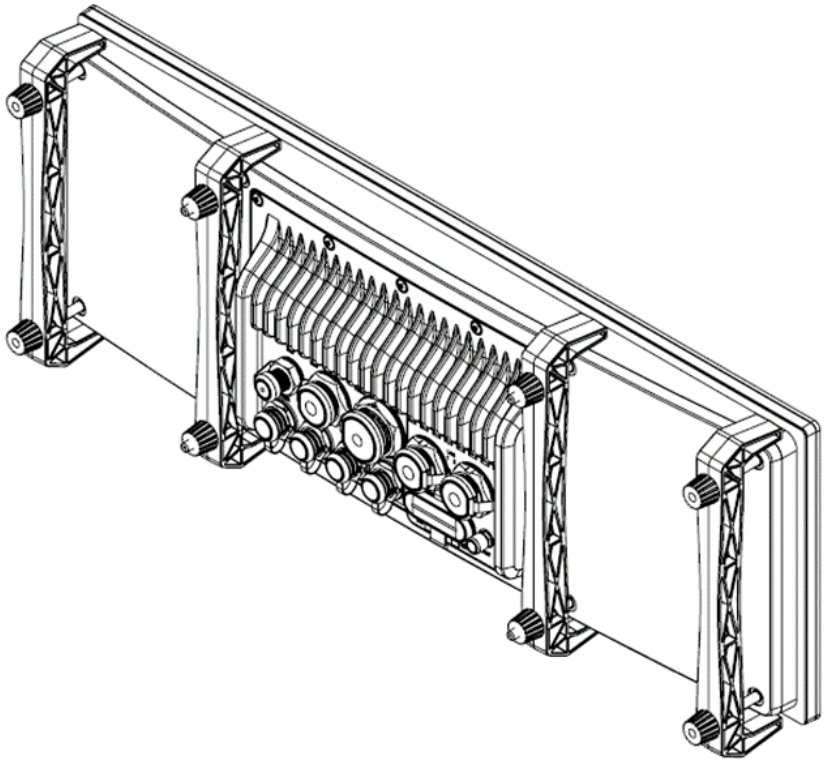
Product	Overall dimensions, mm	Panel cut-out, mm	Weight, kg
NavXP 210 & 210e	260 x 177 x 61	248 x 165	2,1
NavXP 216 & 216e	391 x 240 x 64	379 x 228	3,4
NavXP 210D	510 x 180 x 61	498 x 168	3,1



NavXP 210 (10”)



NavXP 216 (16”)



NavXP 210D (Dual 10")

3. Surface mounting

When choosing a location to install the NavXP, consider that there should be enough room behind the panel for cable connections as well as for installation and maintenance operations.

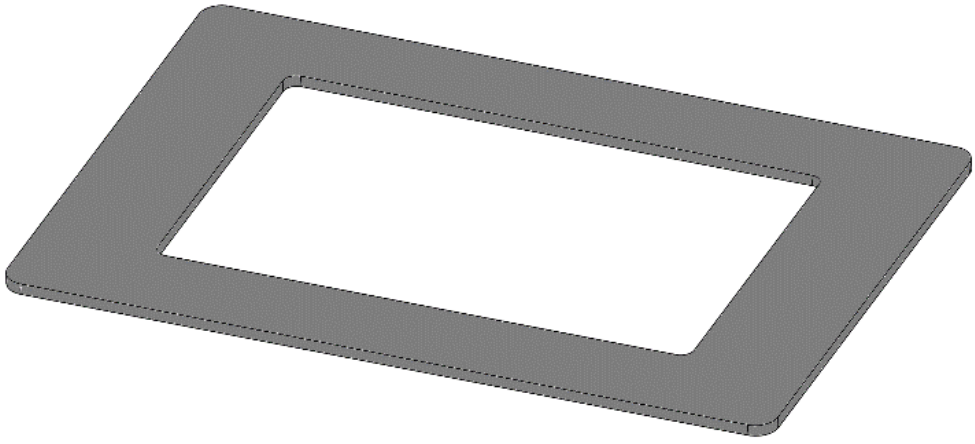
Proper air circulation must be provided around the device. The maximum operating temperature of the device is 55°C. Installation shall be designed and executed such that this temperature is not exceeded.

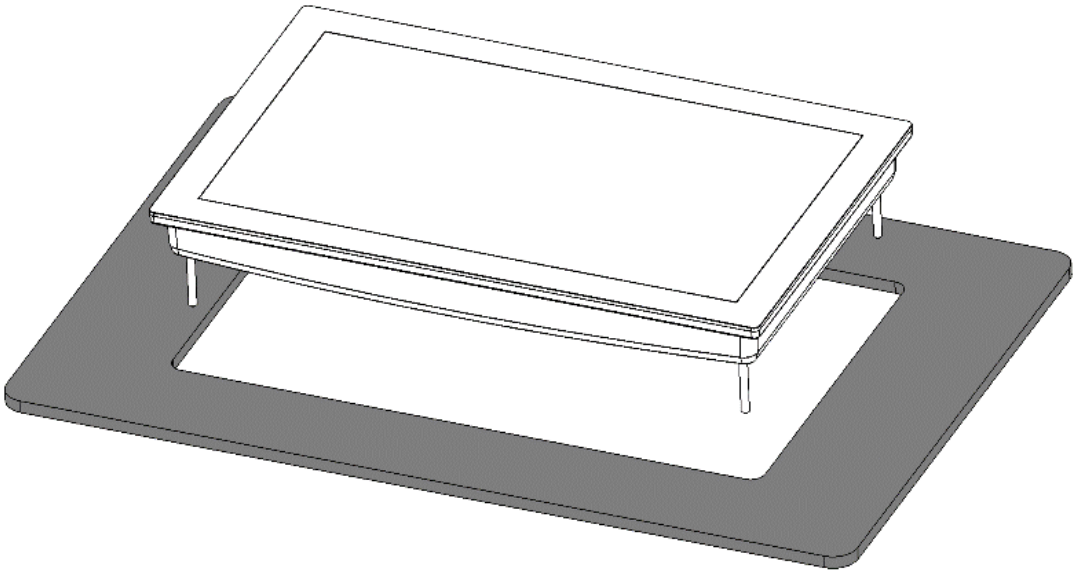
On outdoor installations, ensure that the panel is stiff and flat enough to form a seal with the device, and the intended panel is suitable to bear the weight of the NavXP.

In addition, consider that the NavXP has an internal GPS/GNSS receiver and 4G modem, which require radio-transparent material around the device to work correctly. Non-radio transparent materials are different types of metal but also carbon fibre laminates. Use an optional GPS/GNSS antenna accessory to enhance GPS reception onboard vessels with enclosed cabins and/or radio frequency-blocking construction, where the NavXP does not have a clear view of the sky. As the 4G modem antennas are built-in and cannot be exchanged with external equipment, some way of letting the device communicate with the outside world must be arranged.

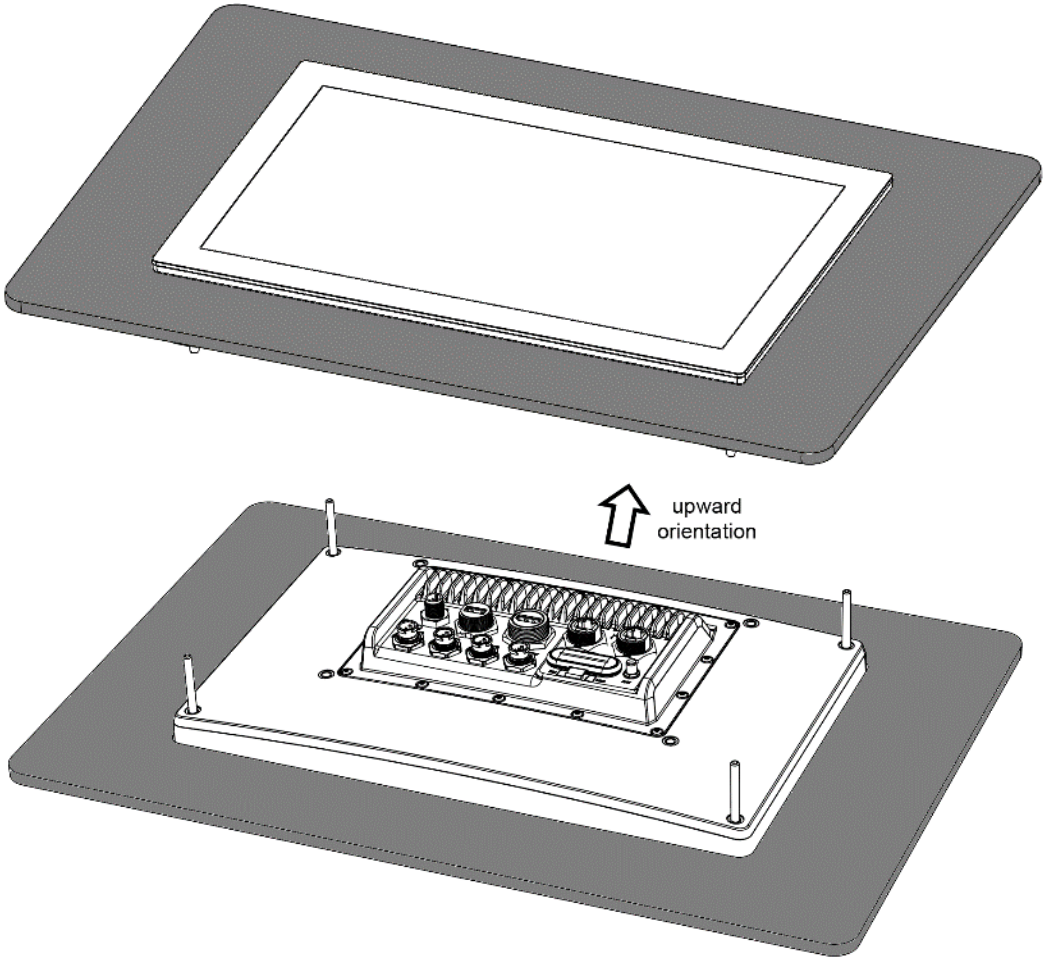
Note! Whenever the NavXP is not in operation, the supplied silicone cover should be used to protect the device from sun and other elements.

1. Cut a hole into the desired surface and insert the NavXP through the hole with the gasket in between.
   The cut-out templates for the NavXP 210 (10”), 216 (16”) and 210D (Dual 10”) are provided within this manual.



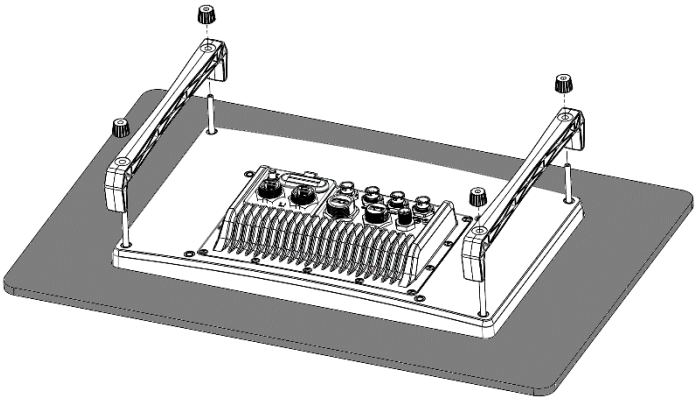


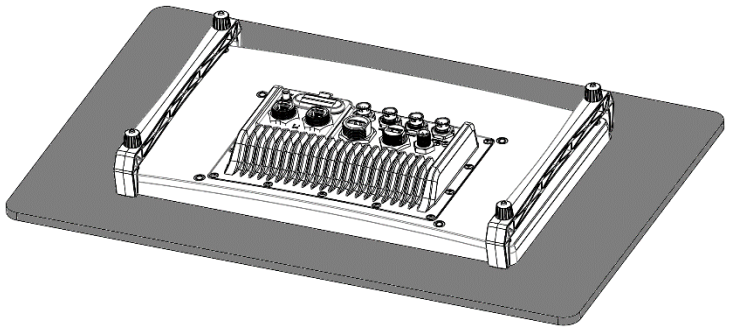
2. After inserting the NavXP, check that it is properly in place considering the orientation and that the seam around the screen edge is properly sealed on all sides.

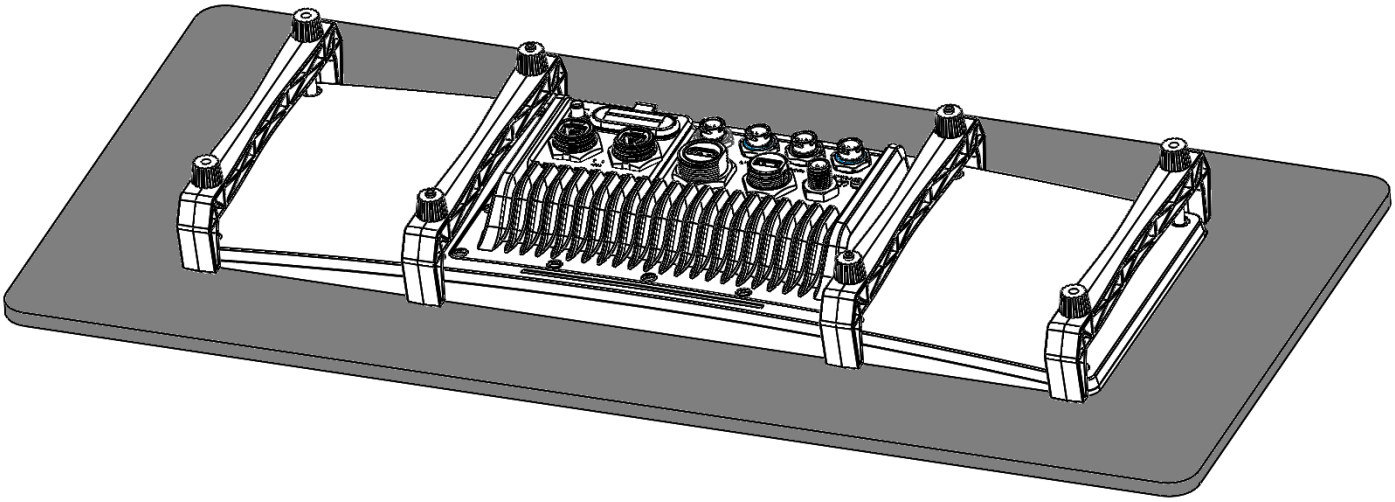


3. Fasten the brackets (supplied with device) with threaded studs and thumb nuts. The nuts shall be tightened carefully by hand to prevent them from loosening due to vibration, while making sure not to damage the NavXP from overtightening.

WARNING: Do not use tools or overtighten to avoid damage to the device. Max. torque 0.4 Nm.

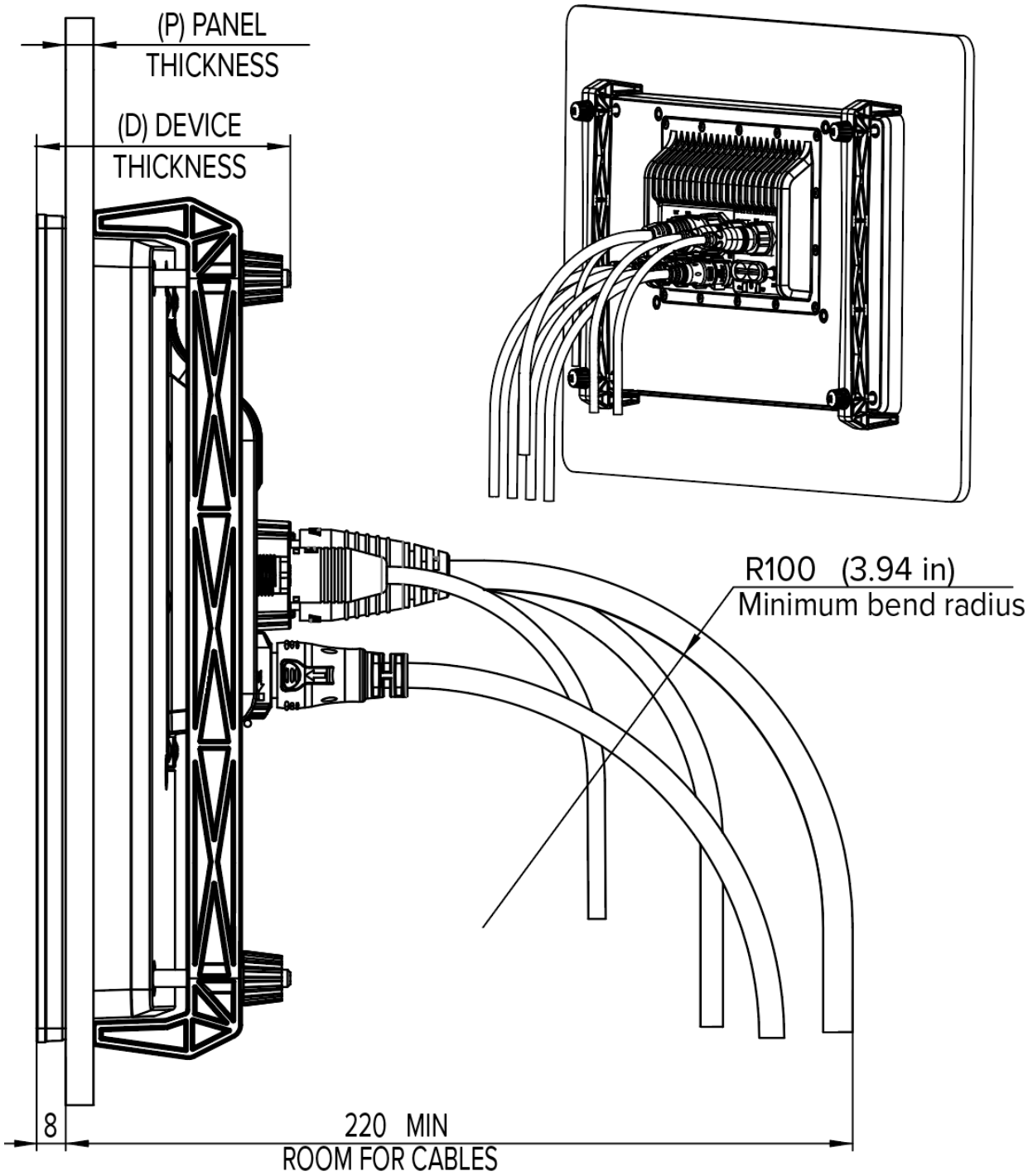






Note that the NavXP 210D (Dual 10") requires 4 brackets (supplied with device).

4. Note that extra room should be provided behind a NavXP due to the minimum bending radius of cables.



Product	P, mm		D, mm
NavXP 210 (10”)	4 min	15 max	76 min
NavXP 216 (16”)		13 max	76 min
NavXP 210D (Dual 10")		7 max	78 min

5. Protect cables from stress with strain relief clips (not supplied).

6. Bracket (Trunnion) mounting

Optional trunnion bracket can be used to mount the NavXP 210 (10”) and 210e (Auxiliary 10”) on a horizontal surface. The bracket is not suitable for mounting NavXP 216 (16”), 216e (Auxiliary 16”) or 210D (Dual 10”).

When choosing a location to install the NavXP, consider that there should be enough room behind the panel for cable connections as well as for installation and maintenance operations.

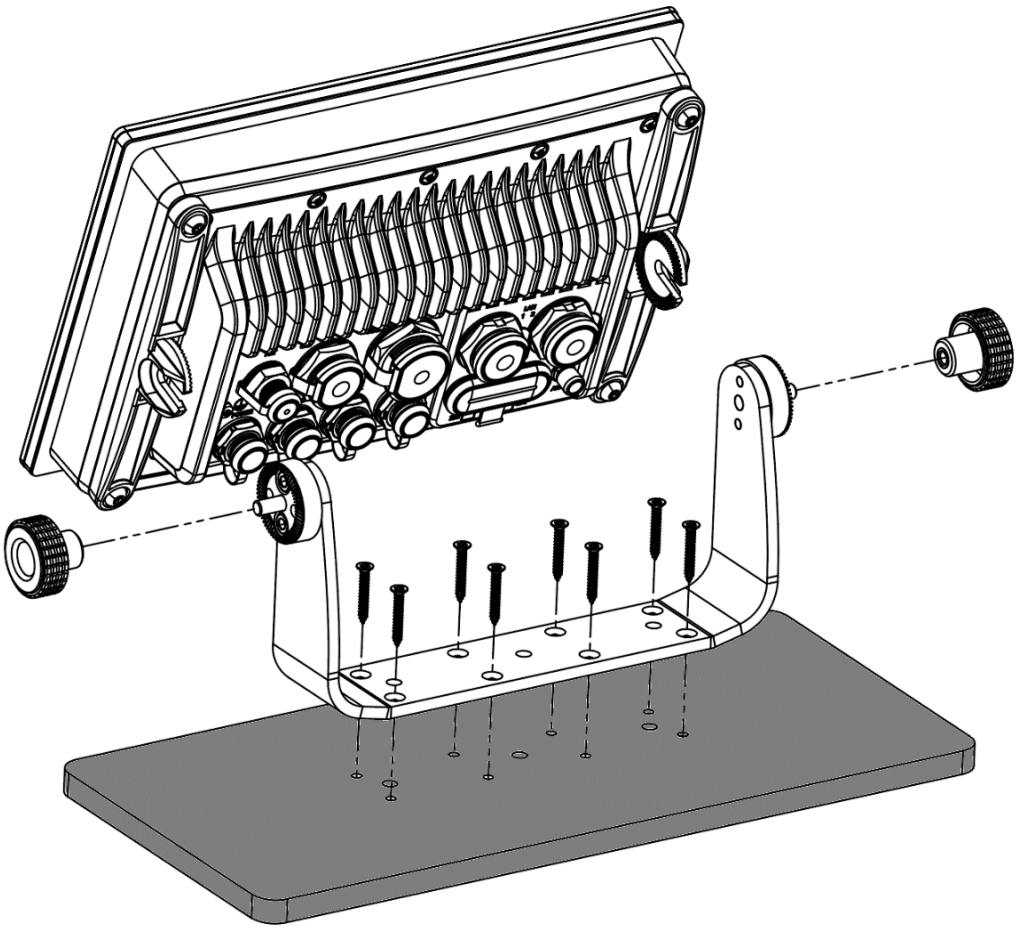
Proper air circulation must be provided around the device. The maximum operating temperature of the device is 55°C.

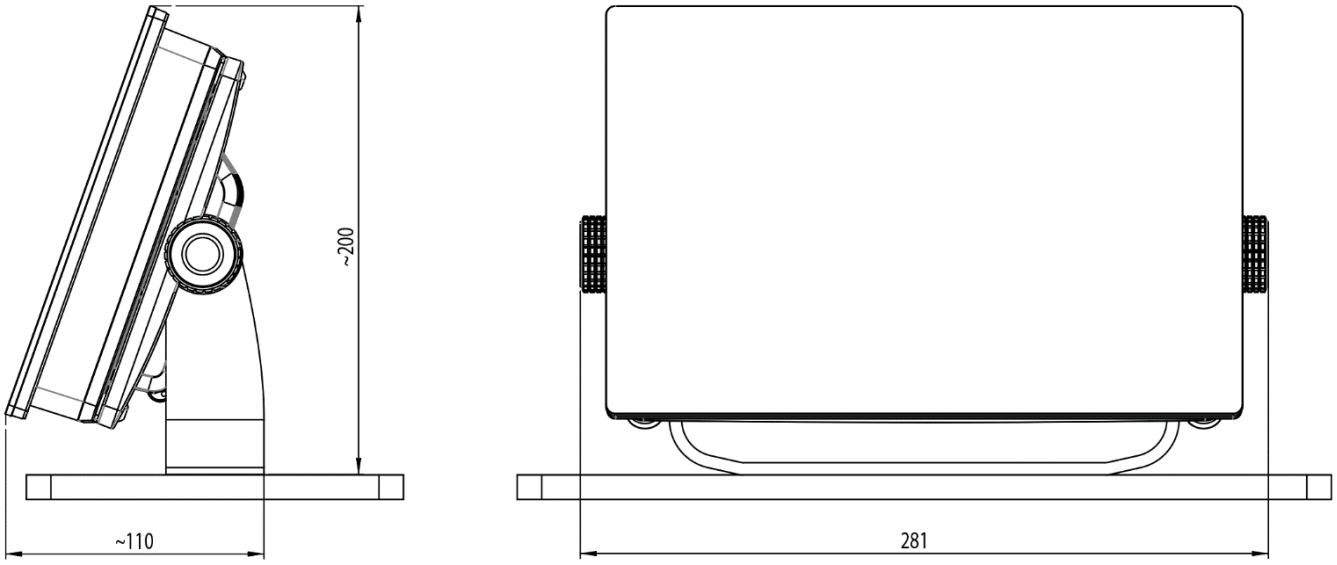
Install the two plastic mounts to the NavXP. Maximum torque 0.4 Nm. Use of low strength thread lock is recommended but not necessary.

Use the bracket as a template. Mark and drill at least 4x pilot holes on the mounting surface for the corresponding self-tapping screws (not provided with the bracket).

The side knobs shall be tightened sufficiently by hand to prevent them from loosening due to vibration when underway.

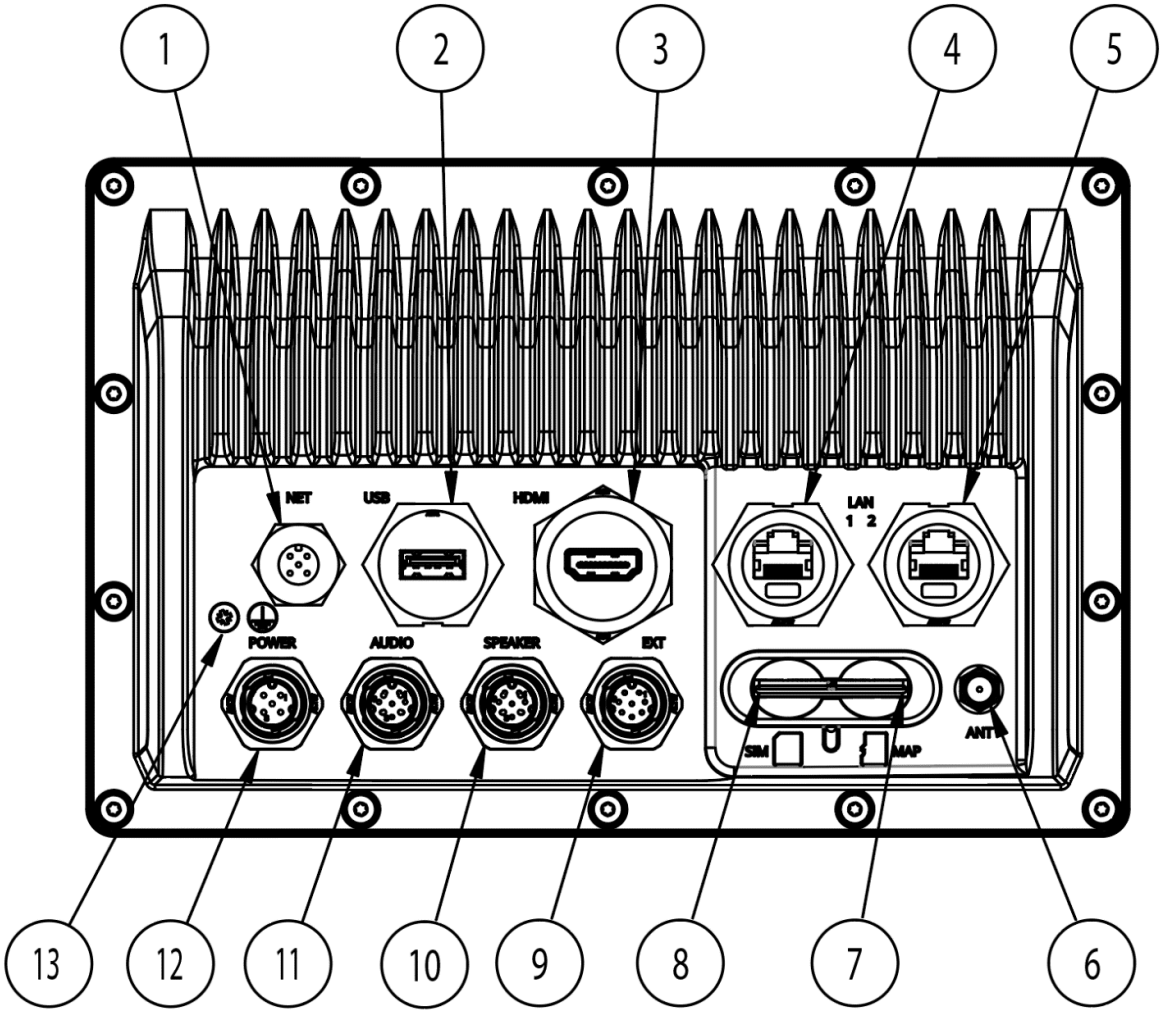
Note! Whenever the NavXP is not in operation, the supplied silicone cover should be used to protect the device from sun and other elements.




~200
~110
281

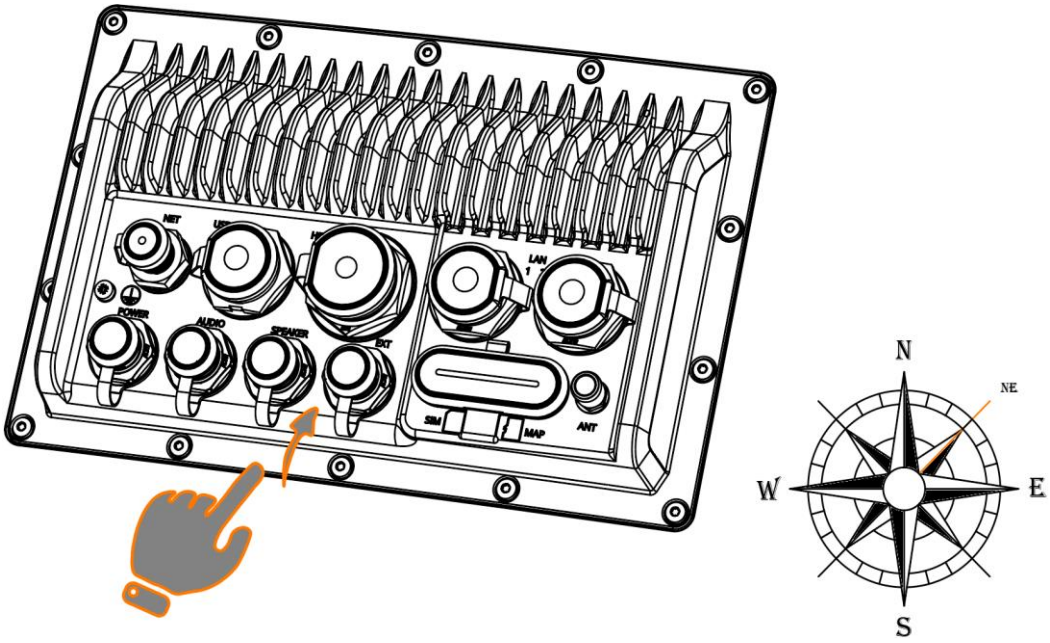
7. Connections overview

Overview of the NavXP connections.

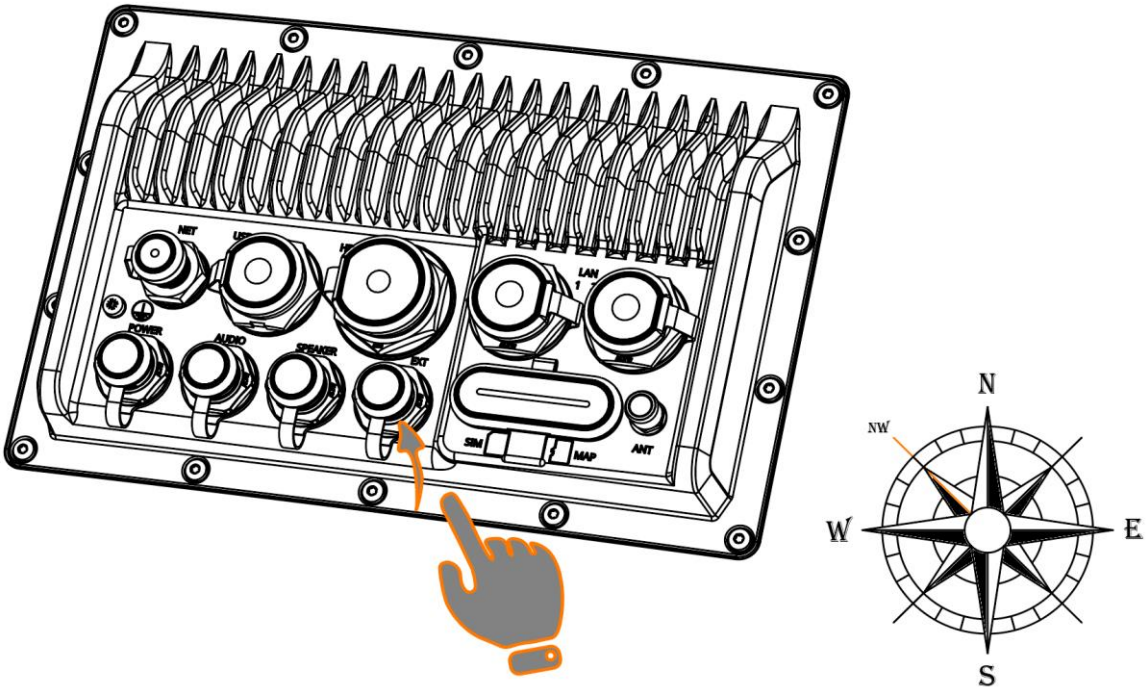


№	NAME	**DESCRIPTION**
1	NET	NMEA2000 network
2	BUS	Accessory port
3	DISP	Port for auxiliary NavXP such as 210e and 216e
4	LAN1	1000Mbps Ethernet port
5	LAN2	100Mbps Ethernet port
6	ANT	FM/DAB radio antenna connector
7	MAP	Map card holder
8	SIM	SIM card holder
9	EXT	Extension port
10	SPEAKER	Speaker port
11	AUDIO	External line level audio port
12	POWER	Power input
13	Ground	RF ground connector

NOTE: To **open** “Power”, “Audio”, “Speaker” and “Ext” caps: pull cap up and towards "NE" direction as shown on the picture below.



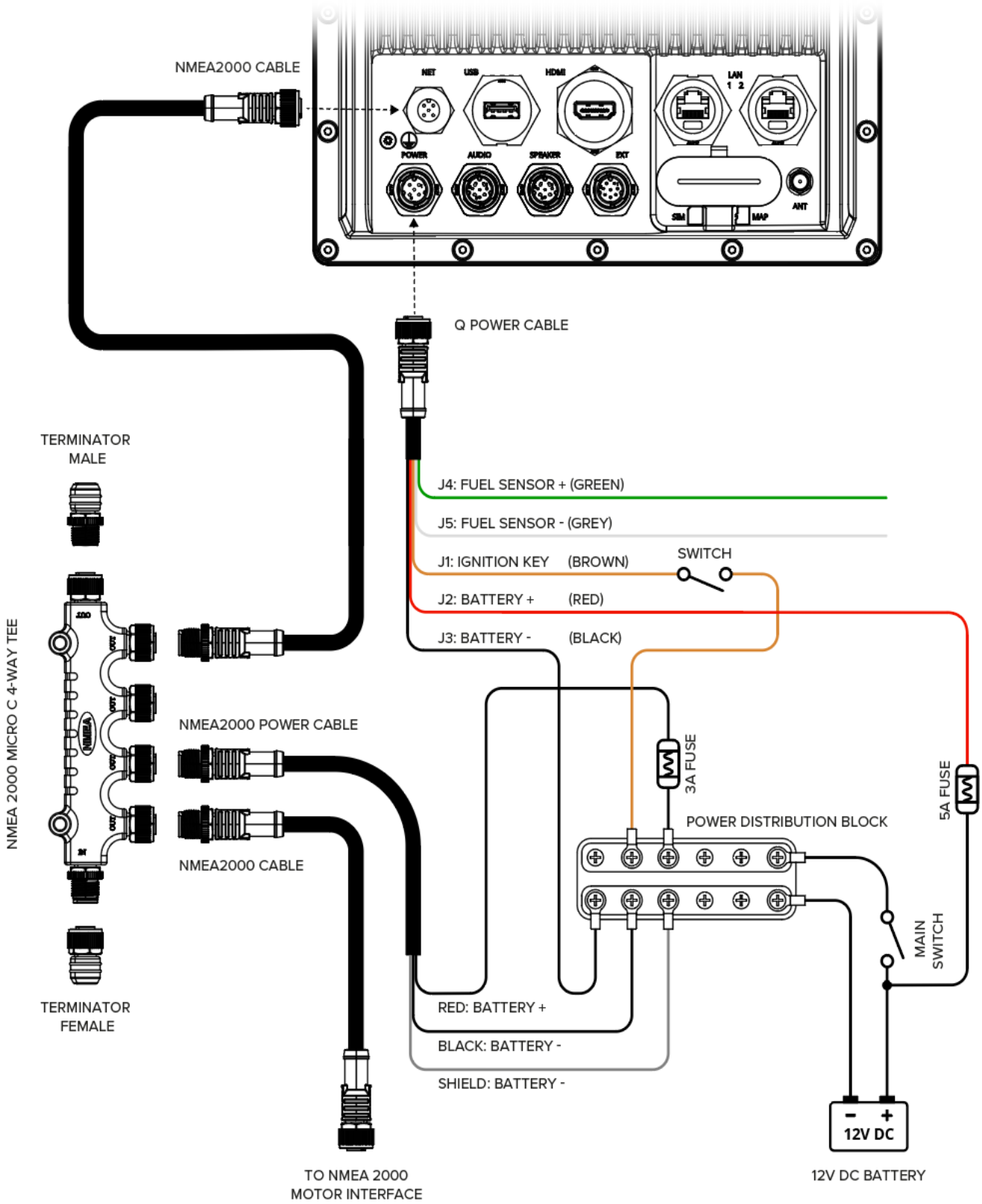
NOTE: To **close** “Power”, “Audio”, “Speaker” and “Ext” caps: slide cap towards "NW" direction and push down as shown on the picture below.



8. Basic installation

8.1. Basic installation connections

Basic installation includes NavXP, power supply and NMEA connections.



Power connection

NavXP is powered by 12V DC via supplied NavXP Power cable. Use only the power cable supplied with the device.

Ensure that the vessel's main power supply is switched off and battery is disconnected.

Connect wire (BATTERY+) to 12V DC power supply positive (+) terminal through a waterproof fuse holder with a 5A fuse (not supplied).

Connect wire (BATTERY-) to 12V DC power supply negative (-) terminal.

Connect wire (IGNITION KEY) through ignition switch to 12V DC power supply positive terminal.

WARNING: Before applying power to the NavXP, ensure that it has been correctly grounded and circuit-protection fuse is installed in accordance with the instructions.

NOTE: The NavXP is powered ON and OFF by using switch on IGNITION KEY control signal.

8.2. Fuel level meter

If you connect fuel level meter, sensor must be resistive model, EU (0-190ohm) or American (240-30ohm).

1. Connect wire (FUEL SENSOR+) to sensor positive terminal.
2. Connect wire (FUEL SENSOR-) to sensor negative terminal.

WARNING: Do not connect 'FUEL SENSOR-' to supply voltage! This will result in permanent damage to device.

8.3. Grounding — optional dedicated drain wire

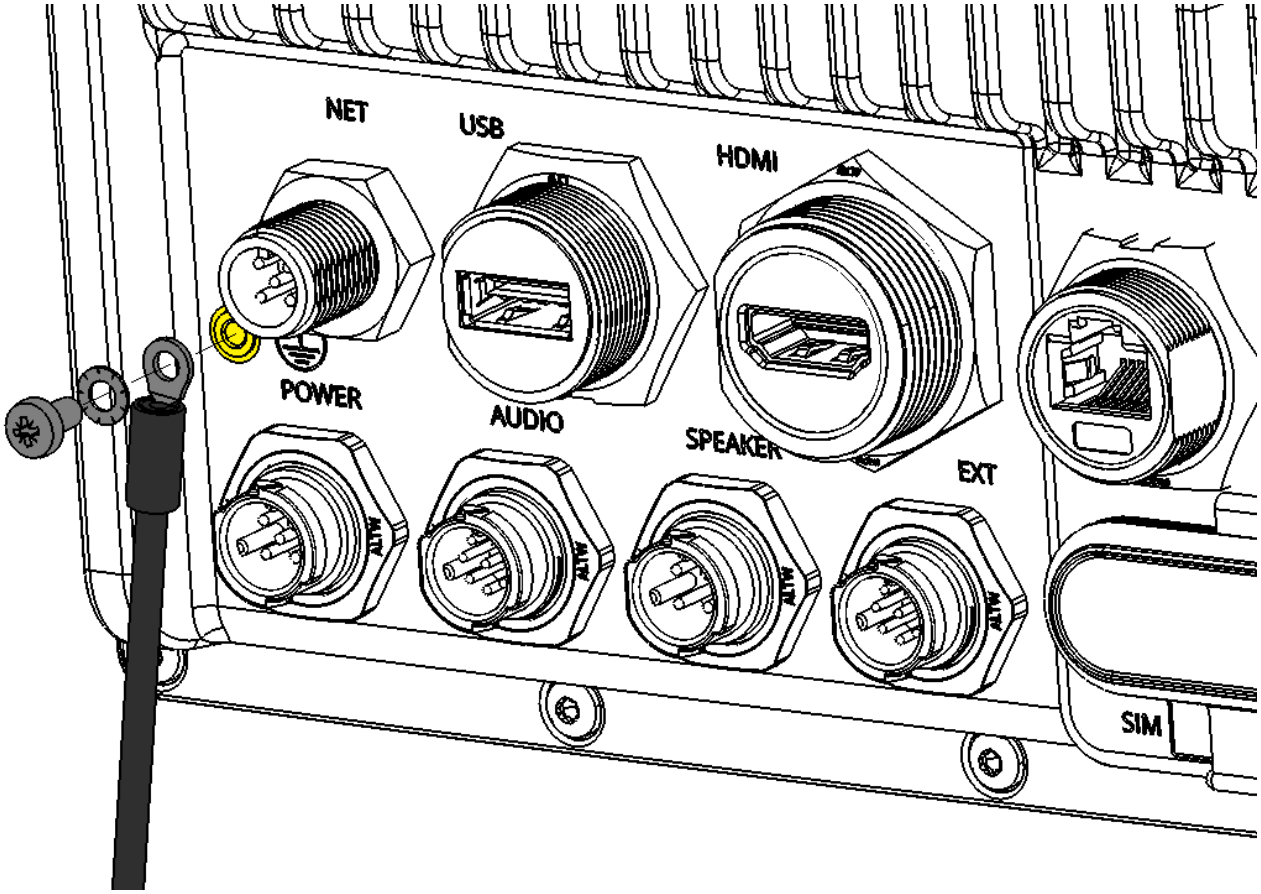
Frequencies emitted from devices such as switch mode power supplies or MF/HF transmitters etc. can cause interference with a touchscreen. If you experience issues with touchscreen performance, fitting an additional dedicated drain wire can resolve the issue.

Connect one end of the additional drain wire (not supplied) to your product.

Connect the other end of the additional drain wire to the same point as the power cable drain wire (shield). This might be either boat's RF ground point or the system's negative battery terminal.

The DC power system should be either:

- Negative grounded, where the negative battery terminal is connected to the vessel's ground; or
- Floating, where battery terminal is not connected to the vessel's ground.

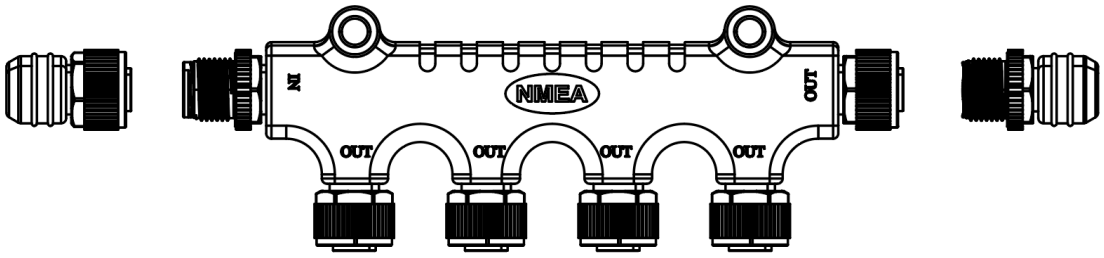


WARNING: Do not connect the NavXP to a system that has positive grounding.

8.4. NMEA Network

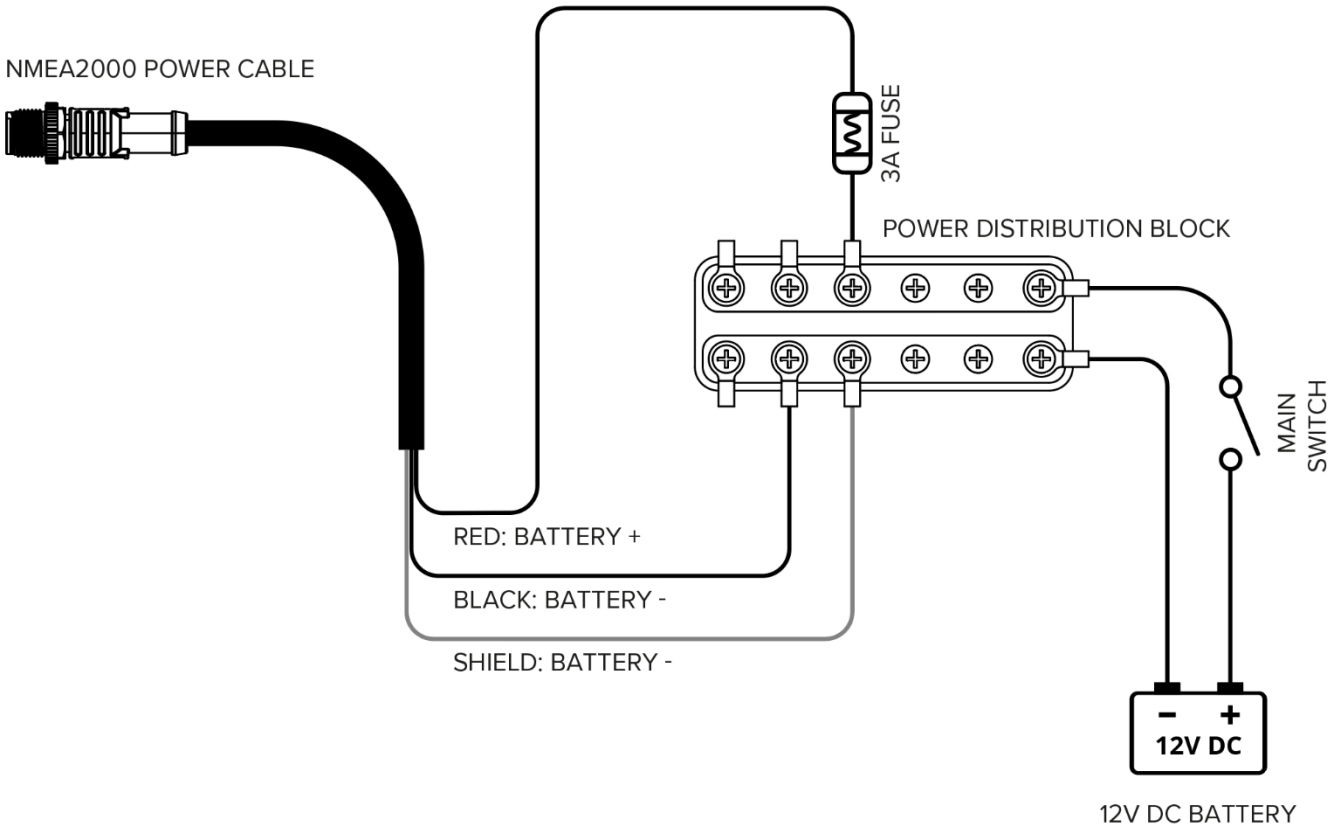
NMEA 2000 network is used to receive engine status information to NavXP and to communicate with other compatible devices.

1. Mount NMEA2000 MICRO-C 4-WAY TEE (provided separately) to appropriate location. Add terminators to both ends of the multiple-port, another end male terminator and other end female terminator.



TERMINATOR FEMALE NMEA 2000 MICRO C 4-WAY TEE TERMINATOR MALE

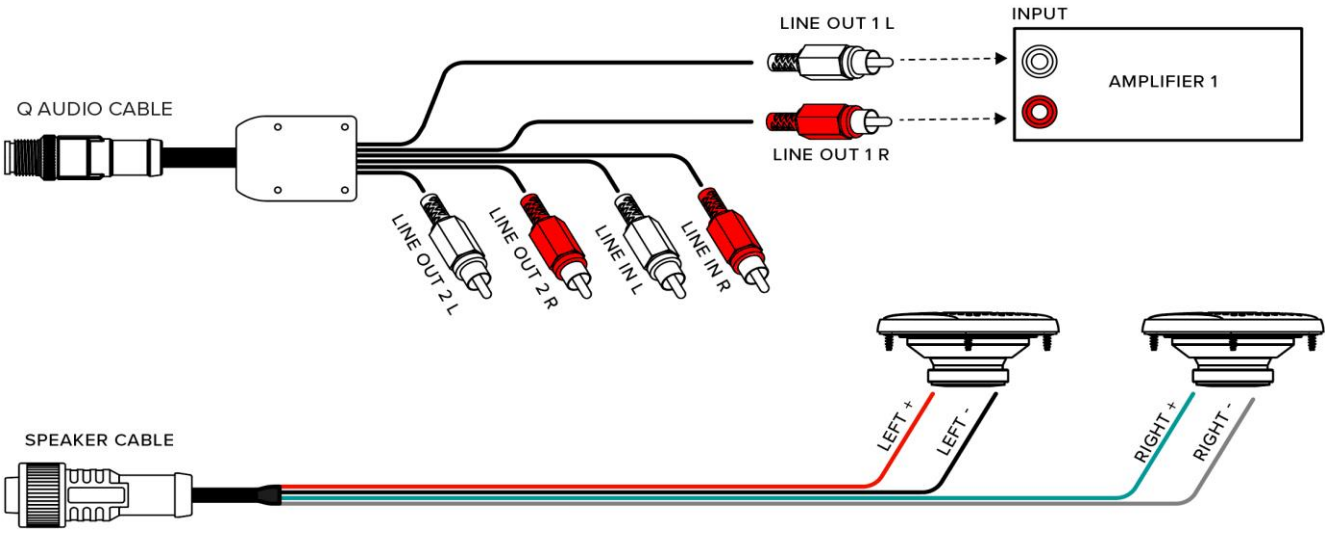
2. Connect NMEA 2000 Power cable (provided separately) with 3A fuse to 12V DC power source positive (+) pole, wire and to 12V DC negative (-) pole.



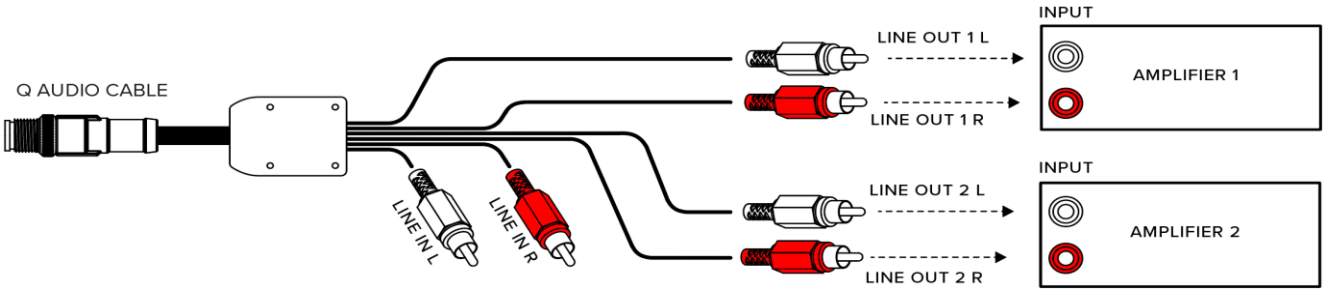
3. Connect one multiple-port output to the NavXP NET connector using NMEA 2000 double-ended M/F cable with suitable length (provided separately).
4. Connect one multiple-port output to NMEA Motor Interface using NMEA 2000 double-ended cable with suitable length (provided separately).

9. Entertainment installation

Note that NavXP has an internal audio amplifier as well as support for two external amplifiers. Two audio zones can be controlled separately:



a. Internal amplifier + LINE OUT 1 (external)

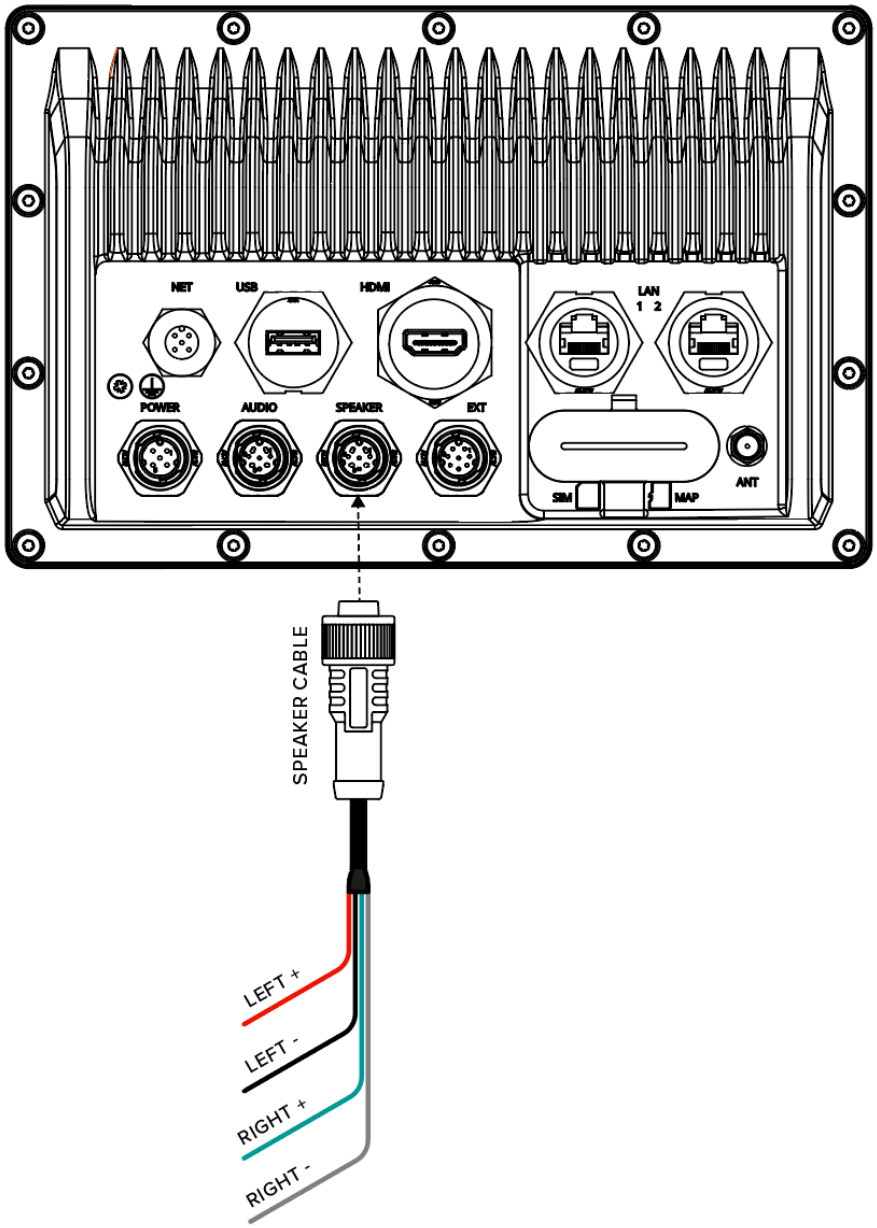


b. LINE OUT 1 (external) + LINE OUT 2 (external)

LINE OUT 2 is connected parallel to internal amplifier signal.

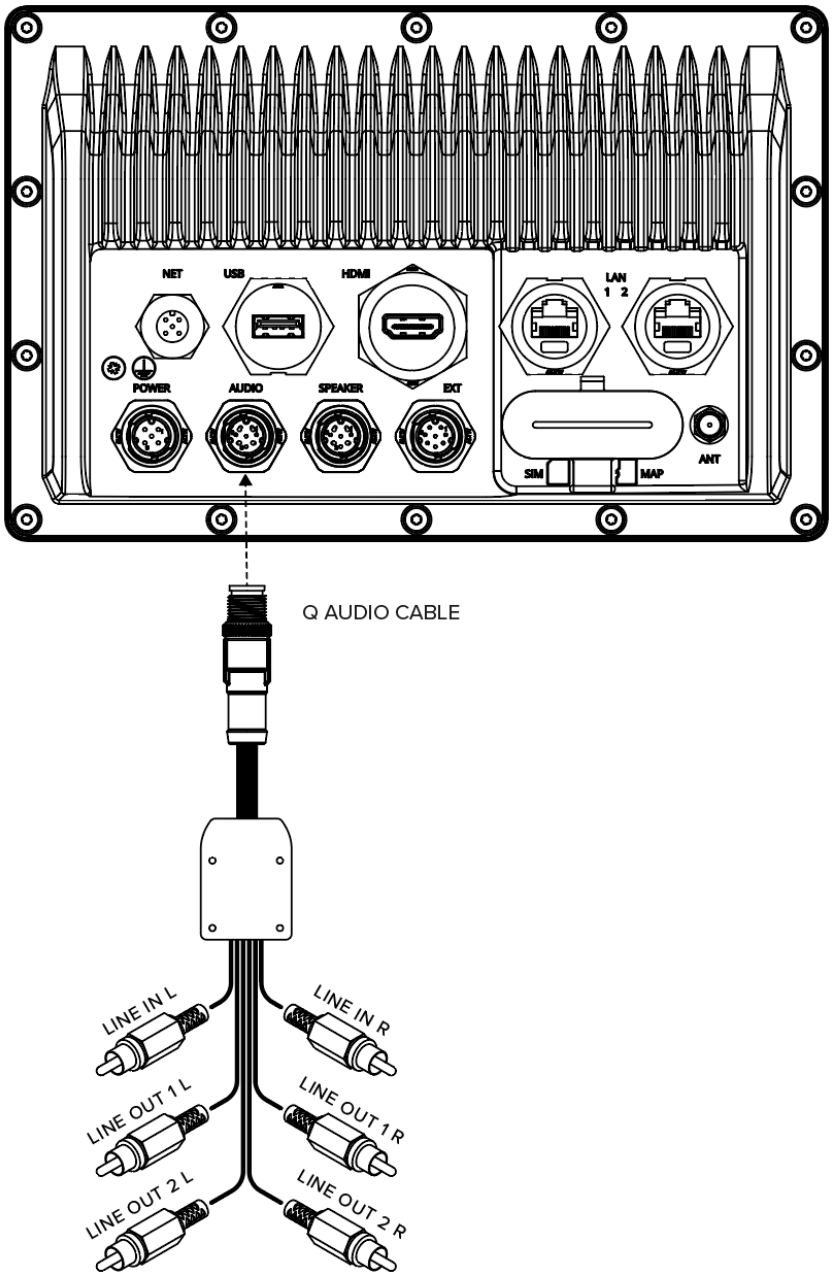
9.1. Speaker connections (Internal amplifier)

Connect NavXP Speaker Cable (provided separately) to the NavXP SPEAKER connector.



9.2. Audio connections (External amplifier)

Connect NavXP Audio Cable (provided separately) to the NavXP AUDIO connector.

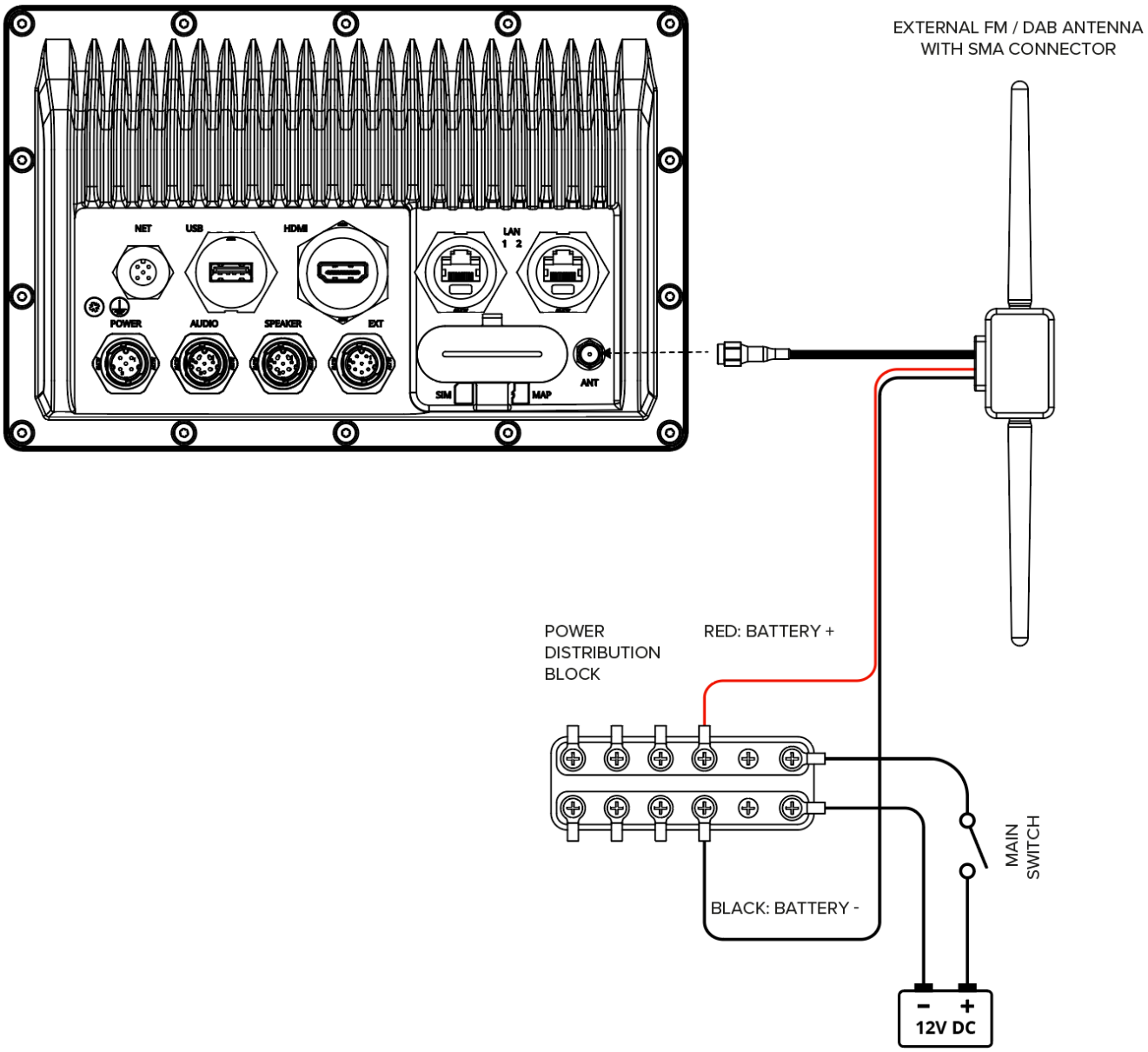


LINE IN can be used as an auxiliary input, selectable as source in the Music app.

LINE OUT 1 and LINE OUT 2 volume can be controlled separately.

Note that LINE OUT 2 is connected parallel to the internal amplifiers signal.

9.3. FM-antenna connections



Connect FM/DAB antenna (provided separately) to the NavXP ANT connector. You can use FM/DAB antenna with SMA connector, or you can use SMA male to DIN female adapter cable and connect any FM/DAB antenna with DIN male connector to the adapter cable.

9.4. Bluetooth

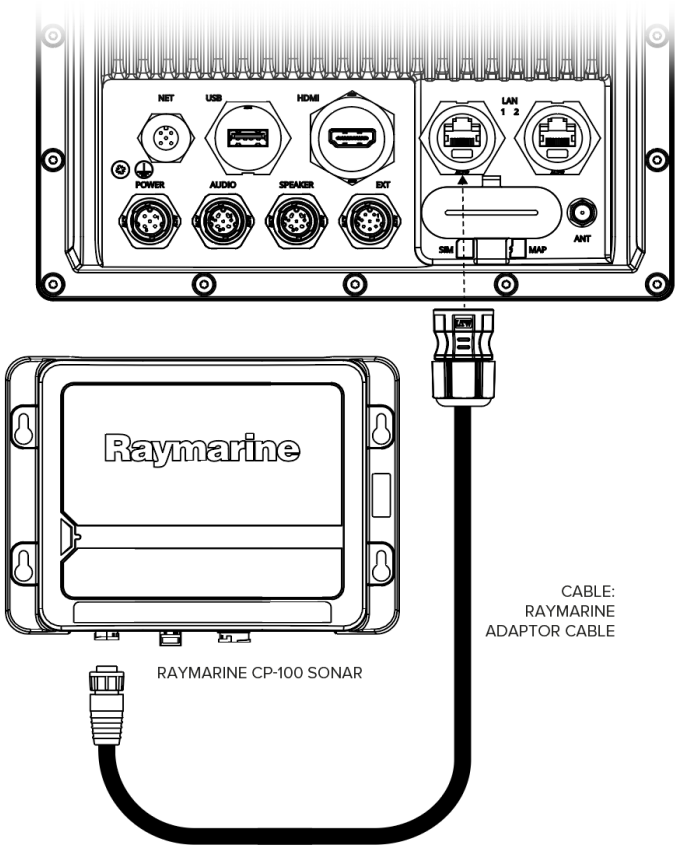
The NavXP can be connected to other devices via Bluetooth to play and control audio and to receive phone calls.

10. Fishfinder installation

The NavXP can be connected to a Raymarine CP100 sonar (Fishfinder) and Airmar IC-TM90M Fishfinder.

The Raymarine sonar is connected to either LAN connector with a RayNet adaptor cable RayNet (F) to the RJ45 (M) Port (provided with radar).

The RJ45 connector of the cable shall be assembled with a cable gland (provided separately) to protect the connection against dust and water ingress.



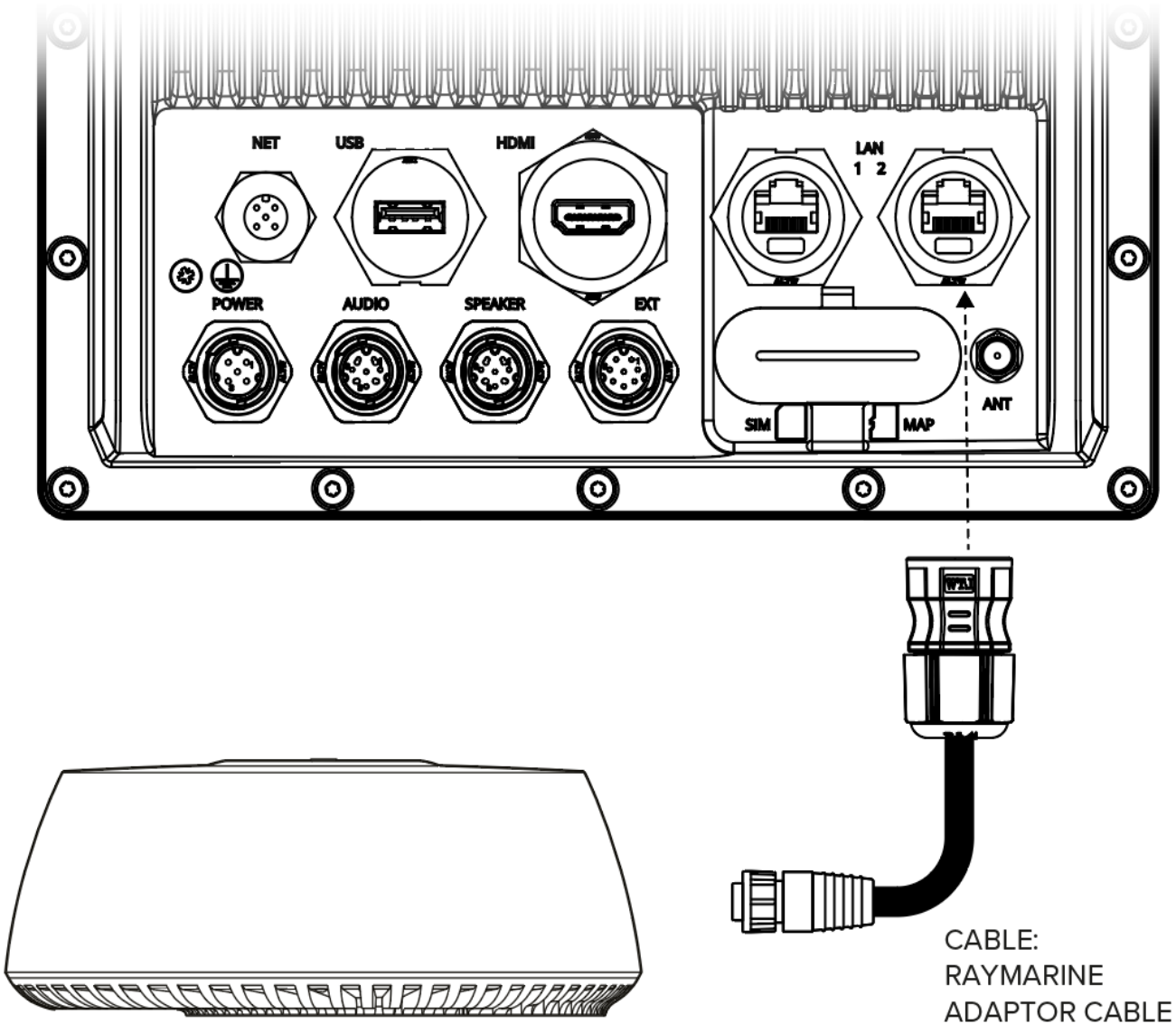
NOTE: The CP100 sonar might be connected either to one of the two available LAN NavXP connectors.

The Airmar IC-TM90M Fishfinder has the same electrical connection as the CP100, but it has own fixed RJ45 cable.

11. Radar installation

The NavXP can be connected to a Raymarine Quantum Radar. The radar is connected to either LAN connector with a RayNet adaptor cable RayNet (F) to the RJ45 (M) Port (provided with radar).

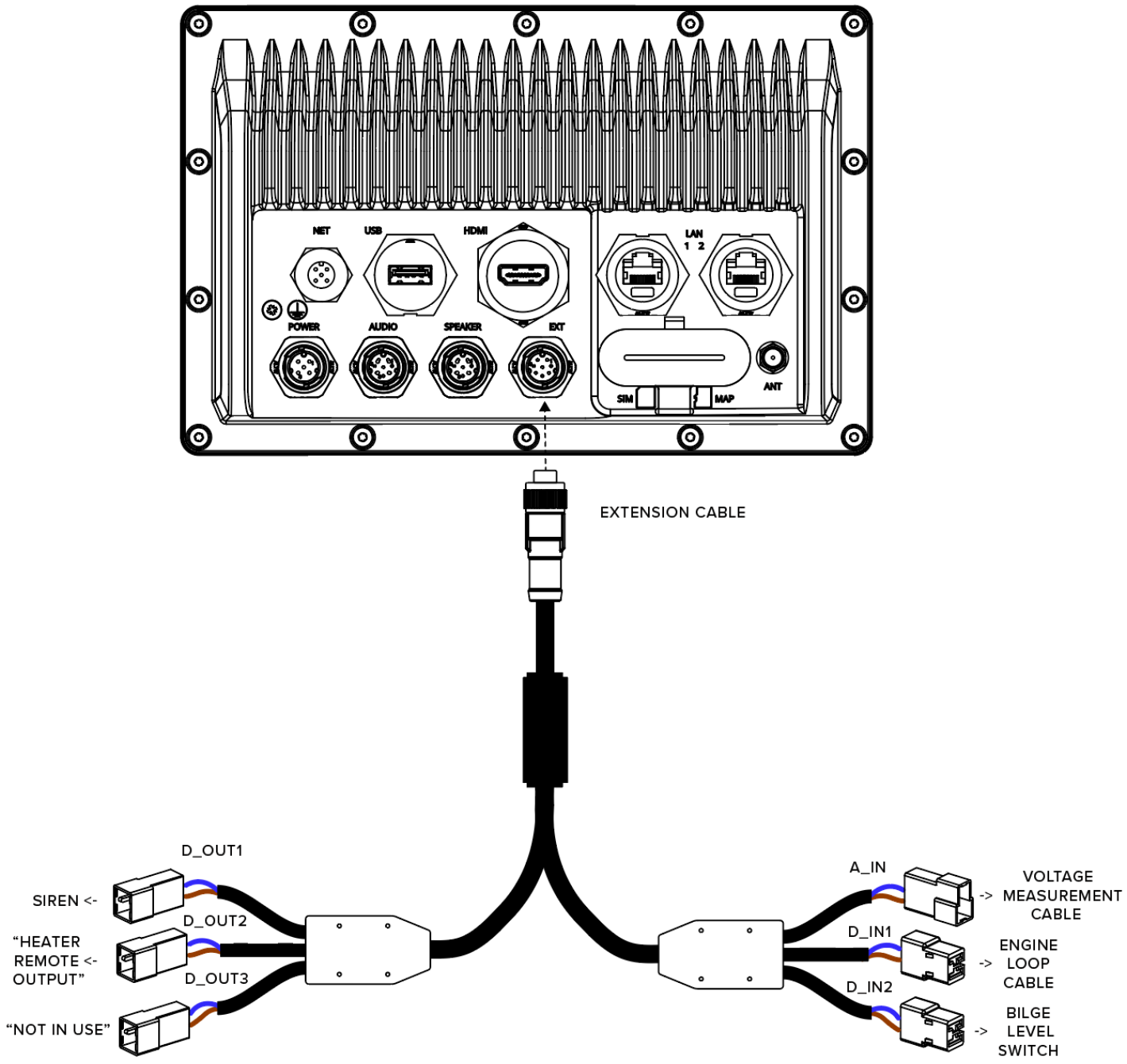
The RJ45 connector of the cable shall be assembled with a cable gland (provided separately) to protect the connection against dust and water ingress.



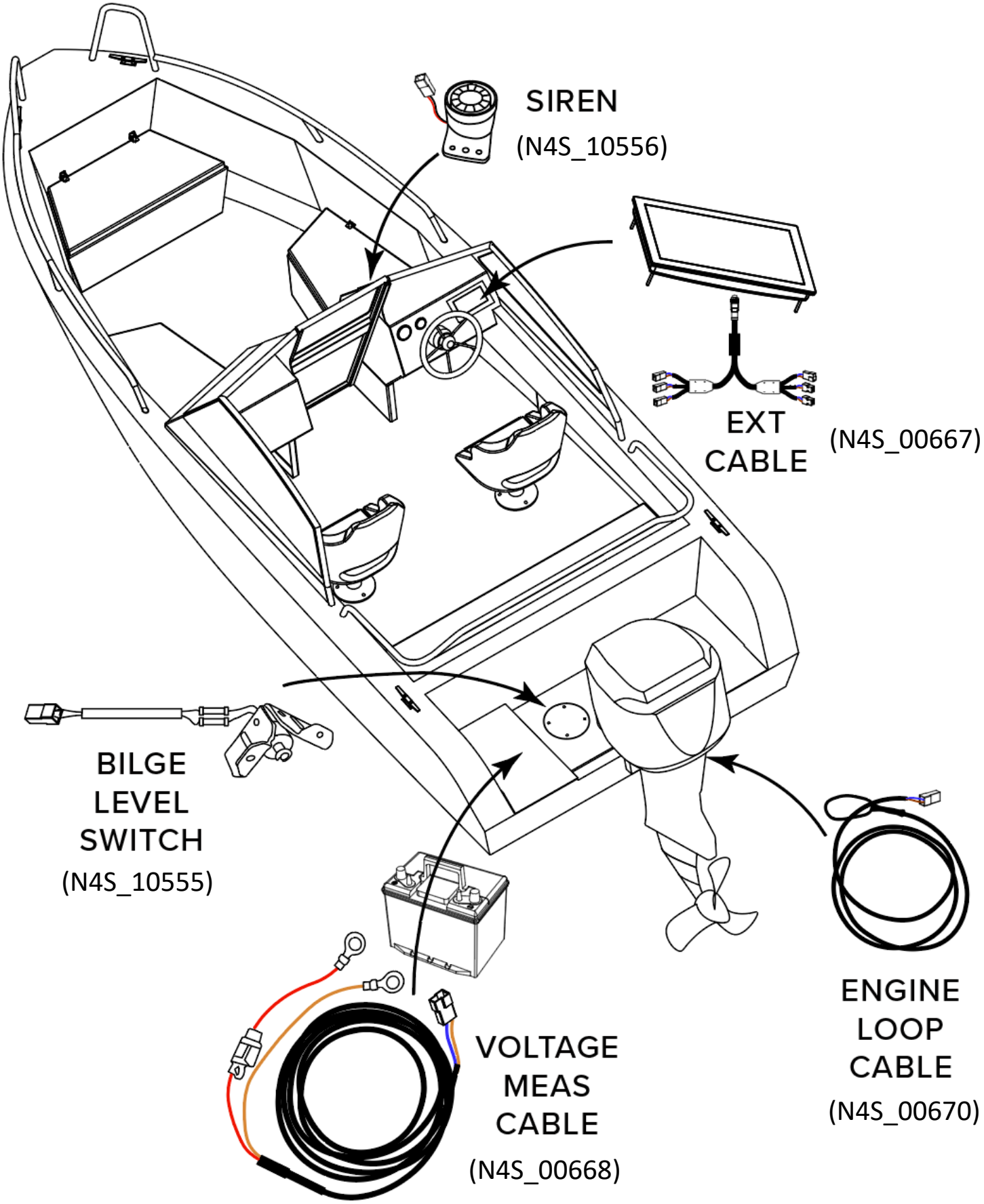
NOTE: The Radar might be connected either to one of the two available LAN NavXP connectors.

12. Guard EXT Cable installation

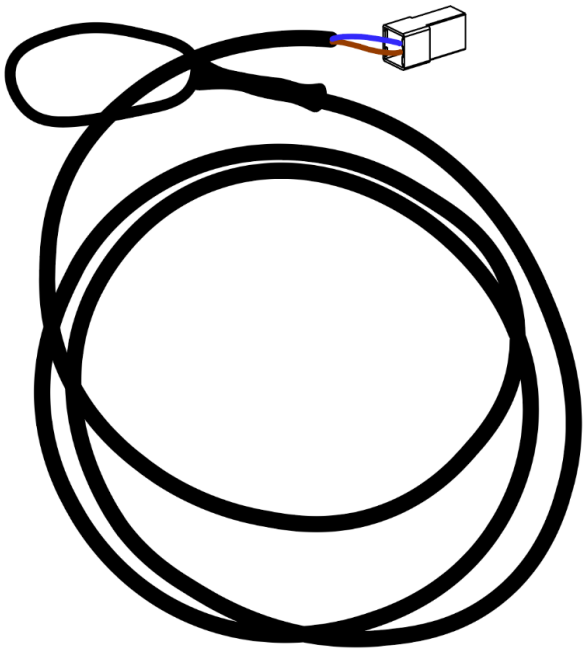
All Guard and EXT accessories provided separately.



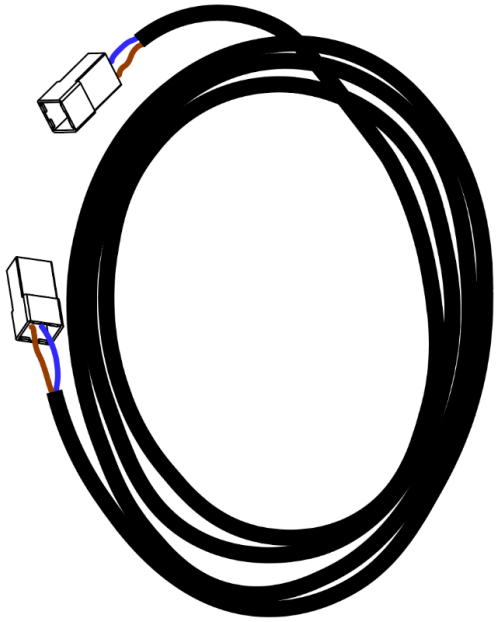
PART NUMBER	DESCRIPTION	Length
N4S_00667	NavXP EXT cable (Guard cable)	0,8 m


SIREN
(N4S_10556)
EXT
CABLE
(N4S_00667)
BILGE
LEVEL
SWITCH
(N4S_10555)
ENGINE
LOOP
CABLE
(N4S_00670)
VOLTAGE
MEAS
CABLE
(N4S_00668)

12.1. NavXP EXT Engine Loop cable



Engine Loop Cable

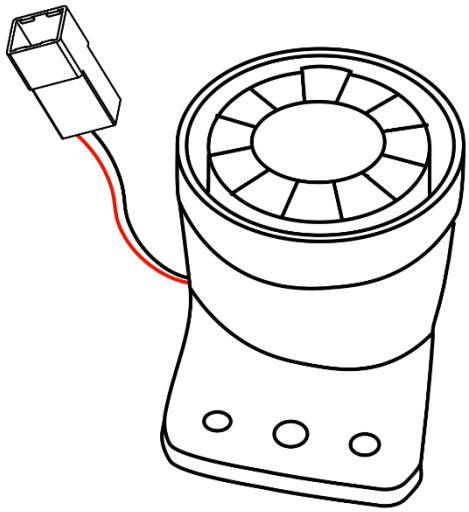


Extension cord (3m) or (5m)

Engine loop cable is installed around the engine such that engine removal requires cutting the cable, resulting in an alarm. Connected to DIGITAL IN 1.

PART NUMBER	DESCRIPTION	Length
N4S_00670	NavXP EXT Engine Loop cable	2m
N4S_00688	NavXP EXT extension cable	3m
N4S_00669	NavXP EXT extension cable	5m

12.2. NavXP EXT Siren

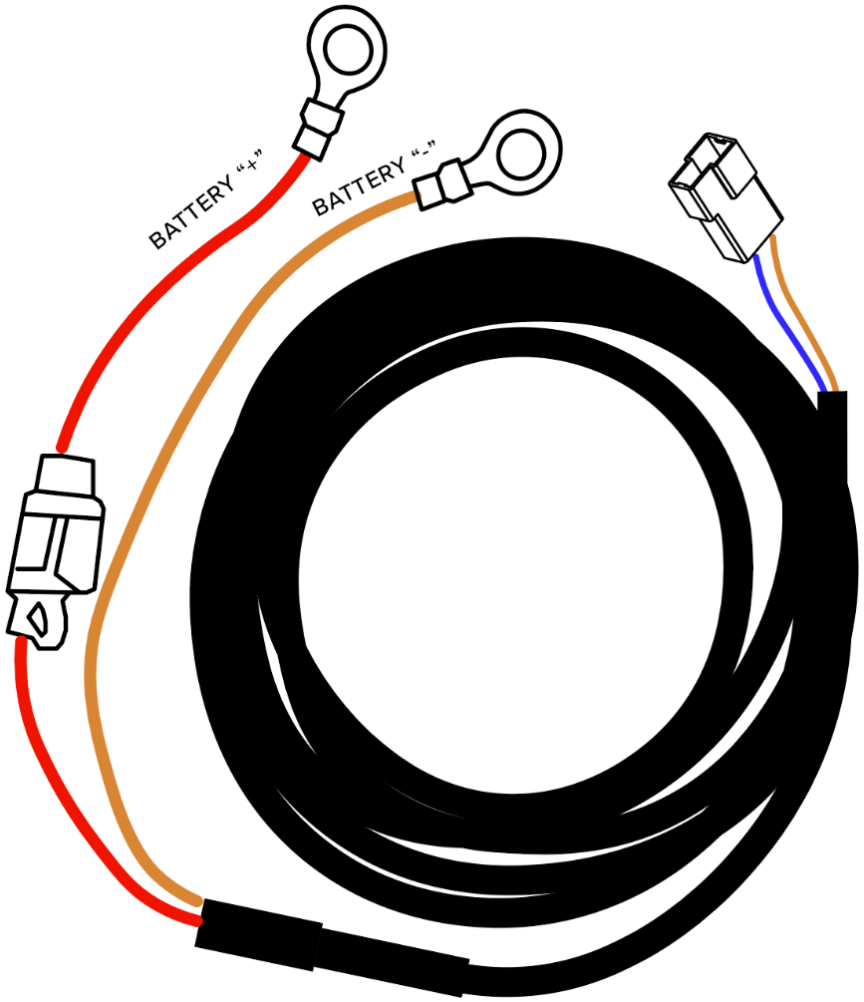


Connected to DIGITAL OUT 1

PART NUMBER	DESCRIPTION	Length
N4S_10556	NavXP EXT Siren	0,5 m

12.3. NavXP EXT Voltage Measurement Cable

Connecting the cable enables accurate voltage measurement of the boat's battery.



Connected to ANALOG IN.

PART NUMBER	DESCRIPTION	Length
N4S_00668	NavXP EXT voltage measurement cable	6,2m

WARNING: Do not connect 'BATTERY-' to battery positive terminal. This will result in permanent damage to device.

12.4. NavXP Bilge Level Switch

Bilge Level Switch

Connected to DIGITAL IN 2

NOTE: The Bilge Level Switch MUST be installed higher than a bilge pump detector to indicate only the water level over the expected limit.

PART NUMBER	DESCRIPTION	Length
N4S_10555	NavXP EXT Bilge Level Switch	3 m
N4S_00790	NavXP Bilge Switch Plate	-
N4S_00688	NavXP EXT extension cable	3m
N4S_00669	NavXP EXT extension cable	5m

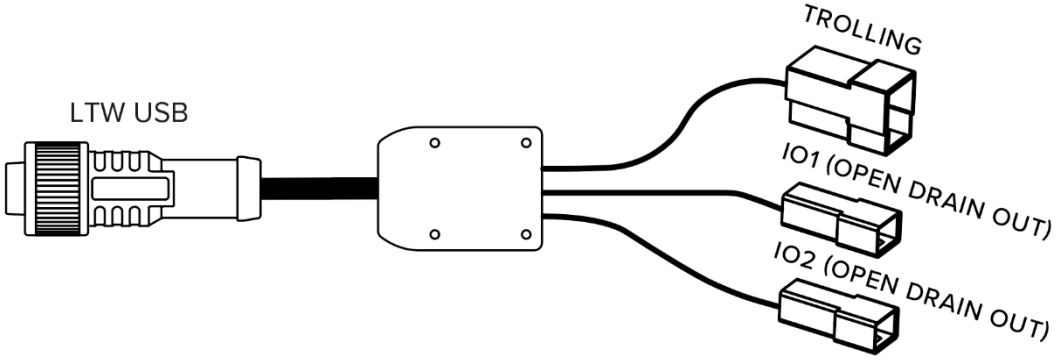
13.Trolling Cable installation

Via NavXP USB Cable it is possible to control and add:

- Trolling speed cable
- USB to CAN-bus adapter

All USB and trolling accessories provided separately.

13.1. NavXP USB Trolling Cable.



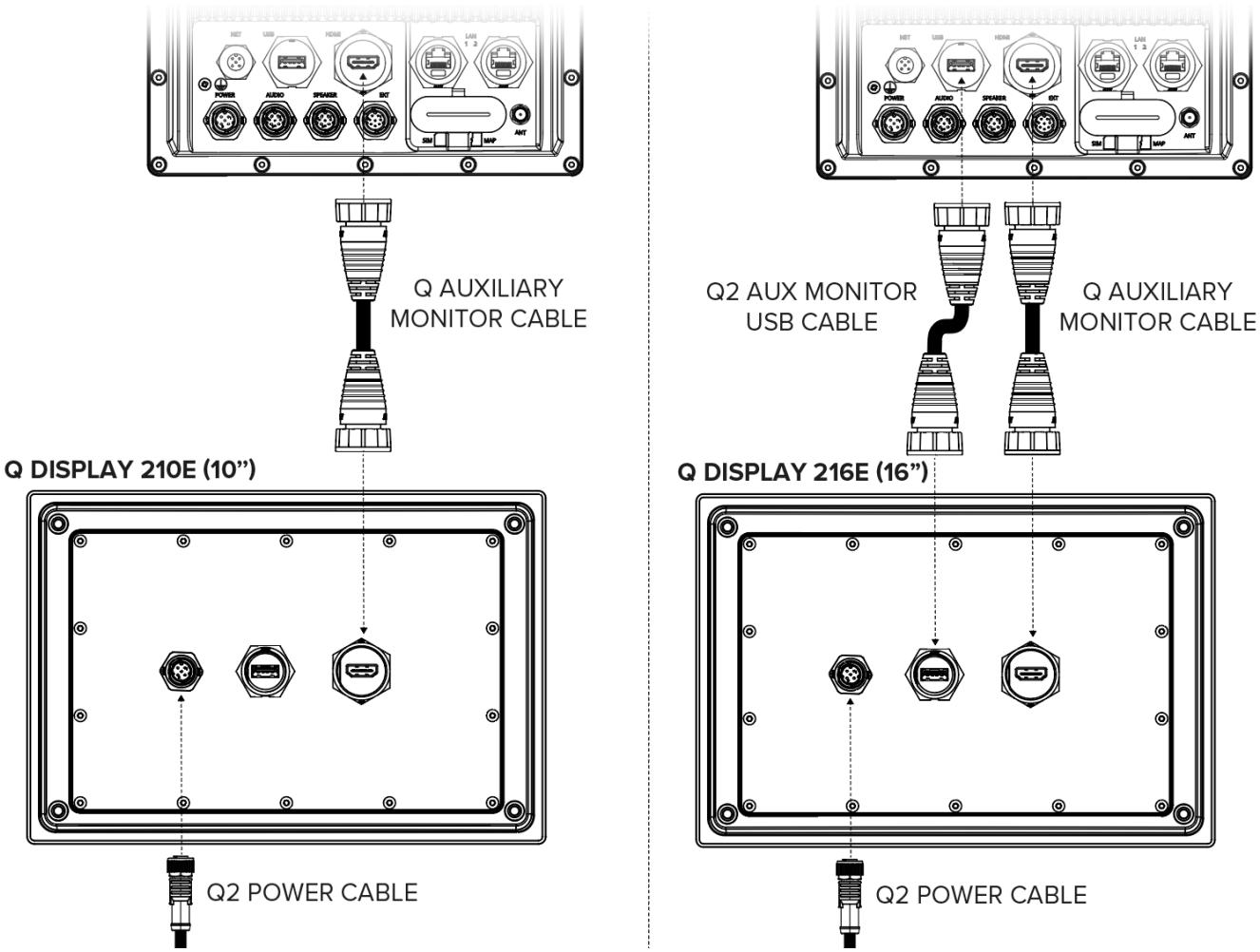
PART NUMBER	DESCRIPTION	Length
N4S_00738	NavXP USB Trolling Cable	1,5m

13.2. NavXP Trolling cable extension.

PART NUMBER	DESCRIPTION	Length
N4S_00761	NavXP Trolling cable extension	5,5m

14. Auxiliary Display installation

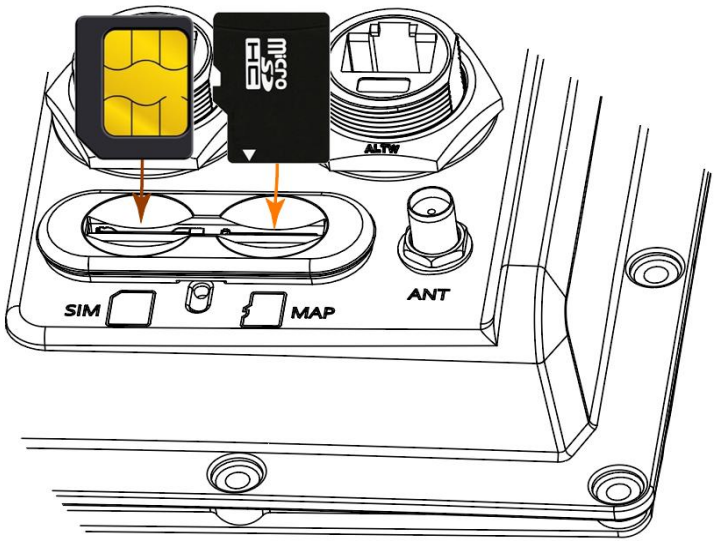
Auxiliary NavXP 210e (10”) and 216e (16”) are connected as shown.
All accessories provided separately.



NOTE: NavXP 210e is connected with “NavXP Auxiliary Monitor Cable”. NavXP 216e is connected with both “NavXP Auxiliary Monitor Cable” and “NavXP AUX monitor USB A-A cable”.

NOTE: NavXP 210e and 216e need their own power cables.

15. SIM and MAP cards



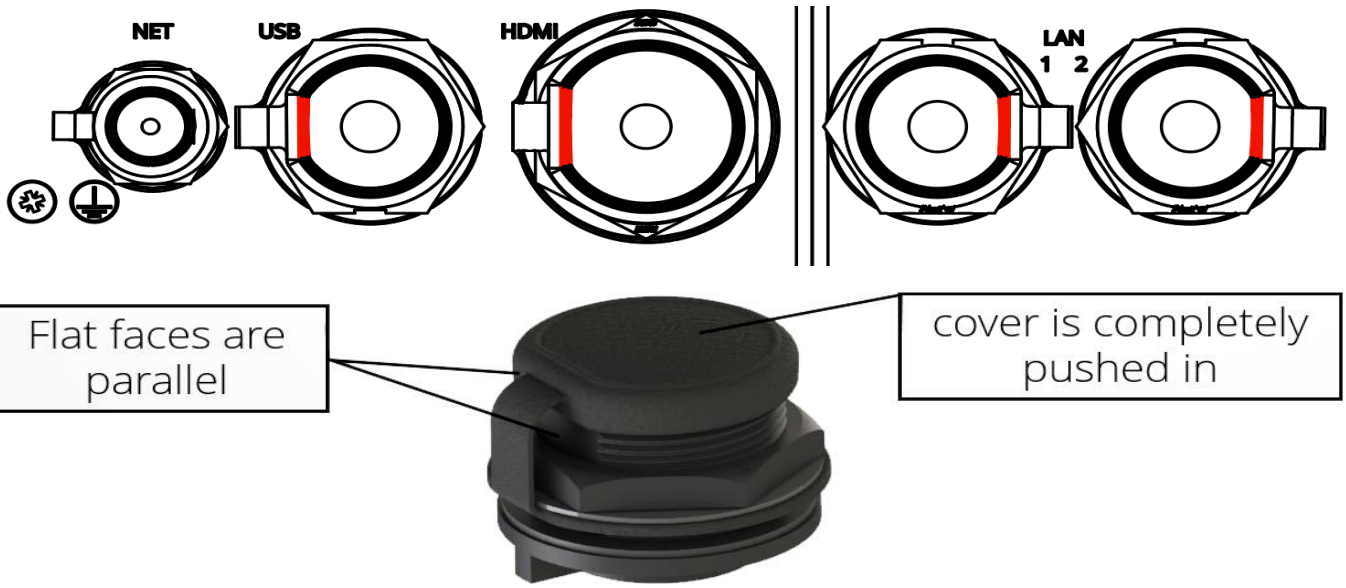
NOTE: Cards MUST be installed in the orientation shown in the picture above. If installed incorrectly, the slot will break, and the NavXP will not work properly.

16. Finalization of the installation

Upon completion of installation work of the NavXP it is necessary to check that:

- All connections have been done according to these instructions.
- The device is mounted securely and there is no gaps between the device and the mounting surface.
- Connector sealing caps on the SIM / SD -slots and all unused connectors are fully tightened.

NOTE: Correct positioning of connector caps is crucial for protecting the device.
The geometry of the caps should match the connector geometry.



17. List of available products

DESCRIPTION	Length	PART NUMBER
NavXP Power Cable - MINIFIT	0,4 m	N4S_00663
NavXP Power Cable - lead	1 m	N4S_00664
NavXP Speaker Cable	1 m	N4S_00665
NavXP Audio RCA Cable	0,7 m	N4S_00666
Guard Cable Set	-	N4S_10710
NavXP EXT Cable (Guard cable) *	0,8 m	N4S_00667
NavXP EXT Voltage Meas. Cable *	6,2 m	N4S_00668
NavXP EXT Extension Cable, 5m *	5 m	N4S_00669
NavXP EXT Extension Cable, 3m *	3 m	N4S_00688
NavXP EXT Engine Loop Cable *	2 m	N4S_00670
NavXP EXT Bilge Level Switch *	3 m	N4S_10555
NavXP EXT Bilge Switch Plate *	-	N4S_00790
NavXP EXT Siren *	0,5 m	N4S_10556
NavXP Auxiliary Monitor Cable, 6m	6 m	N4S_00671
NavXP Auxiliary Monitor Cable, 1m	1 m	N4S_00672
NavXP USB Trolling Cable	1,5 m	N4S_00738
NavXP Trolling Extension Cable, 5,5m	5,5 m	N4S_00761
NMEA2000 Micro-C 4-way Tee	-	N4S_00037
NMEA2000 power cable	1 m	N4S_00334
NMEA2000 male terminator	-	N4S_00029
NMEA2000 female terminator	-	N4S_00030
NMEA2000 Micro-C T cable	1 m	N4S_00038
NMEA2000 T-adapter	-	N4S_00845
FM/DAB antenna with SMA connector	3 m	N4S_00248
NavXP Trunnion Bracket	-	N4S_10553
NavXP AUX monitor USB A-A cable, 6m	6m	N4S_00710
NavXP AUX monitor USB A-A cable, 1m	1m	N4S_00711
LAN Cable Gland, IP67, OD 6.5 – 8.0mm		N4S_00752
Digital Switch 2	-	N4S_10750
NavXP 210 (10”)	-	Customer/region specific
NavXP 216 (16”)	-	Customer/region specific
NavXP 210D (Dual 10")	-	Customer/region specific
NavXP 210e (Auxiliary 10”)	-	Customer/region specific
NavXP 216e (Auxiliary 16”)	-	Customer/region specific

*included in Guard Cable Set [N4S_10710]