MARPORT | PRO

2022

USER MANUAL

CATCH
NAVIGATOR

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Legal

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V1	12/30/22	First release

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Introduction & Presentation

Introduction and Presentation

Get a basic knowledge of the sensor.

Introduction

Marport's Catch Navigator tells you when your trawl starts to fill. Placed on the top of the trawl codend, it monitors the amount of catch that you have and warns you when the trawl is full. You can even use it to determine a precise amount of fish inside the trawl net. This way, you can monitor the contents of the codend while you are fishing, avoid problems of overfilling and increase fish survival rate inside the trawl net. It is recommended to install several sensors along the trawl to better monitor the filling processes.

The Catch Navigator provides a high-definition echogram image of the volume of catch inside the codend. In order to efficiently follow the trawl descent, echogram ranges are configurable from 5 to 160 meters. Moreover, the sensor includes an automatic range mode: when descending, the sensor can automatically switch to a lower range of 20 meters to get sharper pictures. Optionally, it can also track pitch, roll, depth, height and temperature data.

Applications

Examples of data received and displayed in Scala2 application.

1. Catch status: empty / **2.** Catch status: full / **3.** The echogram shows the codend filling up, until the catch sensor is triggered.

Safety Guidelines

Important: To ensure proper and safe use of this equipment, carefully read and follow the instructions in this manual.

Description

System Compatibility

The Catch Navigator is compatible with the following versions of Marport's software and equipment.

Mosa2	02.11.10 or later
Scala2	02.10.03 or later

Mx receiver firmware	08.05.03 or later
Dock	01.01.01 or later

Firmware and Features

This section describes the firmware and features that must be configured on MASP to set up the sensor.

To be operational, the sensor needs to be configured with two files:

- a firmware file (*.A2F): it is the firmware of the sensor,
- an application file (*.A2A): it defines the sensor features and options.

These files are generated via MASP.

Firmware

The latest version of the firmware is available for download on MASP.

Compatibility: F450-02.02.02 and after

Features and Options

The features and options are configurable according to the type of hardware and customer's choices.

Features	• **Product name**: Manually entered. • **Application**: Catch Navigator • **Body**: Small • **Battery capacity** (not configurable): 1-pack
Sounding Options	• Down • Down2
Misc. options	• **SD Card Log**: records a log of the sensor activity. This option is useful for troubleshooting support. • High Resolution (always activated)

Measures	• Battery (always activated) • Catch (always activated) • Pressure (depth) • Temperature • Pitch • Roll • Height

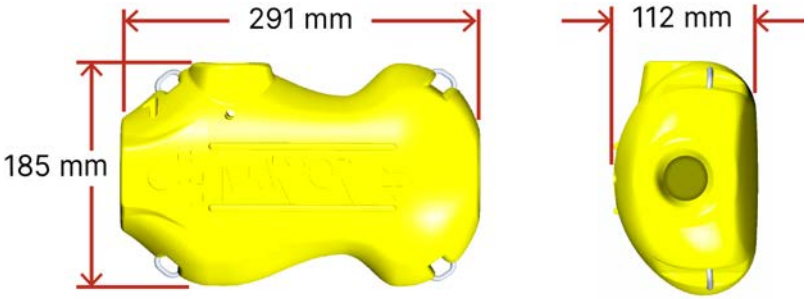
Technical Specifications

Uplink frequency	30 to 60 kHz
Range to vessel	up to 2500 m*
Data update rate	• 5-meter range: Echogram @0.75 s - temperature, depth, pitch, roll, battery level, catch @5.24 s • 10-meter range: Echogram @0.91 s - temperature, depth, pitch, roll, battery level, catch @6.39 s • 20-meter range: Echogram @1.24 s - temperature, depth, pitch, roll, battery level, catch @8.69 s • 40-meter range: Echogram @1.00 s - temperature, depth, pitch, roll, battery level, catch @7.00 s • 80-meter range: Echogram @1.26 s - temperature, depth, pitch, roll, battery level, catch @8.85 s • 160-meter range: Echogram @1.79 s - temperature, depth, pitch, roll, battery level, catch @12.53 s
Depth range	up to 1800 m
Depth resolution	0.1 m with 0.1% full scale accuracy
Echogram range	20 (auto) / 40 / 80 / 160 meters
Pitch and roll range	-180° to +180°
Pitch & roll accuracy	+/- 1°
Temp measurement range	-5° C to +25° C
Temp accuracy	±0.1° C

Charging time (from 0% to 100%)‡	2 hours
Battery type	Lithium-Ion
Weight of sensor in air	5.5 kg
Weight of sensor in water	1.6 kg
Warranty	2 years (Sensor & Battery) **

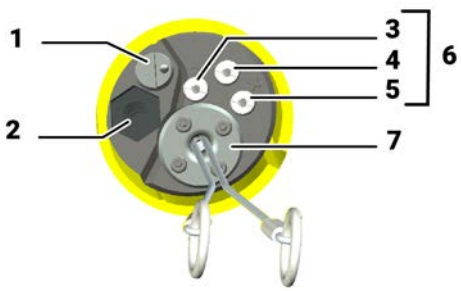
*Reference only. Depends on communication settings and transmission conditions / † Depends on sensor uplink power and options. Lifetime has been estimated with a uplink power at 33%. / ‡ Based on average charging time. / **Marport Standard Marine Limited Warranty

Dimensions



Main Parts

External View



1. Pressure sensor
2. Temperature sensor
3. Negative charge
4. Water switch
5. Positive charge
6. Shoulder bolts
7. Pull cords (center-pull)

1. Transducer
2. End cap
3. Pull cords (side-pull)

CAUTION:

- Do not put foreign objects into pressure sensor opening or try to open it.
- Do not remove the shoulder bolts from the outside of the sensor.

It may damage the components.

Sensor Configuration

Sensor Configuration

Learn how to configure the sensor settings.

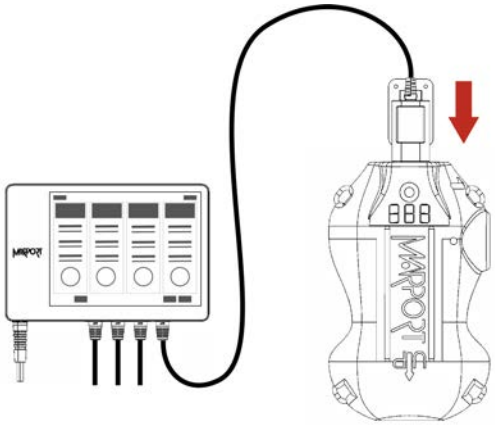
To be able to change the settings of the sensor: Press command + A or click **Menu** and click **User Mode > Advanced**.

Connecting the Sensor to Mosa2

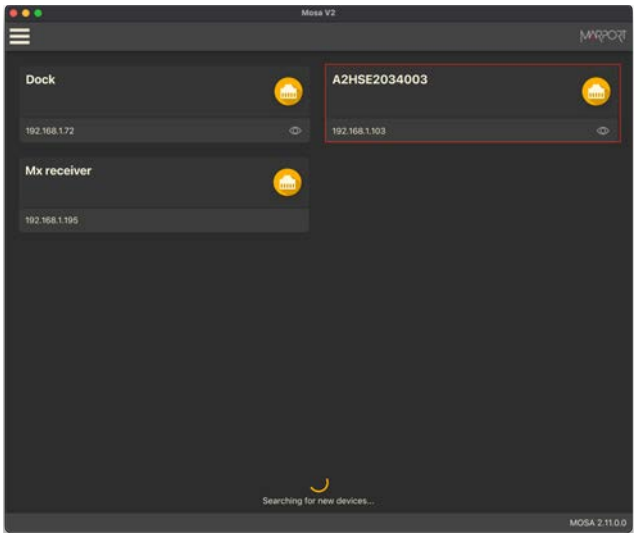
To configure the sensor, you need to connect it to Mosa2 application, using either the Dock or the Configuration Cable.

Using a Dock Charger Plug

1. Connect one Dock charging plug to the sensor's endcap.



2. Mosa2 discovery page opens. The sensor is displayed.



- Click to open the sensor configuration page.
- Click to show the deploy animation on the charger plug for 30 seconds.

Using the Configuration Cable

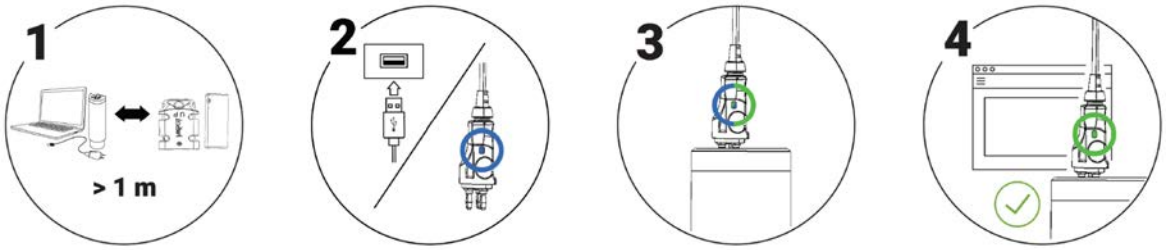
Simply connect the Configuration Cable from the computer to the sensor to display the sensor configuration page on Mosa2.

Tip: Refer to the **Configuration Cable Quick Reference Guide** for more details about the use of this product.

1. Move other electrical devices minimum 1 m away from the computer.
2. Connect the USB connector directly to the computer.

Mosa2 opens automatically and the startup wizard is displayed. The LED on the plug is solid blue.

3. Connect the three-pin plug to the sensor.
   The LED on the plug blinks alternatively blue and green.
4. Wait a few seconds. The configuration page of the sensor is displayed on Mosa2.
   The LED on the plug is solid green.

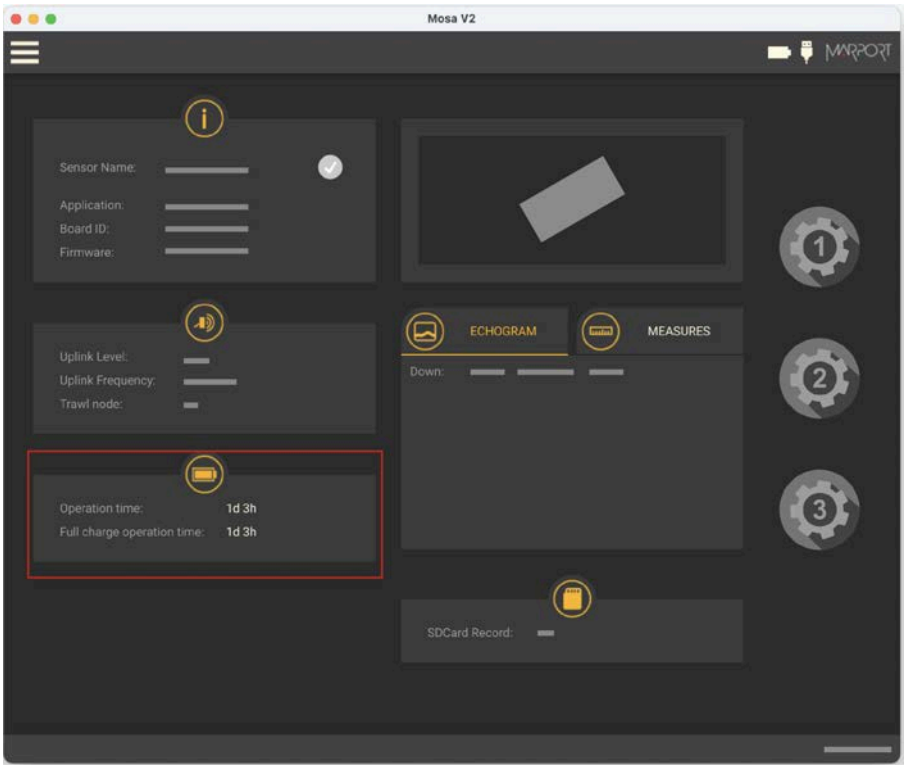


You can now configure the sensor.

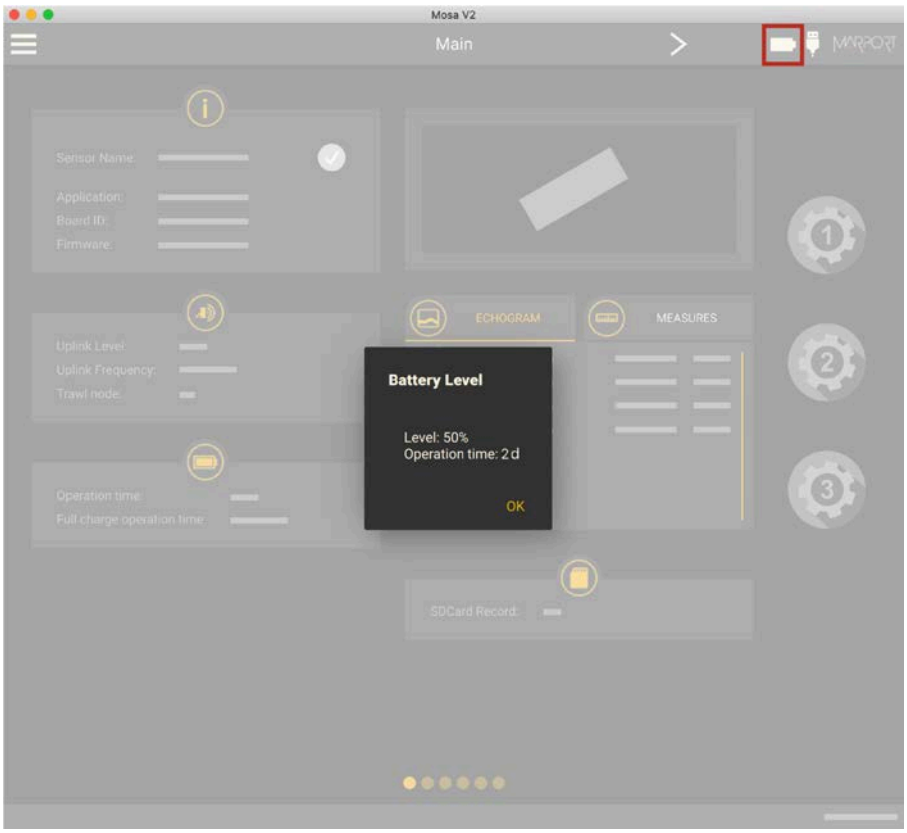
Note: You can keep the Configuration Cable continuously connected by USB, and virtually eject or connect it. When no sensor is connected to the Configuration Cable, click **Menu** **> Eject Config Plug** or **Connect Config Plug**. When ejected, you come back to the discovery page. It stays disconnected until you virtually connect to it or manually disconnect then connect it.

Battery Information

The battery lifetime is displayed on the first page.



You can also check the battery level at anytime from the top bar:



Note: When you change settings such as the uplink power or sounding range, it affects the battery consumption and remaining lifetime. The battery information will update after the sensor has been switched on and operating for 10 minutes.

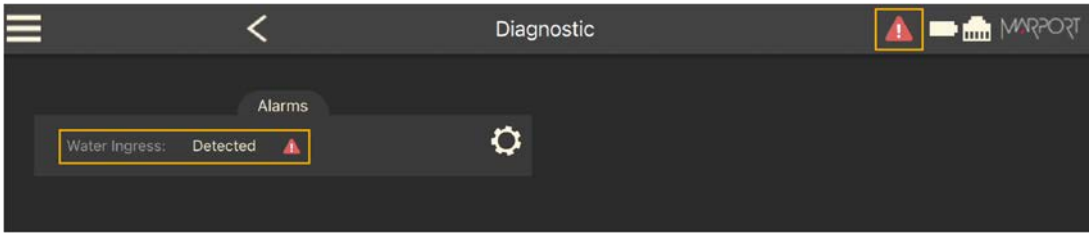
Diagnostic Information

Scala2 and Mosa2 applications warn the user in case of water ingress in the sensor.

Note: Diagnostic information is available for Marport Pro sensors (A2S and A2H PCBA versions), from the firmware version **F450-02.02.00 or later** and Mosa2 version **02.11.08**.

In case of water ingress in the sensor, alarms are displayed in Scala2 Virtual Charger Room, in Mosa2 and on the charger plug when connected to the sensor.

- Mosa2 displays a dialog at the start of the application and warning icon in the toolbar and diagnostic page:



- The charger plug displays a warning icon:

When the alarm appears, take the sensor out of water immediately and contact Marport support.

Warning: In case of water ingress in the product, do not charge it: battery may vent or rupture, causing product or physical damage.

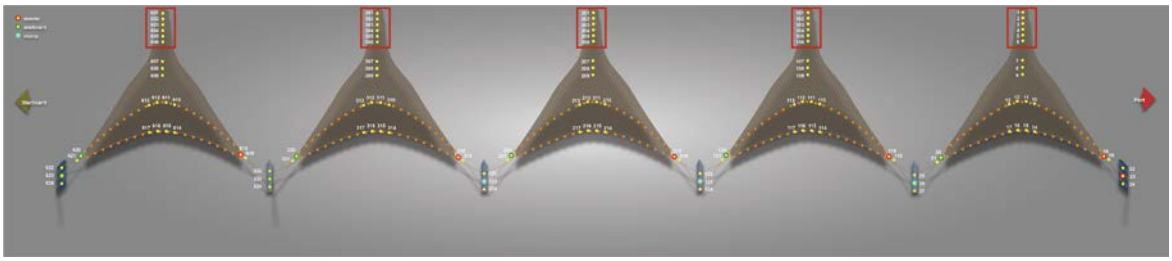
Configuring the Trawl Node

You need to give a trawl node to the sensor. It is the number corresponding to the position of the sensor on the trawl.

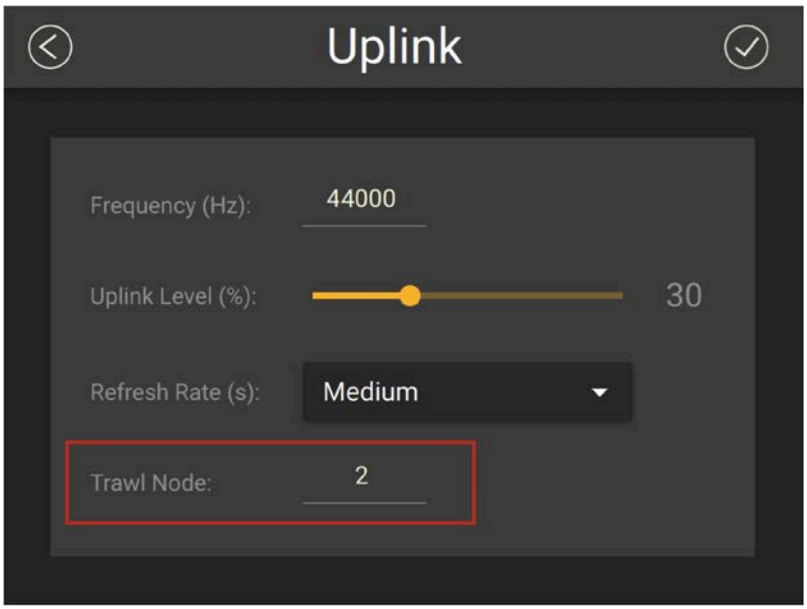
The trawl nodes corresponding to the positions on the codend are the following:

Trawl number	**Node numbers**
Trawl 1	1 to 6
Trawl 2	101 to 106
Trawl 3	201 to 206
Trawl 4	301 to 306

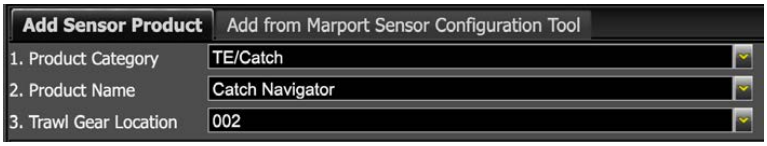
Trawl number	Node numbers
Trawl 5	601 to 606

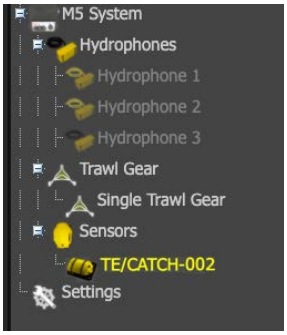


1. Go to the **Communication** page, then click ⚙ in **Uplink**.
2. Enter a node according to the position of the sensor on the trawl.



Important: Make sure to put the same number when adding the sensor to Scala2 receiver page. If not, change it accordingly.



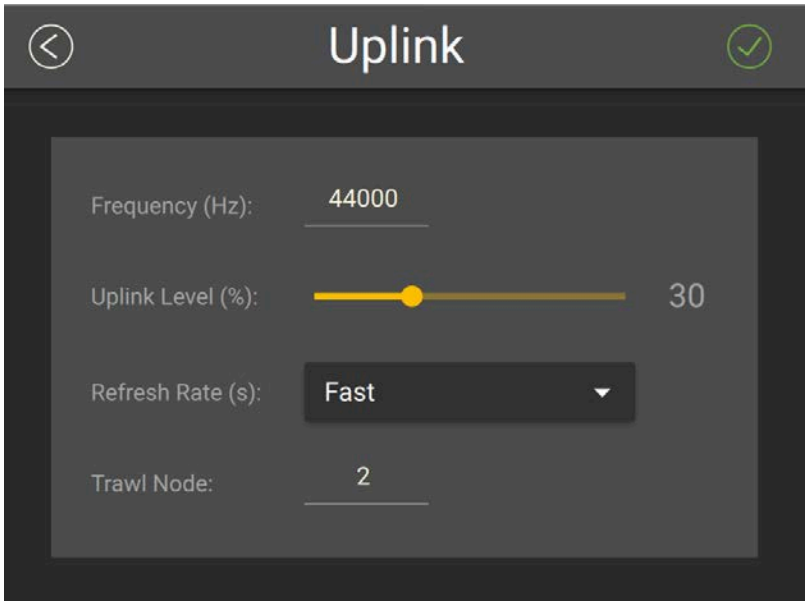


3. Click .

Configuring the Uplink Frequency and Power

Configure the settings of the communication link between the sensor and the vessel.

1. Go to the **Communication** page, then click in **Uplink**.



2. Enter a frequency for the communication with the vessel. Default is 44,000 Hz.
3. Drag the slider to change the power of the uplink signal.

Note: A higher level of uplink power reduces the battery lifetime.

Recommended uplink powers	Conditions
33%	Works for most conditions.
100%	◦ Sensor is far from vessel (e.g. more than 800 m depending on conditions, high depth) ◦ High level of interferences ◦ Issues receiving data ◦ Low SNR

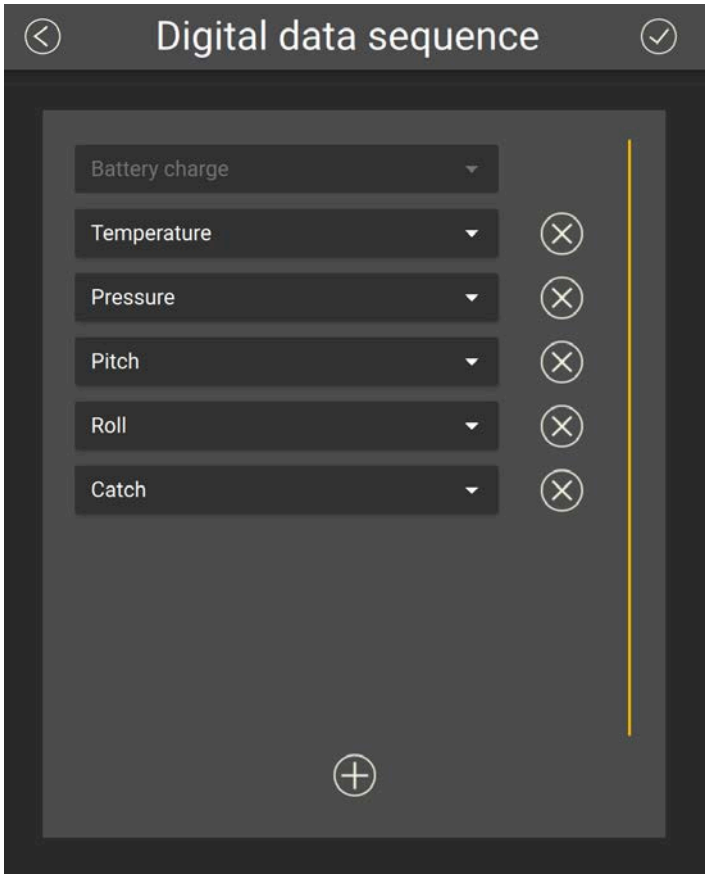
4. In **Refresh Rate**, leave **Fast** selected.

Configuring Measurement Sending Sequence

You can configure the order and types of measurements (e.g. temperature, pitch, roll...) sent to the receiver.

1. Press command + A or click **Menu** and click **User Mode > Advanced**
2. In **Communications** page, click in **Data Sequence**.

3. To add data, click ⊕ then select data in the drop-down menu. The sequence begins by the top.



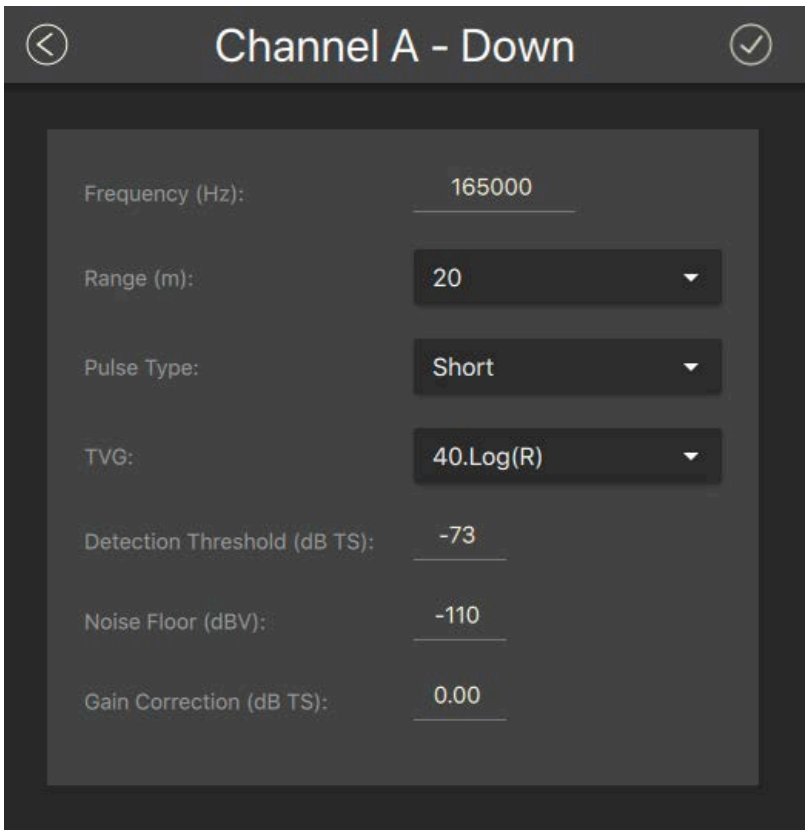
Trouble: If you do not see some data, it means it is not activated on the sensor (application file).

4. To delete data, click ⊗ in front of data.
5. Click ✓.

Configuring the Echo Sounder

Configure the echo sounder settings of the Catch Navigator.

1. To select the direction of the sounding, click in **Sounding Mode**, then choose a **Mode** between **Down** or **Down + Down2**, if this later option is activated.
2. Go back to the page, then click in **Down Sounding** or **Down2 Sounding**, depending on the **Sounding Mode** that was configured.



3. Default **Frequency (Hz)** is 165,000 Hz for the **Down Sounding** and **Down2 Sounding**.
4. The **Range (m)** of the sounding is the maximum distance at which targets and bottom can be detected.

> **Note:** We recommend to set the maximum range value when using the automatic range in order to see the sea bottom as soon as possible.

5. Select a **Pulse Type** to have an appropriate length of pulse according to the distance to the bottom:
    - **Short**: shallow waters (100 µs)
    - **Medium**: moderate depth (300 µs)
    - **Long**: deep waters (500 µs)

Important: Pulse length is an important setting for the calibration of the sensor. If you change the pulse length on a sensor calibrated for target strength, you need to calibrate the sensor again.

6. Select a **TVG** setting to compensate the signal loss in water and have targets or sea bottom displayed in the same color on the echogram, whatever the distance from the sensor:
    - 20 log: focus on bottom or school of fish.
    - 40 log: focus on individual targets.
    - 30 log: compromise between the two above settings.
7. Do not modify the other echo sounder settings.

About the Automatic Range Mode

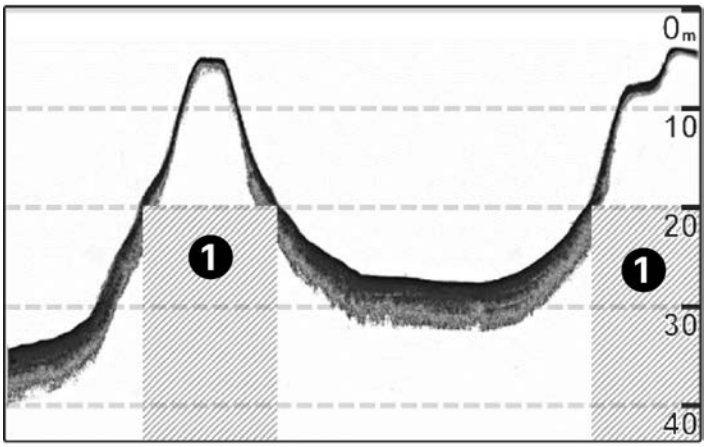
The sensor has an automatic range mode that is useful to get better quality echograms when the trawl is close to the bottom.

Principle

The range influences the display of echogram images. The smaller the range, the shorter the listening time, which gives better quality images. But the bigger the range is, the lesser the image quality is, because data arrives slower.

You can activate the automatic range mode if you need to get better quality echograms when the trawl is close to the bottom. This mode is recommended when bottom trawling.

The echogram can automatically switch to a 20-meter range when the distance to the bottom is less than 20 meters (**1**).



The change of range depends on the settings configured on Mosa2.

Mosa2 settings

The following **Sounding Mode** options must be set in Mosa2:

- **Automatic Range** must be activated.
- The **Mode** must be set to **Down only**.
- The **Refresh Rate** must be set to **Fast**.
- The **Trawl Opening** must be lower than 18.5 meters to be able to switch to a 20-meter range.

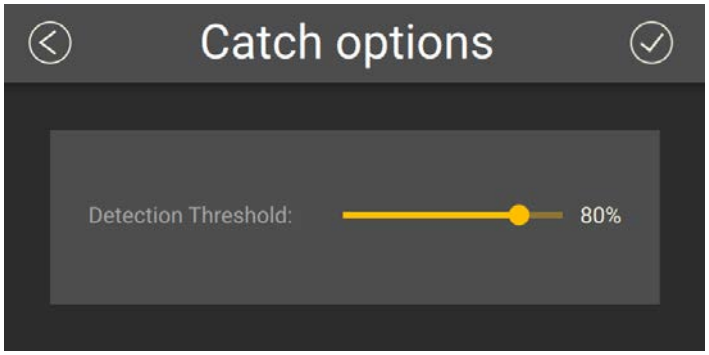
Note: The trawl opening value sets the minimum distance to see inside the trawl. As a result, if the trawl opening distance is equal or higher than 18.5, the sensor will not reduce the range to 20 meters.

See **Configuring the Echo Sounder (on page 22)** for details about Mosa2 settings.

Changing the Detection Threshold of the Catch Sensor

You can change the threshold at which the catch status becomes full when the cords are pulled.

1. Go to **Measurements** page and click ⚙ next to **Catch**.



2. Set a value below 75% if you want the catch status to become full when the cords are not entirely extended.
3. Set a value above 75% if you want the catch status to become full only when the cords are fully extended.

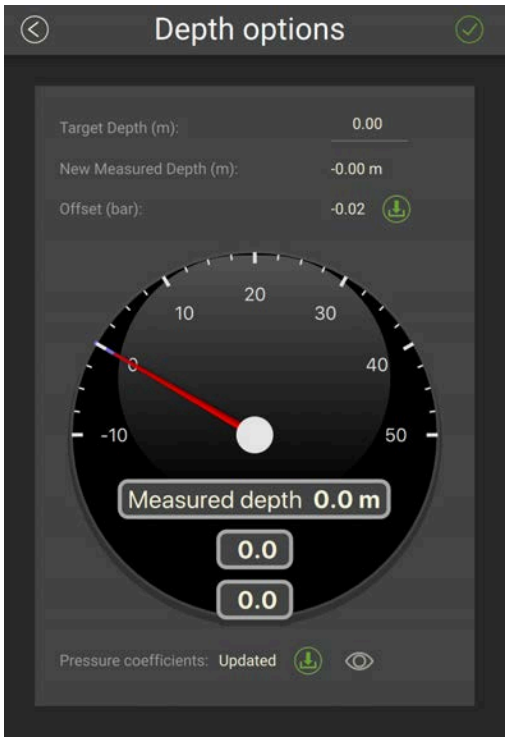
> **Important:** For proper operation, do not set the percentage below 65% or above 85%.

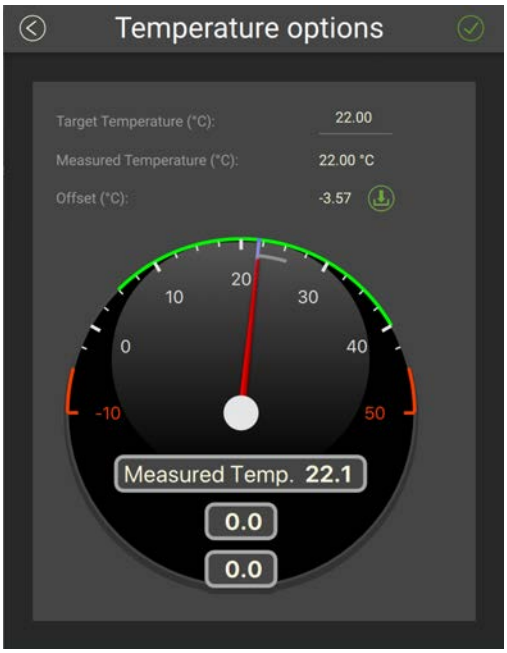
Applying Offsets to Measurements

You can apply offsets to temperature and depth measurements if the measured values does not correspond to the environment of the sensor.

1. Go to **Measurements** page and click ⚙ next to depth or temperature to apply offsets.
2. Enter a target value. Click ✓.

The measured value becomes the same as the target value. The value of the offset is displayed.





3. If you need to reuse offsets from a previous configuration, click then select the configuration file (*.A2C).

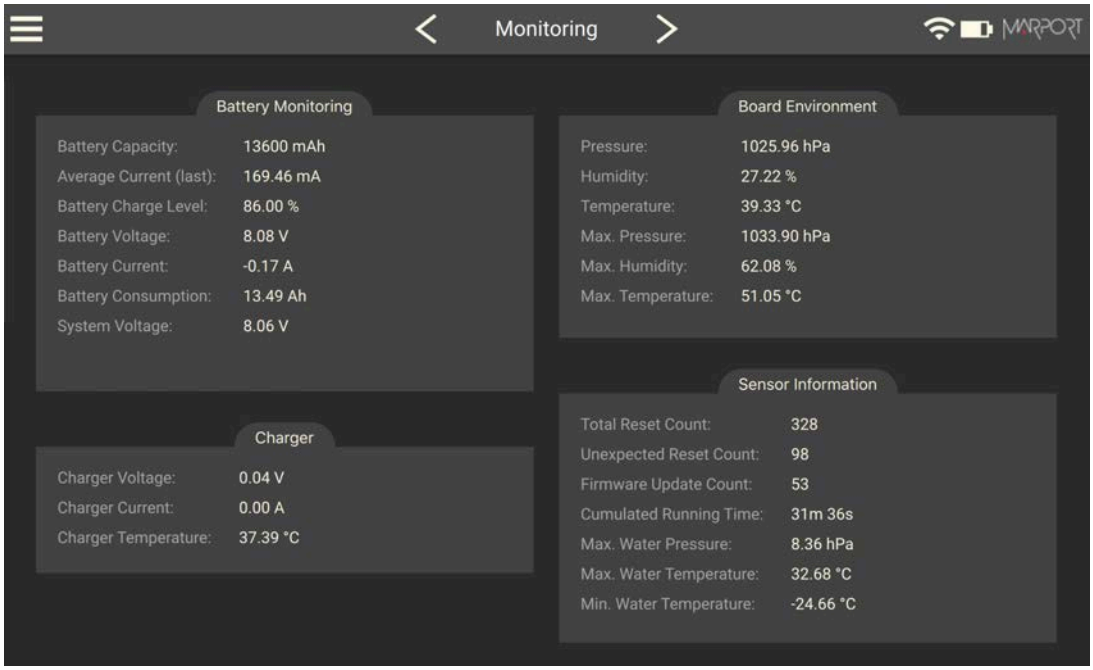
Testing Measures

You can test the measures taken by the sensor (e.g. battery level, temperature, depth) to check that there are no faults.

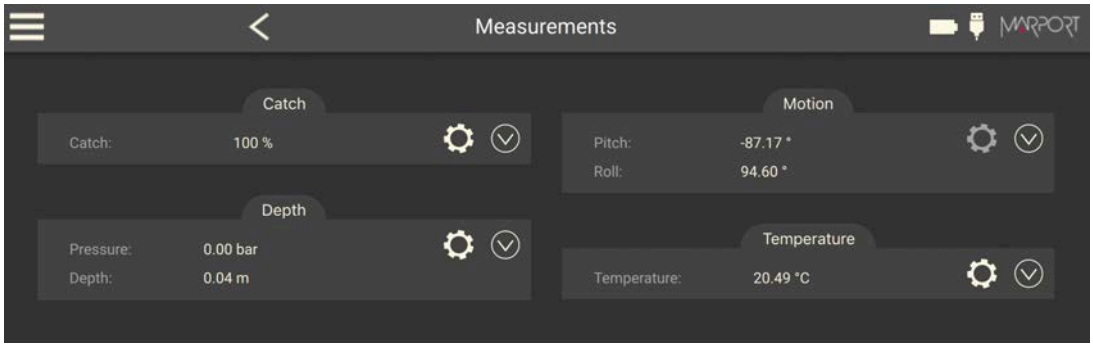
You can test the sensor in water or in air. In air, the following measures will be wrong: height, conductivity.

1. Press command + A or click **Menu** and click **User Mode > Advanced**
2. Go to the **Monitoring** page.

You can check information about the battery, board and sensor.



3. Go to the **Measurements** page.
   You can see the values of the activated measures, such as depth, temperature. If the sensor is working correctly, measures are updating.



4. Click to check and, if necessary, adjust data measured by the sensor:
   - **Depth**: Place your sensor on a desk or on the ground and enter 0 in **Target Depth**.
   - **Temperature**: Enter the estimated temperature of your environment.

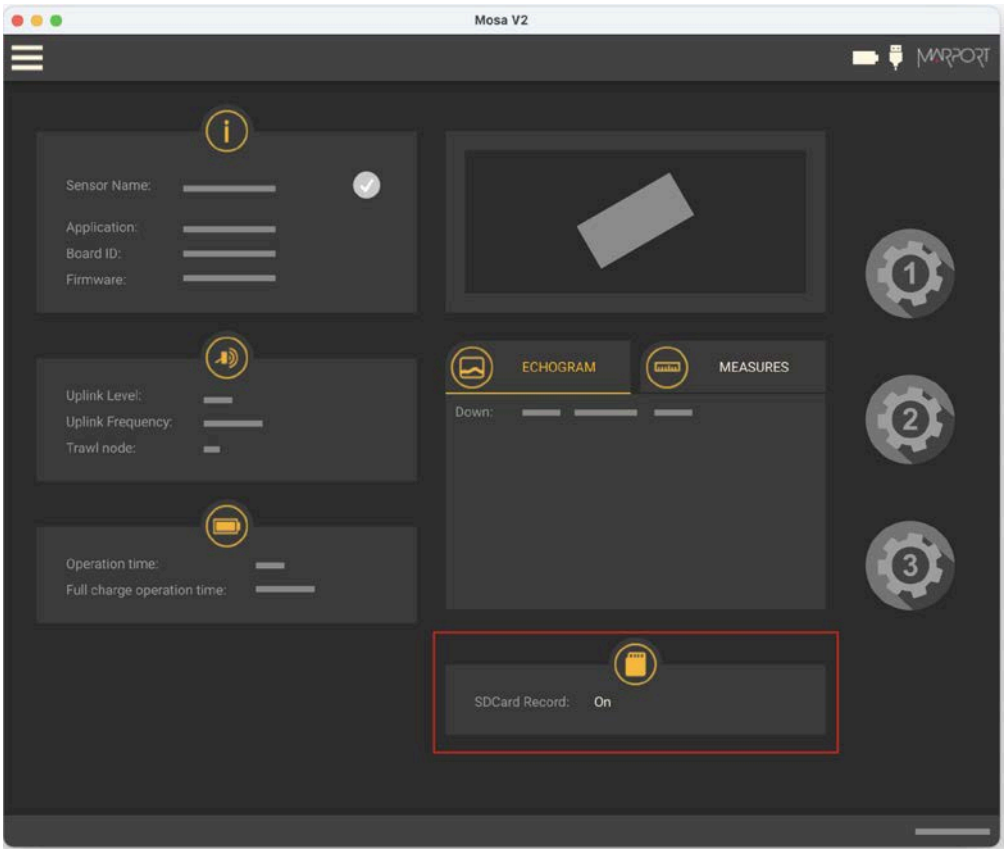
SD Card Recording

This topic explains the SD card recording feature (this feature is optional).

Overview

Data recorded on the SD card are in higher resolution, with a higher refreshing rate.

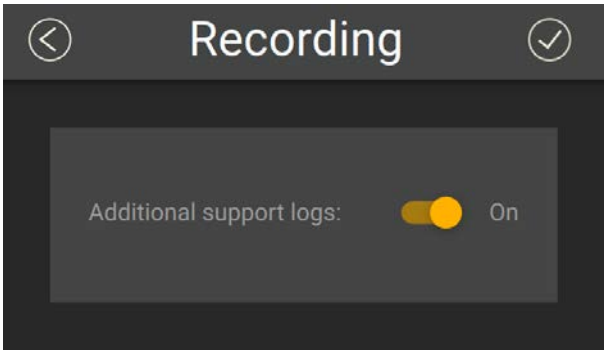
You can see on Mosa2 main page if the SD card recording feature is activated:



Additional settings

We recommend to activate the support logs to help support teams for error diagnosis.

1. Go to the **Communication** page, then click in **Recording**.
2. Activate **Additional support Log**.



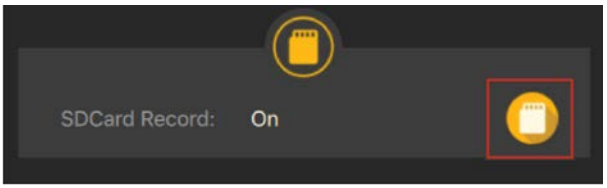
Getting data from the SD card

The last 99 recorded sensor data files and last 99 battery files are displayed. Two types of files are on the SD card:

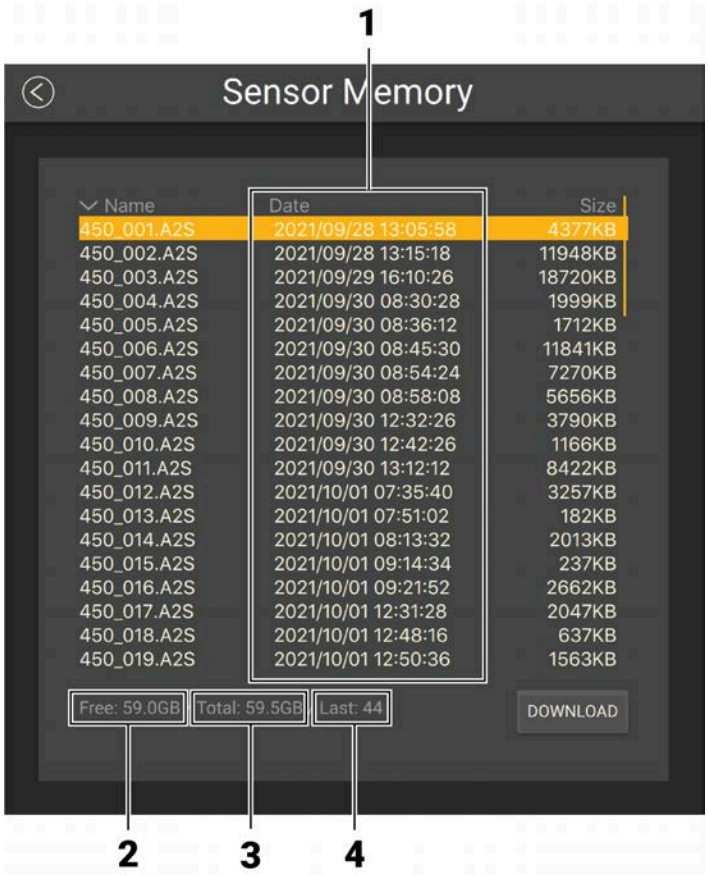
- Files containing measures recorded by the sensor. Their name begins by "450". These data are more precise and recorded more often than data received on the receiver. One file corresponds to a tow (time between entering and leaving water). The recording date displayed in the second column is synchronized with your computer time.
- BATT = Files created when the sensor is charging (1 file per charging cycle). They are useful for support teams for troubleshooting.

Note: The first time the sensor connects to Mosa2 or if the sensor desynchronizes, a clock with a warning icon is displayed in the top toolbar. Click it to synchronize the time of the SD card with the computer's time.

1. Press command + E or click **Menu** and click **User Mode > Expert**.
2. On the first page, click in **SDCard Record**.



Recorded files are displayed. Click the title of the columns to sort them by their name, date or size.



1. Time of end of towing

2. Free memory on SD card

3. Memory size of SD card

4. Index of the last SD card file written

See **Replaying Data from A2S Files (on page 44)** to learn how to replay these data in Scala2.

Saving a Configuration on Mosa2

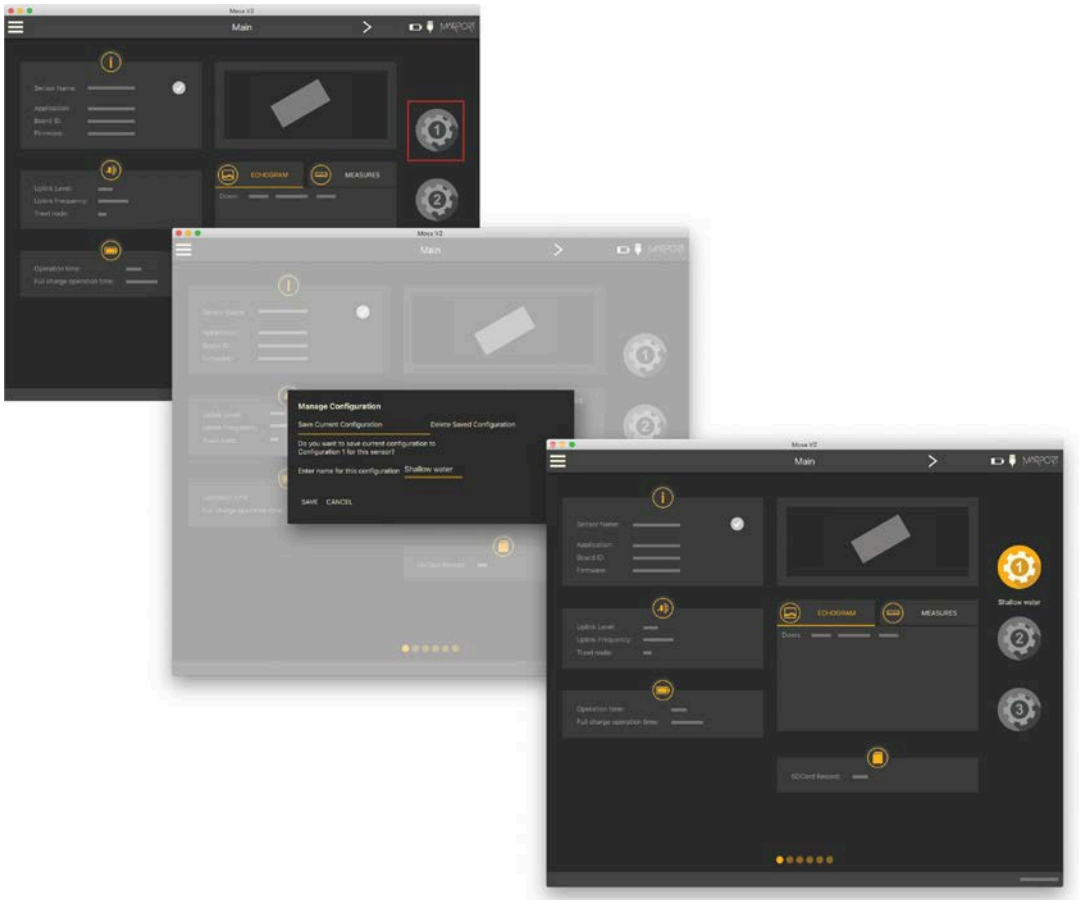
You can save different configurations of the sensor to be able to quickly change the configuration when you change your fishing method.

- You have finished configuring the sensor.

You can have up to three different configurations for the sensor. When you change your fishing method, you can apply a corresponding configuration in one click. For example:

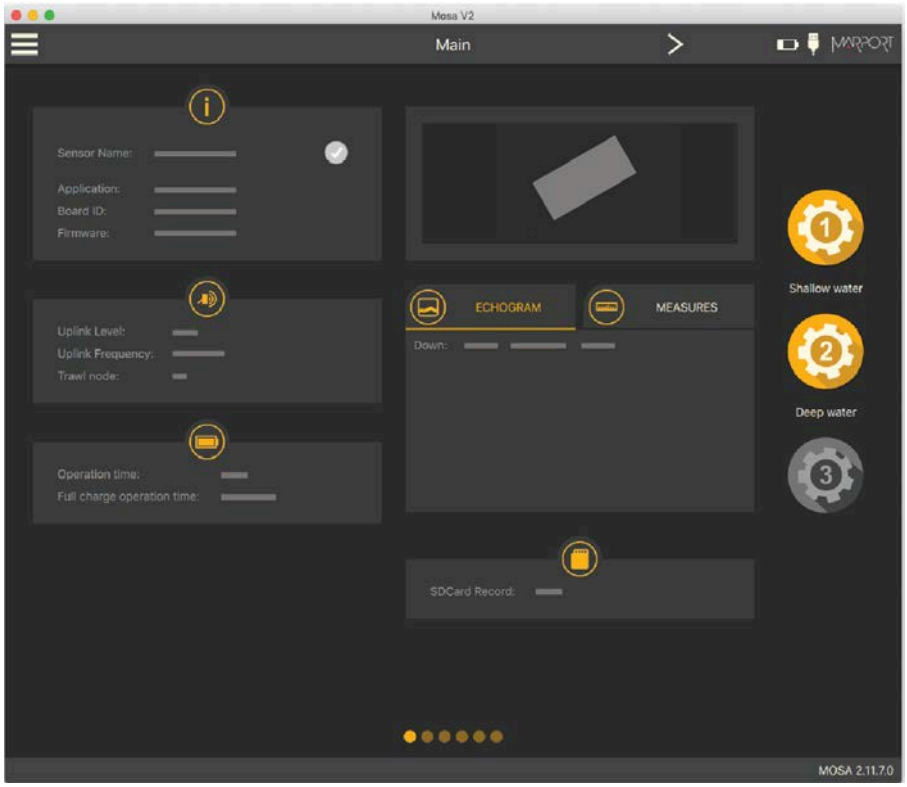
- If fishing in shallow water, you can use a configuration with an uplink level of 33%, a short pulse and a short range.
- If fishing in greater depths, you can change for a configuration with an uplink level of 100%, a long pulse and a long range.

1. When you are finished configuring the sensor, for example to use the sensor in shallow water, click one of the wheel icon on the first page of Mosa2.
2. In the window that appears, enter a name for the configuration and save it. The wheel icon becomes orange and the name of the configuration is displayed underneath.



3. To create another configuration, for example this time to use the sensor in deep waters, change the settings of the sensor on Mosa2.

4. When you are finished, click the second wheel icon and save the configuration.



5. If you need to change the sensor configuration back to the first configuration (shallow water), click the corresponding wheel.
   The configuration is applied.
6. If you need to make changes to a configuration:
   a. Change settings.
   b. Maintain the click on the corresponding wheel until the **Manage Configuration** window appears.
   c. Click **OK** in **Save Current Configuration**.
7. To delete a configuration:
   a. Maintain the click on the corresponding wheel until the **Manage Configuration** window appears.
   b. Click **OK** in **Delete Saved Configuration**.

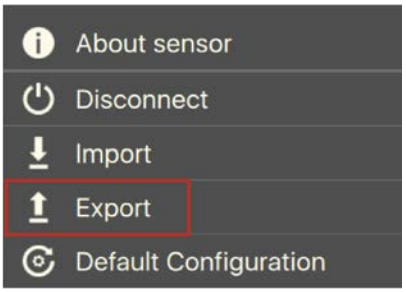
Exporting Sensor Configuration

You can export the sensor settings you configured on Mosa2 on a file. You can afterward use this file when configuring a similar sensor.

- You are finished configuring the sensor.

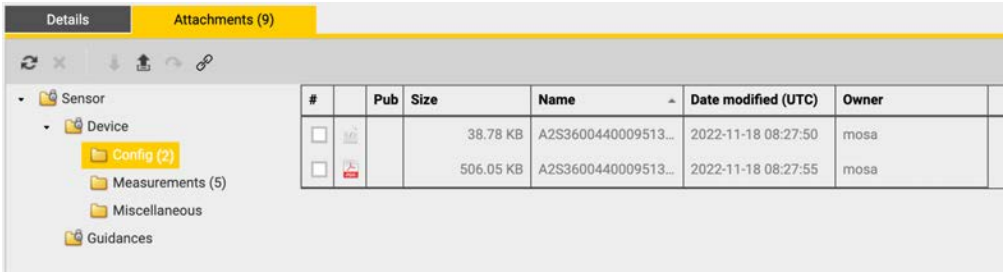
If you have issues with your sensor, send this file to support teams.

1. Click **Menu** **> Export**.



2. From the window that appears, choose a folder on your computer to save the file and click **Open**.

The configuration file is exported and saved on your computer as an A2C file. If you are connected to the internet, it is also automatically sent to MASP in XML and PDF files:



Importing a Sensor Configuration

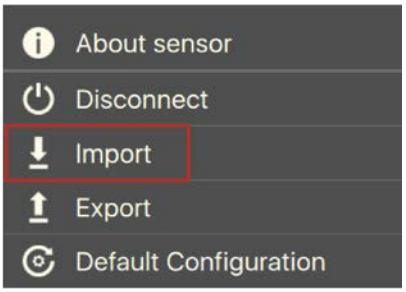
You can apply to a sensor a configuration that has already been made on another sensor.

- You have exported a configuration (see **Exporting Sensor Configuration (on page 33)**) and have the *.A2C or XML configuration file.

Only the following settings are imported: trawl node, recording settings (SD card, support logs), communication options (virtual water switch, simulation mode), uplink level and frequency, echo sounder settings.

Important: If the new configuration changes the echo sounder settings, you must re-calibrate the sensor for target strength value.

1. Press command + A or click **Menu** and click **User Mode > Advanced**
2. Click **Menu** **> Import**.



3. From the window that appears, select the *.A2C or XML configuration file.

The configuration is loaded into the sensor.

System Configuration & Display

System Configuration and Display

Learn how to configure the receiver and display the sensor data in Scala2 application.

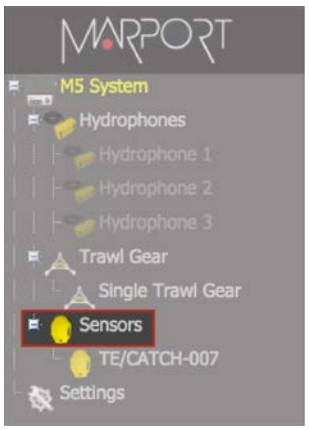
Adding the Sensors to the Receiver

You need to add the sensors to the receiver in order to display their data on Scala2.

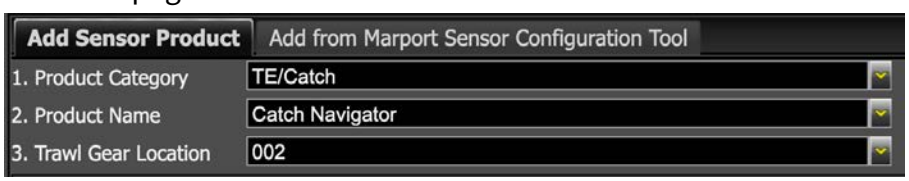
Adding the Sensors to the Receiver

You need to add the sensors to the receiver using the system web page.

1. From Scala2, click **Menu** **> Expert Mode** and enter the password `copernic`.
2. Right-click the IP address of the receiver at the bottom of the page, then click **Configure Receiver**.
3. From the left side of the receiver page, click **Sensors**.



4. From the page **Add Sensor Product** select:

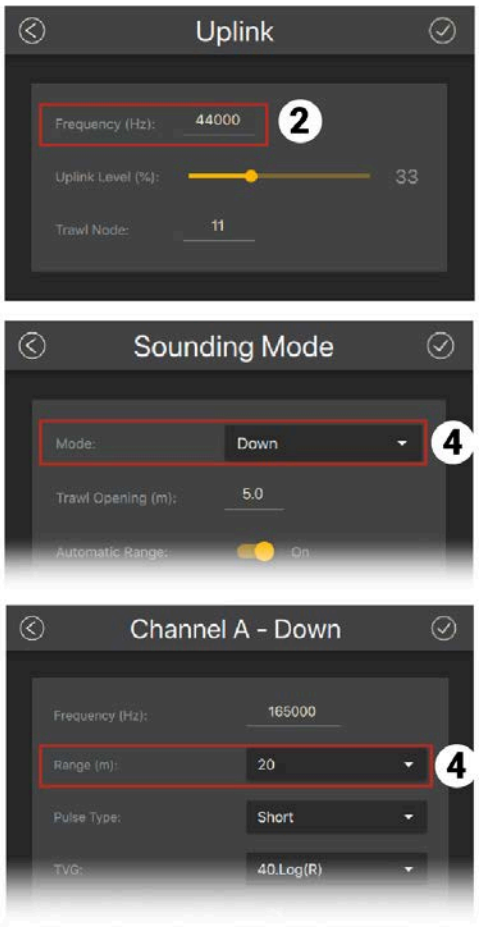


   a. **Product Category**: TE/Catch
   b. **Product Name**: Catch Navigator
   c. **Trawl Gear Location**: same as defined in Mosa2 (see **Configuring the Trawl Node (on page 18)**).

Configuring the Sensor Settings

You need to complete communication settings when you add the sensor to the receiver.

Important: Make sure the settings you enter here are the same as in Mosa2.



1	Sensor name displayed in Scala2 and its features.
2	Enter the same frequency as the one entered for the uplink frequency in Mosa2.

3	Click **Configure** to change filters applied on incoming data. Filters are particularly useful to reduce interferences on the echogram data. **Note:** Be aware that echogram filters such as **Echosounder and Interference Reduction** may remove small targets on the echogram. **Tip:** Please refer to Scala2 user guide for more information about the filters.
4	Select the same sounding direction and range as those set in Mosa2.

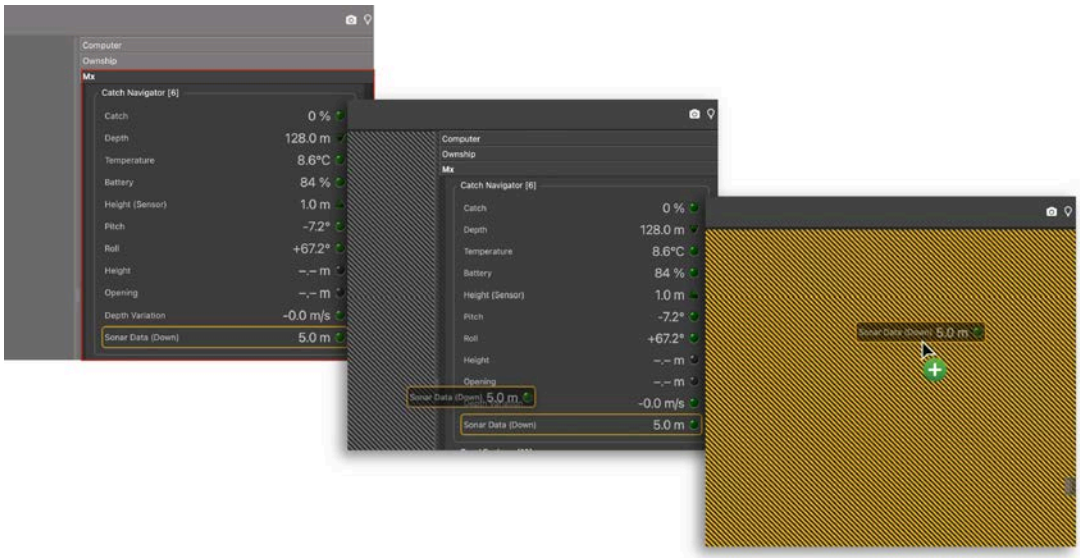
Click **Apply** when you have finished.

Configuring Data Display in Scala2

You can display the sensor's measurements and echograms on Scala2 pages.

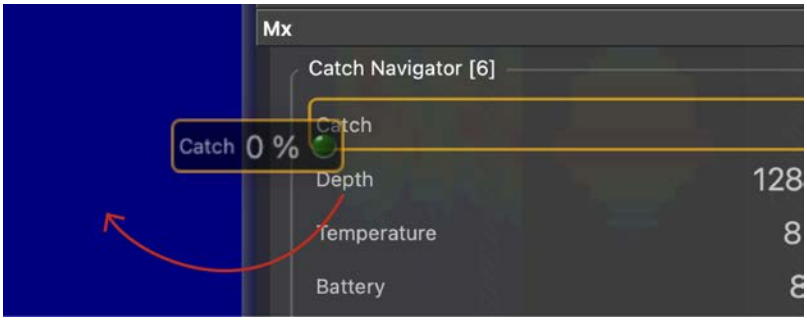
Connect in **Customize** mode to configure the display of data. From the top left corner of the page click **Menu** **> Customize** and enter the password `eureka`.

1. Open the control panels and go to the **Mx** tab.
2. To display the echograms, click + hold **Sonar Data** from a Catch Navigator sensor and drag it to the page display.



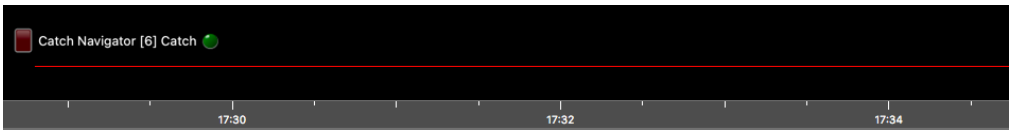
3. To know if the trawl is filling up:

a. Open the control panels and drag **Catch** data to a page.

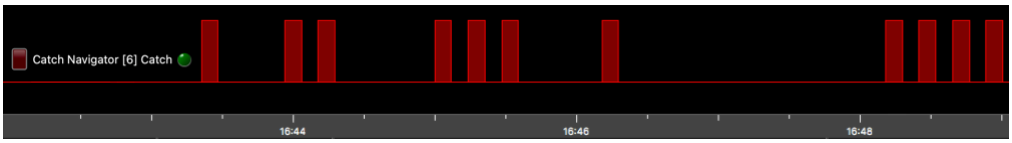


b.

When the codend is empty, the history plot is:

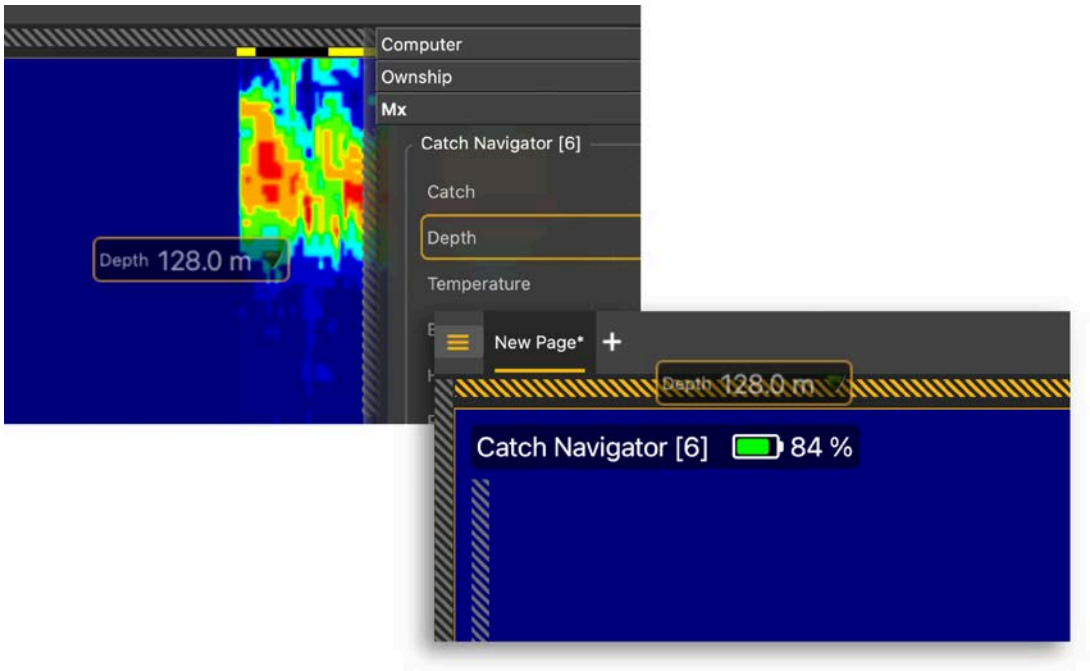


When the codend is filling up:

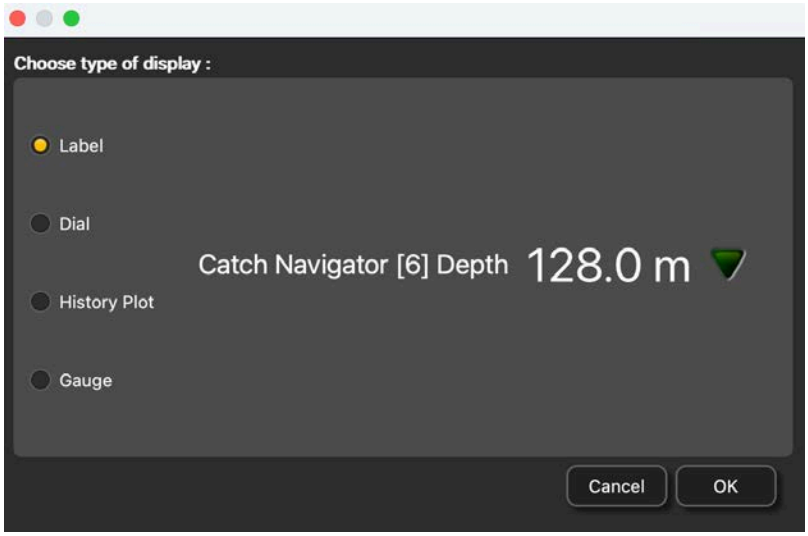


When the codend is full:

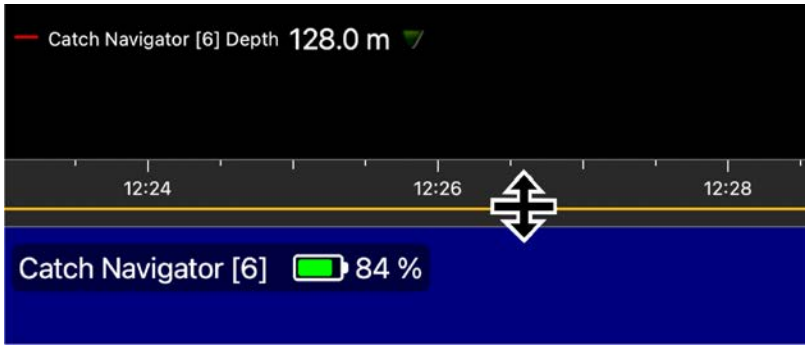
4. Click + hold other data, such as depth, pitch, roll, and drag it as well to the page display.



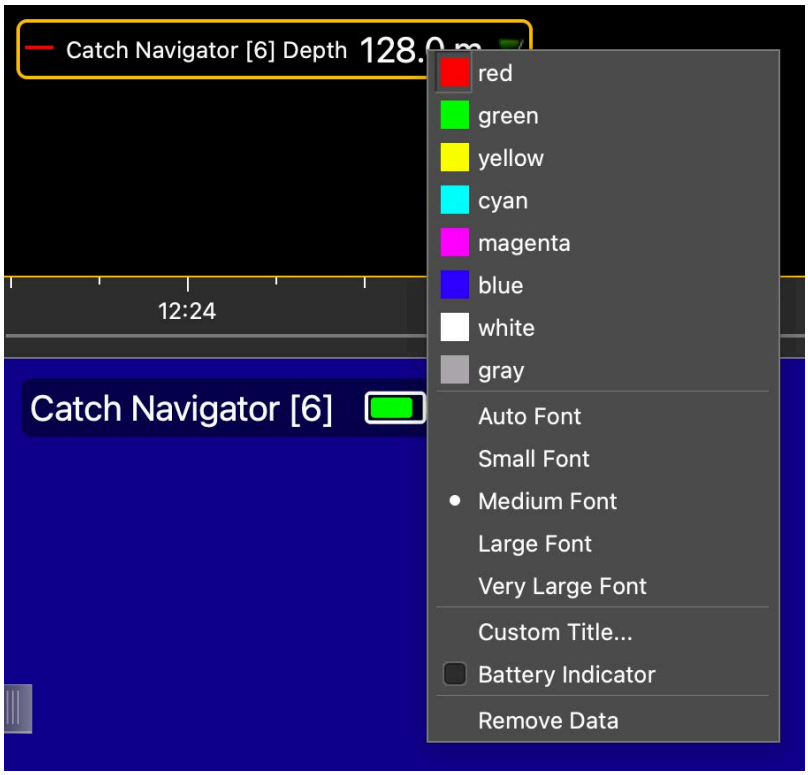
5. Select the type of display.



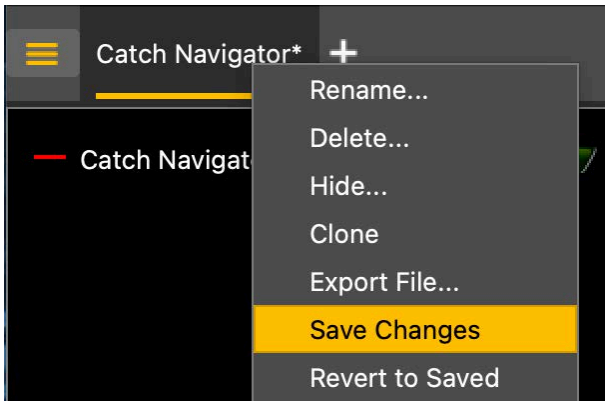
6. Drag the lines around the blocks of data to resize them.



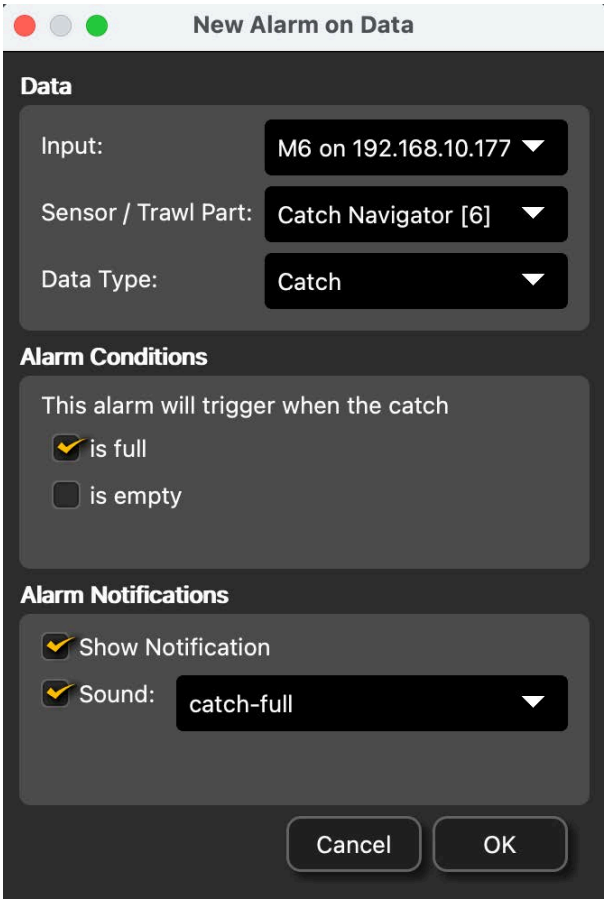
7. Right-click the title or the values of the data to display customization options.



8. To save the changes, right-click the tab with the name of the page and click **Save Changes**.



9. To be alerted when the trawl is full:
    a. From the top left corner of the screen, click **Menu** **> Settings**.
    b. From the **Settings** dialog box, go to the **Alarms** tab.
    c. Click **Add**.
    d. In **Alarm Data** and **Alarm Conditions**, enter the following settings:

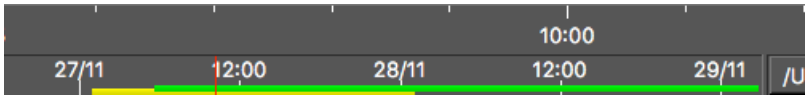


Replaying Data from A2S Files

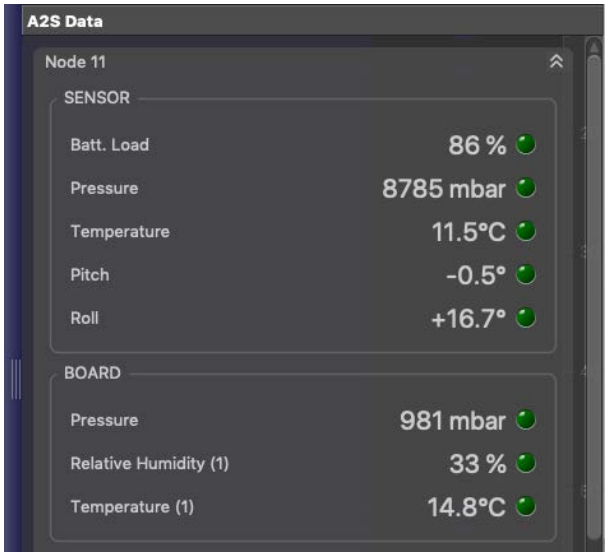
You can replay data that have been recorded in high definition on the SD card.

Note: Data in high definition is available only when downloading them from the SD card of the sensors. Data received in Scala2 in live will have a lower definition.

1. Download A2S files from Mosa2
2. Right-click the timeline and click **Change Directory** to choose the source directory where A2S files are stored.
   In the replay bar, the recording period of A2S files is displayed in green.



   In the control panels, data that were received in live are displayed in the **Mx** panel and data recorded on the SD card are displayed in the **A2S Data** panel.



3. Go to the control panels, then click and drag data from the **A2S Data** panel to a page.

Installation

Installation

Learn how to install the sensor on the trawl gear.

Installing the Catch Navigator on the Trawl

Sensors can be installed with the pull cords on the side or on the center of the sensor.

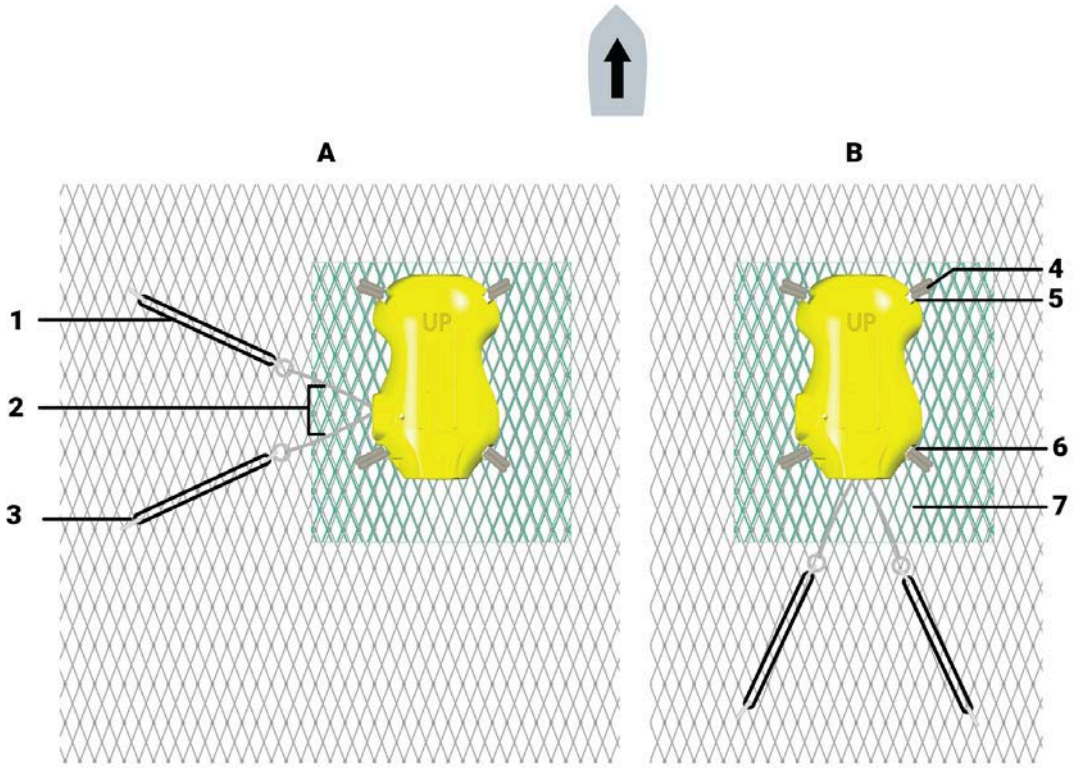
Pull cords are attached to the net. When the net fills up and the meshes expand, cords are pulled and this triggers the catch sensor.

1. Install the sensor on the top of the codend with the **UP** side of the housing oriented toward the vessel. You can install a double-mesh piece of netting to stabilize the sensor. Make sure there is nothing in front of it that would block its signal.

   Tip: If the meshes of the net obstruct the Catch Navigator signal, you can install the sensor inside the codend.

2. Securely attach the sensor to the net by its front and back attachment lugs:
   a. We recommend to attach the front and back attachment lugs with rope. This prevents metal to metal contact and extends the life of the housing.
   b. When you attach the sensor, stretch the net codend at the point where you need the catch status to become full.
   c. Once installed, make sure that when the net is fully stretched out it does not cause stress on the attachments points.

3. Attach one end of each rubber strap to the pull cords of the sensor, and the other ends to the net. Make sure the pull cords are taut enough to trigger when the net is full, but loose enough not to trigger when the net is empty.



A. Side-pull

B. Center-pull

1. Rubber strap

2. Pull cords

3. Snap hook

4. Knot with rope

5. Front attachment lug

6. Back attachment lug

7. Double-mesh piece of netting for stabilization

Maintenance & Troubleshooting

Maintenance and Troubleshooting

Read this section for troubleshooting and maintenance information.

Charging the Sensor with the Dock

Connect a sensor to one of the 4 charging connectors of the Dock to display its level of charge.

- Make sure the Dock is connected to a power supply and turned on.

Warning: In case of water ingress in the product, do not charge it: battery may vent or rupture, causing product or physical damage.

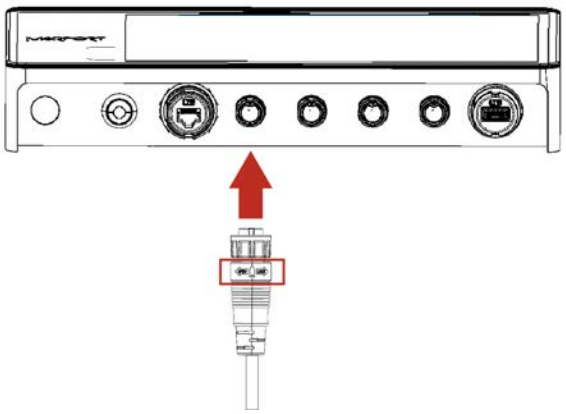
Note: For Dock products with serial number before DOC2107XXX: Do not leave the sensors connected on a charger that is switched off. If the charger is not connected to the mains voltage, the sensor switches on and this will drain the battery.

Note: Avoid full discharges and charge the battery whenever possible, at any battery level. Lithium-ion batteries do not have a charge memory, so they do not need full discharge cycles.

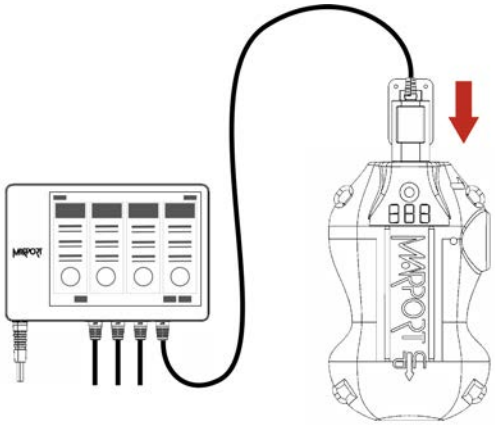
1. Before charging the sensor: wash with fresh water and dry the sensor. This prevent corrosion of the charging pins.

   Important: Check that the charging pins are not damaged. If they are, contact you local Marport dealer for replacement.

2. Connect the charger plug to one of the 4 charging ports.



3. Connect the 3-pin charging connector to the sensor charging pins.



The Dock screen and Virtual Charger Room display the state of charge of the sensor.

Cleaning the Sensor

You need to regularly clean the sensor for proper performance.

Wash the sensor with fresh water and dry it before you charge or store it.

Regularly check that the sensor is clean. If not:

- Wash away mud or debris with warm water.
- Use Isopropyl alcohol to clean the end cap and transducer. Use a steel wool pencil to clean the shoulder bolts, and very fine sandpaper (180 grit) to clean between them.

Notice: Do not use highly abrasive materials or jet wash.

Notice: Special care should be taken with sensors and components sensitive to mechanical shock or contamination.

Regularly clean the pull cord magnet or it may stop working: remove the metal disk fixed on the housing and clean the magnet with a swab or Q-tip. See **Replacing the Pull Cords (on page 52)** to know how to remove the components.

Maintenance Checklist

We recommend you to follow this maintenance schedule for better performance and to avoid any trouble with the equipment.

Before use	• Check that all attachment equipment are not worn or torn. Replace when appropriate. • Check that the sensor is clean. See **Cleaning the Sensor (on page 50)** for cleaning procedures. • Check the battery level 24 hours before use and recharge if necessary.
After use	Wash the sensor with fresh water.
Between uses	When the sensor is not in use, store in a dry area, without humidity, at a temperature between -10° and 70 °C (14 to 158 °F).

Not used for more than 3 months	• Do not leave the batteries at full charge or discharged for a long period of time or they will wear out. • Every 6 months, put the sensor in charge for less than an hour.
Every 2 years	The sensor must be returned to an approved Marport dealer for inspection and maintenance.

If the sensor has not been not used for more than 3 months, we highly recommend to check the following points before using it:

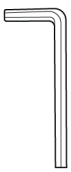
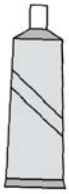
- Make sure the sensors on the end cap are in good condition and clean.
- Connect the sensor to a charger and check the charging status.
- Switch on the sensor by shorting the center lug to the negative lug, then listen for a ping noise and check if you see the LED switched on.
- Test the sensor measures with Mosa2: depth, temperature, pitch, roll, and if applicable: spread distance, echogram, catch status, speed measures (using the EM log tester).
- If you have a test hydrophone, check the reception in the wheelhouse with Scala.

Replacing the Pull Cords

You can replace the catch pull cords when they are worn out or damaged.

Before you begin

For this task you need the following tools:

	
9/64" Allen key	Anti-seize

About this task

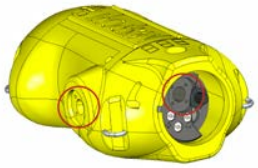
Only qualified Marport technicians can do this task.

Procedure

1. Remove the old pull cords.

a. Remove the four screws on the pull cord assembly with a 9/64 size Allen key.
b. Remove the cords, spring and magnet from the hole.

2. Install the new pull cords.



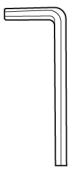
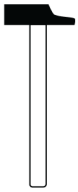
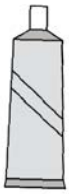
a. Install the new pull-cord assembly on the side or on the end cap of the sensor.
b. Apply anti-seize on the four screw threads, then tighten the screws with the 9/64 size Allen key.

Replacing the Catch Magnet

You can replace the magnet that is part of the pull cord assembly when the magnet is broken.

Before you begin

For this task you need the following tools:

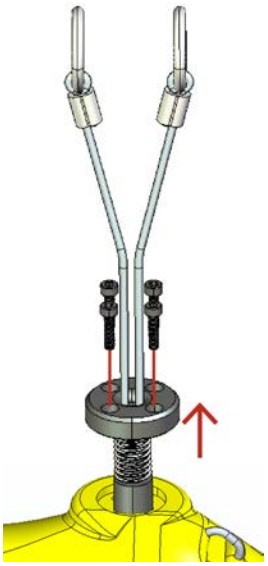
			
9/64" Allen key	Drift punch / pliers	Arbor press / hammer	Anti-seize

About this task

Only qualified Marport technicians can do this task.

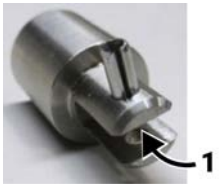
Procedure

1. Remove the old pull cords.



a. Remove the four screws on the pull cord assembly with a 9/64 size Allen key.
b. Remove the cords, spring and magnet from the hole.

2. If the pull-cords are in good condition, only replace the magnet.



a. To remove the old magnet, remove the pin between the arms of the magnet using a drift punch or pliers.
b. Slide the rope end between the arms of the new magnet with the pin facing up **(1)**.
c. Install the pin down through housing arms to secure rope in place. You can use an arbor press or hammer.
d. Check that the rope is not pinched between the pin and housing arms and that the pin does not interfere with the spring.

3. Install the new pull-cord assembly.

a. Put the new pull-cord assembly in the hole on the side or end cap of the sensor.
b. Apply anti-seize on the four screw threads, then tighten the screws with the 9/64 size Allen key.

Troubleshooting

Learn how to solve common problems.

Mosa2 does not open due to error message

Mosa2 displays an error message saying it cannot be opened.

➜ Your Mac security preferences do not allow you to open applications not downloaded from the App Store.

1. From the upper left corner of the screen, click **Apple menu > System Preferences > Security & Privacy** .
2. Click the lock icon and enter the password, if applicable.
3. At **Allow apps downloaded from**, select **Anywhere**, then close the dialog box.
4. **macOS Sierra or later: Anywhere** option is not displayed by default. To display **Anywhere**:
    a. Click the magnifying glass from the top right corner of your screen and type `Terminal`.
    b. Click **Terminal** from the results.
    c. Enter in the terminal: `sudo spctl --master-disable`.
    d. Press Enter.

    Anywhere option is now displayed in **Security & Privacy** preferences.

Sensor does not connect correctly with Mosa2 when using the Configuration Cable

Remember: If the sensor does not connect correctly with Mosa2, always:

- Disconnect both USB connector and three-pin plug.
- Connect again the Configuration Cable.
- Make sure the three pins are fully inserted inside the sensor.

➜ Mosa2 does not automatically open when connecting the Configuration Cable.

- Check that you see Marport Captain icon in the desktop taskbar. If you do not see it: close, then open Mosa2. The icon should appear in the taskbar.

  Note: Marport Captain is a program running in the background. It allows Mosa2 automatic opening and displays shortcuts to Mosa2 and Scala applications installed on the computer. It should not be closed.

- If the problem persists, install Mosa2 again.

➔ At the end of step 2 of the configuration wizard, the sensor does not respond. Mosa2 displays a red cross and the Configuration Cable LED is red.

- Check that no other instance of Mosa2 application is already running on the computer. If this is the case, close both applications, then open only one.
- Or else, connect the sensor to a charger and wait until it is fully charged.

➔ The sensor has been disconnected from Mosa2.

- Check that the Configuration Cable is not connected to a USB hub. The Configuration Cable must be connected directly to the computer.
- If the computer goes to sleep mode, the sensor may be disconnected. Change the settings on your computer to increase the time before sleep mode.
- If the problem persists, connect the sensor to a charger and wait until it is fully charged. Then try again to connect.

➔ Mosa2 displays a critical error message.

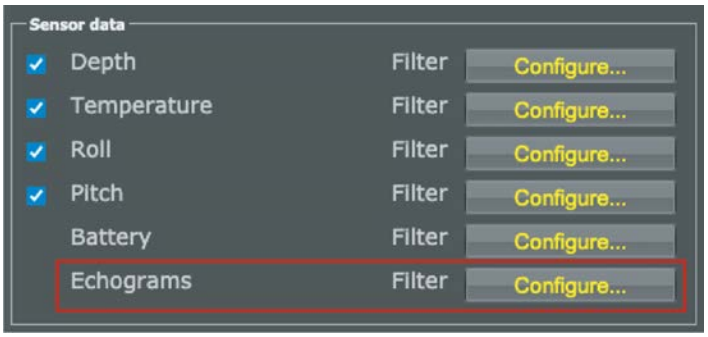
- Disconnect both USB connector and three-pin plug. Then, connect again the Configuration Cable. If the message is still displayed, it means there is an issue with the sensor's components. Contact Marport support.

The echogram has a lot of interference

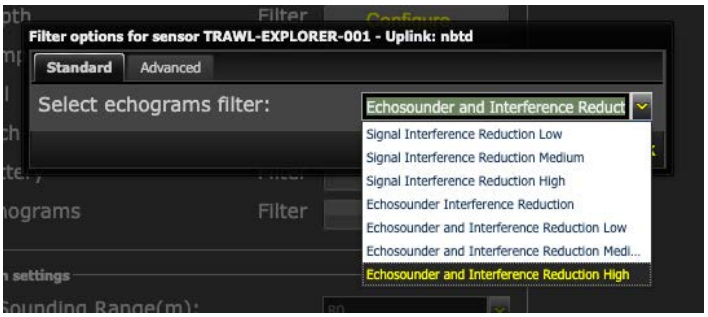
➔ There are interference from environmental noise or other equipment such as echosounders. You need to increase the level of the echogram filter in Scala2.

Important: Increase the level of the echogram filter only if the echogram has a lot of interference. Be aware that this filter will remove small targets.

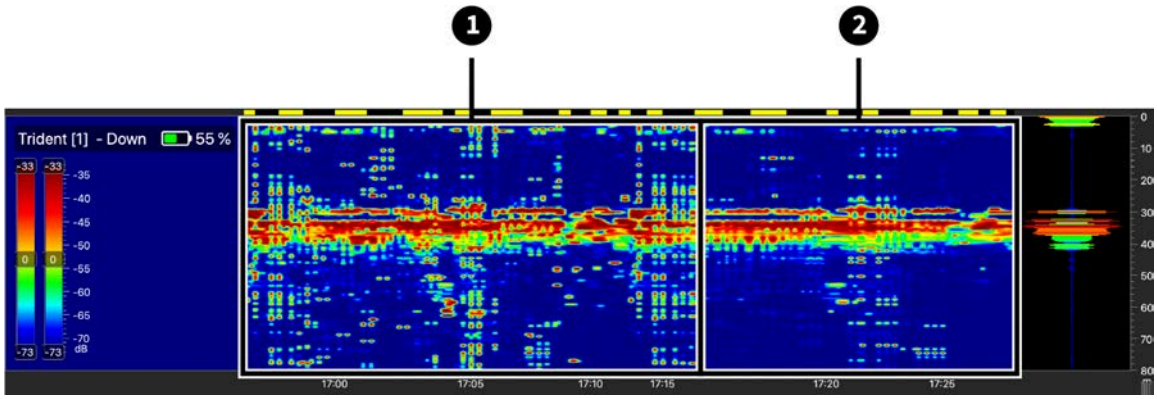
1. From Scala2, click **Menu** **> Expert Mode** and enter the password `copernic`.
2. Right-click the IP address of the receiver at the bottom of the page, then click **Configure Receiver**.
3. Click the name of the sensor in the system tree view.
4. In **Sensor Options**, click **Configure** in front of **Echograms**.



5. In **NBTE Echograms Filter**, select **Echosounder and Interference Reduction Medium** or **Echosounder and Interference Reduction High**.



Here is an example of result when applying this filter:



1. Noisy echogram with default filter (**Echosounder and Interference Reduction Low**)

2. With **Echosounder and Interference Reduction High** filter applied.

Support Contact

You can contact your local dealer if you need maintenance on your Marport products. You can also ask us at the following contact details:

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Marport France SAS
8, rue Maurice Le Léon
56100 Lorient, France
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Appendix

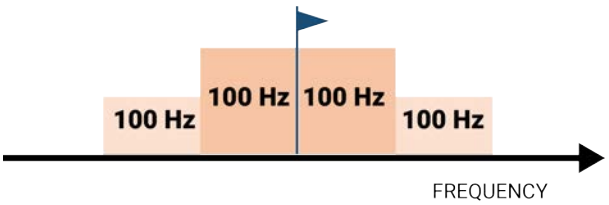
Frequency Plan

It is important to carefully plan the setup of your sensors before adding them to the system. You can create a table with a list of frequencies and complete it when you add sensors.

Frequencies and intervals

The diagrams below show the bandwidth of the different types of Marport sensors and intervals you must respect when adding other sensors.

Figure 1. PRP sensors (e.g. Catch sensor, Trawl Speed, Spread sensor...)

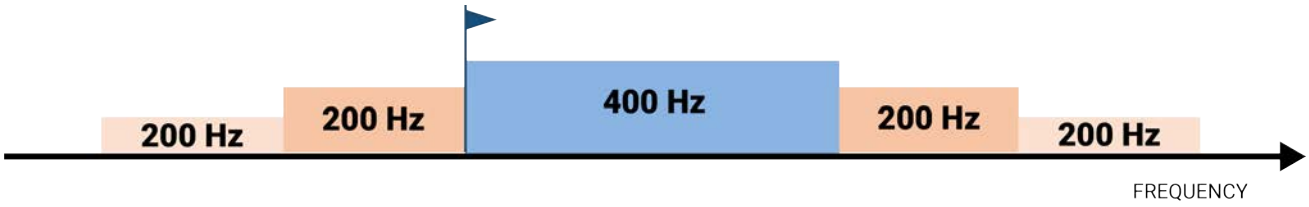


Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.9-40kHz and 40-40.1kHz.

Figure 2. Marport Pro sensors (e.g. Trident, Door Explorer, Trawl Navigator, Speed Navigator)

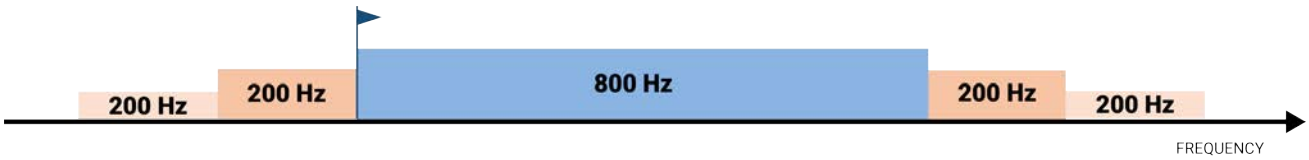
Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.8-40kHz and 40-50.2kHz.

Figure 3. NBTE sensors (e.g. Speed Explorer, Trawl Explorer, Catch Explorer, Catch Navigator, Door Sounder)



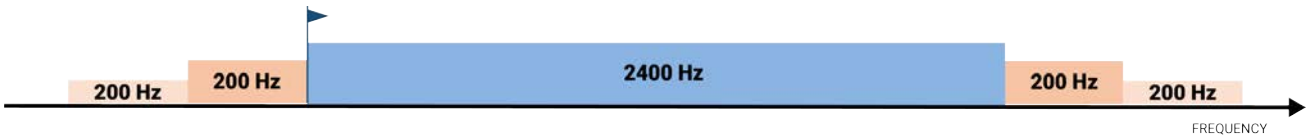
Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.8-40kHz and 40-40.6kHz.

Figure 4. HDTE narrow band mode



Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.8-40kHz and 40-41kHz.

Figure 5. HDTE wide band mode



Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.8-40kHz and 40-42.6kHz.

Frequency of the sensor

Bandwidth

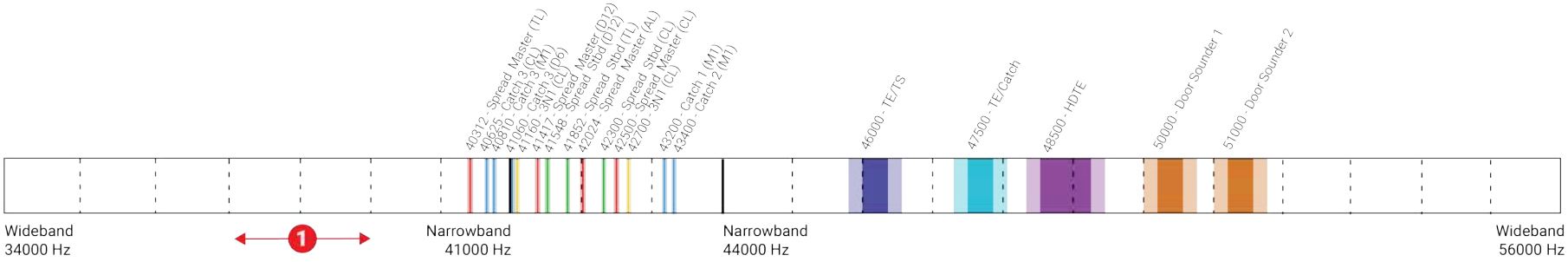
Mandatory distance with other sensors

Recommended distance with other sensors

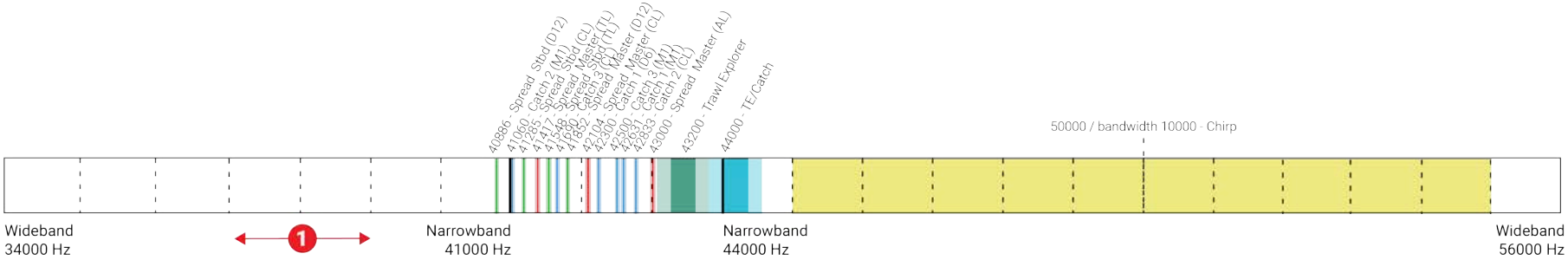
Examples of frequency allocations

- We recommend to allocate frequencies between 34 and 56 kHz for wideband hydrophones and between 41 kHz and 44 kHz for narrowband hydrophones.
- Echosounders are usually placed around 38 kHz, make sure to allow enough distance with them.

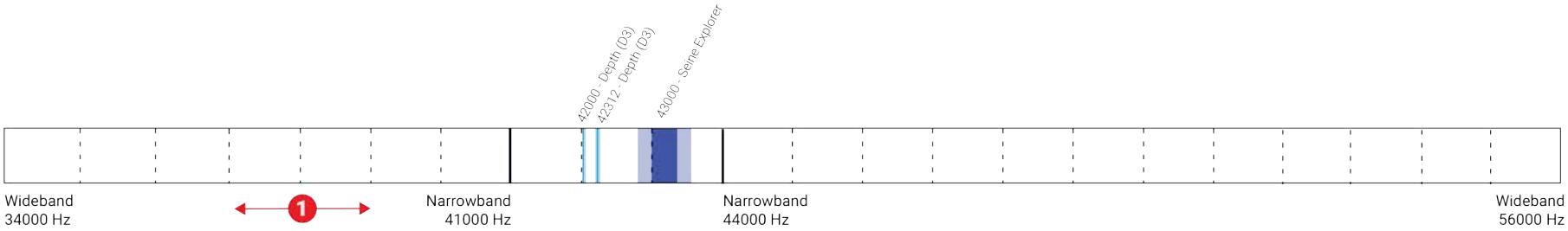
Example of a system with Spread, Catch, Trawl Speed sensors and Speed Explorer, Catch Explorer, HDTE and Door Sounder.



Example of a system with Spread sensors with positioning, Catch sensors, Trawl Explorer and Catch Explorer.



Example of a system for purse seining, with a Seine Explorer and depth Seine sensors.



Bandwidth

Mandatory distance with other sensors

1 Avoid allocating frequencies between 37 and 39 kHz because this range is generally used by echosounders.

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