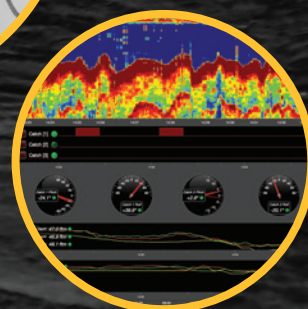


Catch Sensors User Guide



MARPORT

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Legal

Disclaimer

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History

V1	10/02/17	First release
V2		
V3		

Introduction and Presentation

Tip: Click Marport logo at the bottom of pages to come back to the table of contents.

Introduction

Marport's catch sensors tell you when your trawl starts to fill. Placed on the top of the trawl codend, they monitor the amount of catch that you have and warn you when the trawl is full. You can even use them to determine a precise amount of fish inside the trawl net. This way, you can monitor the contents of the codend as 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 follow the filling processes.

There are two types of catch sensors:

- Catch sensor: gives you the catch status of the trawl (empty or full), along with depth, water temperature and pitch and roll information. Catch sensors can emit on a single frequency of 40 kHz (Marport, Scanmar) or 70 kHz (Simrad, Wesmar), or on a dual frequency (40 kHz/70 kHz).
- Catch Explorer: gives you the catch status of the trawl, with depth, water temperature and pitch and roll information. In addition, it provides an echogram image of the volume of catch inside the codend.



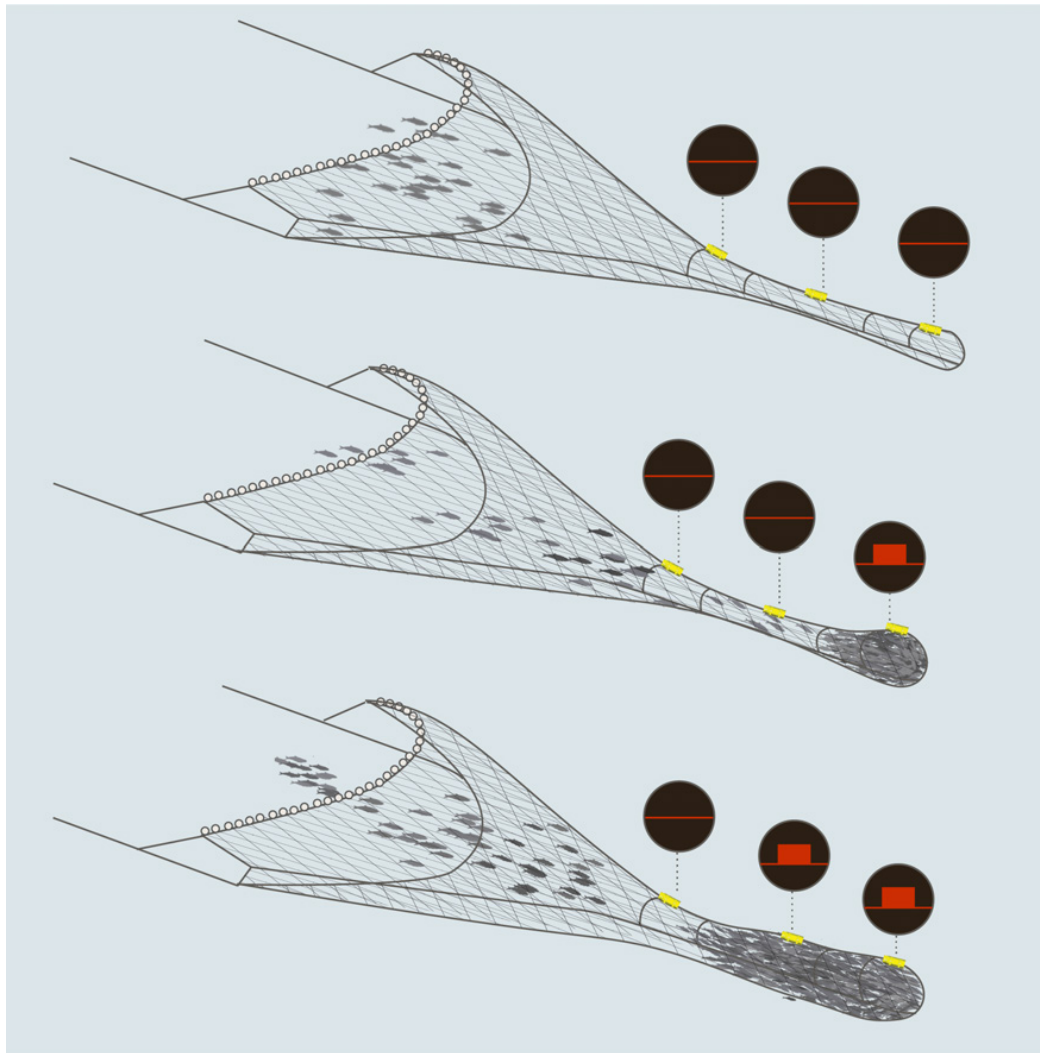
Applications

Here are some examples of data received from Catch Explorer and Catch sensors displayed in Scala.

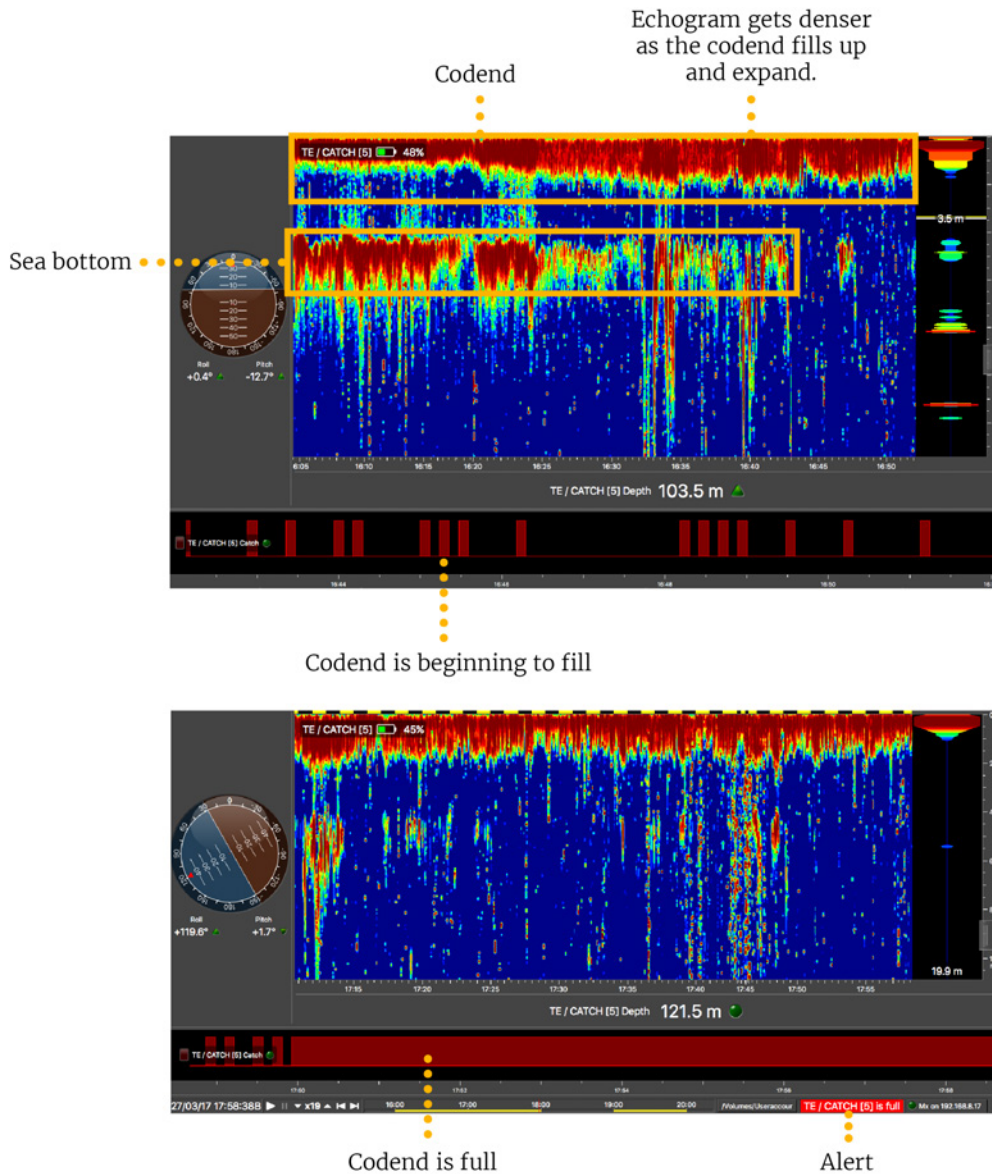
Catch Control System Installation

You can install several sensors on the codend to better follow the filling processes. It is very useful to determine the amount of fish inside the trawl net: you can prevent damage to fish and increase the security of crew and vessel.

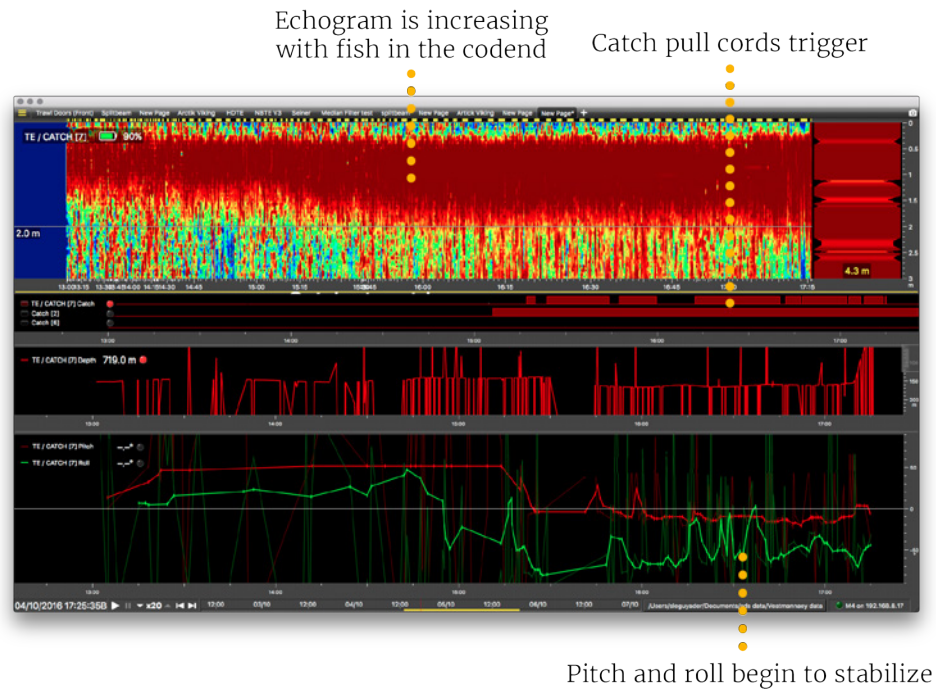
For example, you can install three sensors on the codend. They will trigger one by one, according to the amount of fish inside the codend. After a few tows, you can estimate the amount of tonnage of fish that you have depending on whether one, two or three sensors display a full status.



Catch Explorer display



When the codend is full, you cannot see the sea bottom anymore because fish may block the signal.



Catch sensors display

Examples of 3 catch sensors with depth, pitch and roll.



Safety Guidelines

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

Basic good practices

When using the product, be careful: mechanical shocks can cause damage to the electronic components inside.

Never place the product in a hazardous and/or flammable atmosphere.

Product installation and use

Install and use this product in accordance with this user manual. Incorrect use of the product may cause damage to the components or void the warranty.

Only qualified Marport dealers can do internal sensor maintenance and repairs.

Precautions

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

Description

Firmware

About Catch Firmware

- Standard Catch firmware is compatible with Marport and Scanmar systems. Sensors emit at a frequency around 40kHz.
- Catch hybrid 70 firmware is compatible with Marport, Scanmar, Simrad and Wesmar systems. Sensors can emit at 2 frequencies: 40kHz (Marport, Scanmar) and 70kHz (Simrad, Wesmar).
- Catch hybrid PI firmware is compatible with Simrad PI, Marport and Scanmar systems. Sensors can communicate with Simrad PI and Marport or Scanmar systems at the same time.

Product Name	Firmware Name	Firmware Number
Catch	Catch	FIRM001
	Catch with depth	FIRM017
	Catch with depth, temp	FIRM018
	Catch with pitch & roll	FIRM002
	Catch with pitch & roll, depth	FIRM022
	Catch with pitch & roll, temp	FIRM019
	Catch with pitch & roll, depth, temp	FIRM023
	Catch with temp	FIRM016
Catch hybrid 70	Catch hybrid70	FIRM005
	Catch hybrid70 with depth	FIRM025
	Catch hybrid70 with depth, temp	FIRM006
	Catch hybrid70 with depth, temp, pitch & roll	FIRM008
	Catch hybrid70 with pitch & roll	FIRM007
	Catch hybrid70 with depth, pitch & roll	FIRM027
	Catch hybrid70 with pitch & roll, temp	FIRM026
	Catch hybrid70 with temp	FIRM024
Catch hybrid PI	Catch hybrid sensor (Simrad PI + 70 kHz)	FIRM033

Product Name	Firmware Name	Firmware Number
	Catch hybrid PI	FIRM028
	Catch hybrid PI with pitch, roll, depth	FIRM029
	Catch sensor with depth (Simrad PI)	FIRM034
Catch compatible with Simrad and Wesmar only	Catch compatible Simrad 70 + Wesmar	FIRM003
	Catch compatible Simrad PI	FIRM009
Catch twister	Catch roll twister	FIRM037
Catch Explorer V2	TE/Catch	FIRM127
Catch Explorer V3	TE/Catch V3	FIRM130
	TE/Catch V3 with depth	FIRM131
	TE/Catch V3 with depth, pitch & roll	FIRM133
	TE/Catch V3 with depth, temp, pitch & roll	FIRM134
	TE/Catch V3 with pitch & roll	FIRM132

Technical Specifications

Catch Sensor

Uplink frequency	30 to 60 kHz
Range to vessel	up to 2500 m*
Depth range	up to 1800 m
Pitch angle	$\pm 90^\circ$
Roll angle	$\pm 90^\circ$ ($\pm 180^\circ$ for catch twister)
Pitch & roll accuracy	$\pm 0.1^\circ$
Depth resolution	0.1 m with 0.1% accuracy
Temp measurement range	-5° C to $+25^\circ \text{ C}$
Temp accuracy	$\pm 0.1^\circ \text{ C}$
Data update rate	Catch full: 20 sec. - Catch empty: 30 sec. - Depth: 3-8 sec. - Temp: 3-16 sec. - Pitch & roll: 5-14 sec.
Typical battery life	Up to 740 hours †
Charging time	Standard: 6-8 hours ‡
	Fast Charge: 2.5 hours
Battery type	Lithium-Ion
Weight in air	5 kg
Weight in water	0.9 kg
Warranty	2 years (Sensor & Battery) **

Catch Explorer

Uplink frequency	30 to 60 kHz
Range to vessel	up to 2500 m*
Sounder range	V2: 5-80 m V3: 5-160 m
Sounder broadband frequency	Configurable between 360-400 kHz
Pitch angle	$\pm 90^\circ$
Roll angle	$\pm 180^\circ$
Pitch & roll accuracy	$\pm 0.1^\circ$
Depth resolution	0.1 m with 0.1% accuracy
Temp measurement range	-5° C to $+25^\circ \text{ C}$
Temp accuracy	$\pm 0.1^\circ \text{ C}$

Data update rate	V2: depth, catch: 2-3 sec. - temp, pitch, roll, battery: 12-24 sec. - echogram: 1-2 sec. V3: depth, catch: 4 sec. - temp, pitch, roll, battery: 17 sec. - echogram: 1.5 sec.
Typical battery life	Up to 19 hours †
Charging time	Standard: 6-8 hours ‡
	Fast Charge: 2.5 hours
Battery type	Lithium-Ion
Weight in air	5 kg
Weight in water	0.9 kg
Warranty	2 years (Sensor & Battery) **

*Reference only. Depends on functions enabled. / † Depends on sensor uplink power and options. / ‡ Based on average charging time. / **Marport Standard Marine Limited Warranty

Catch Explorer Beamwidths

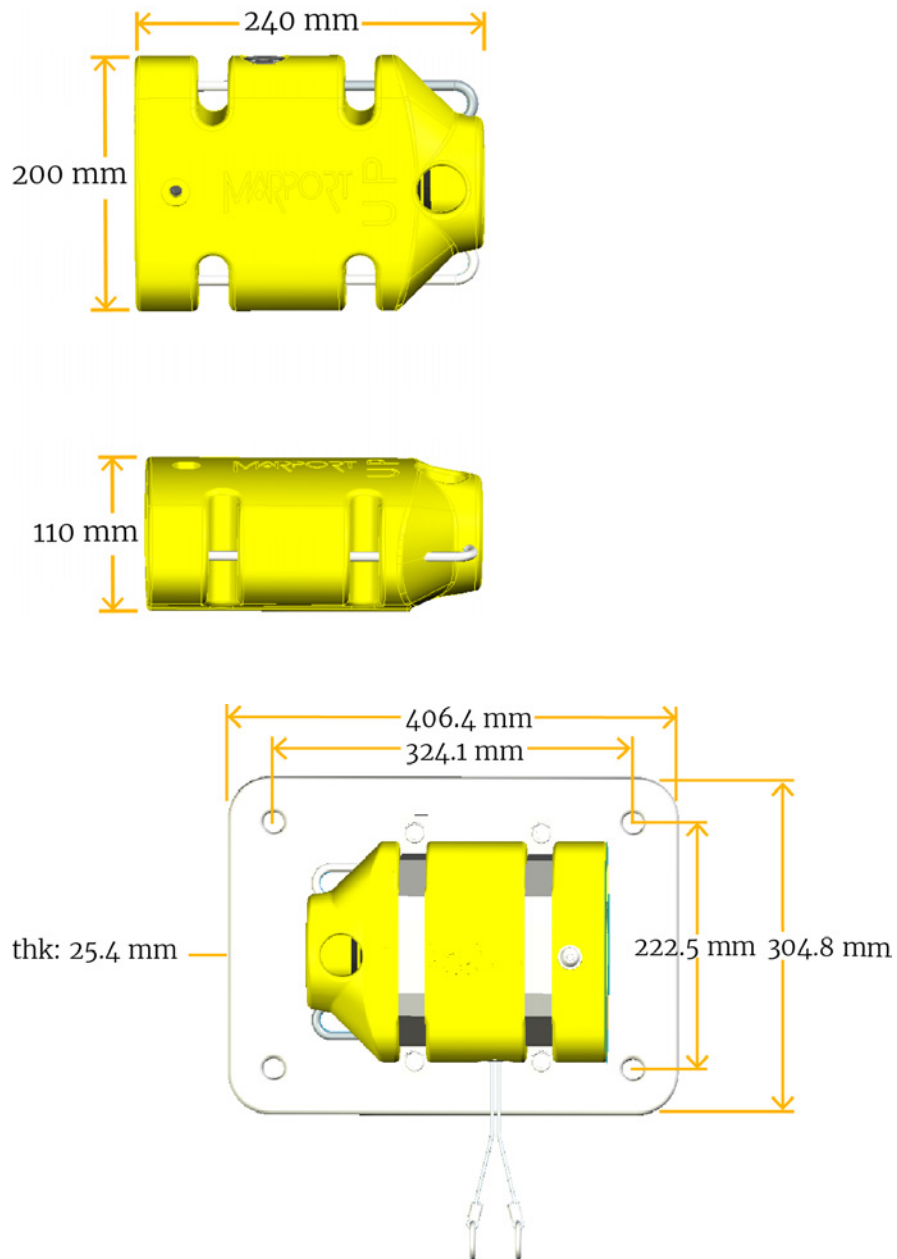
Beamwidths for Uplink pings

Beamwidth	@ 35 kHz	@ 50 kHz	@ 60 kHz
-3dB	46°	40°	30°

Beamwidths for Down pings

@ 360 kHz	
-3dB	13°

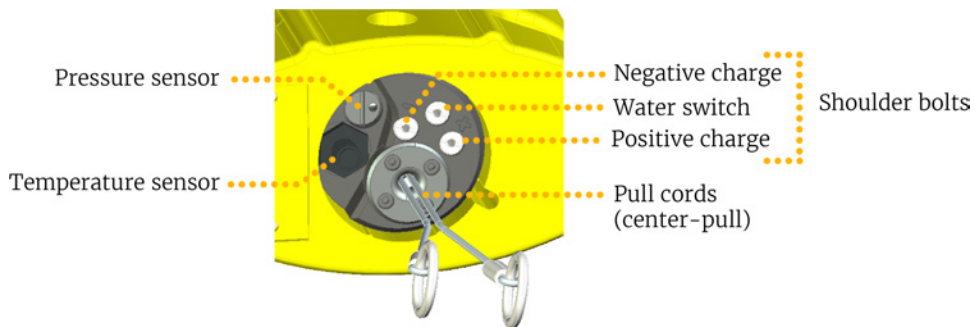
Dimensions



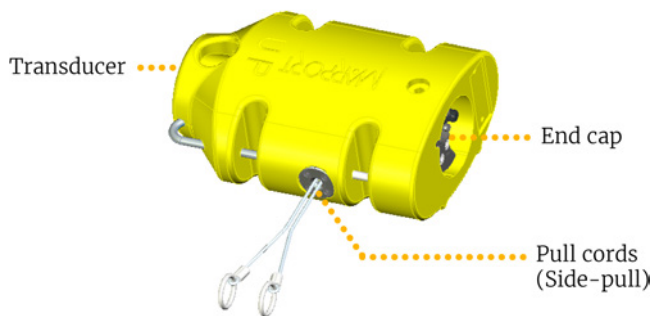
Main Parts

External View

End cap



Side view

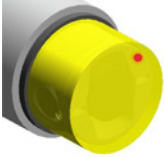
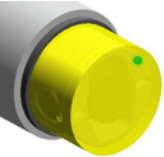


On the transducer, down sounder is identified with a circle and a A.



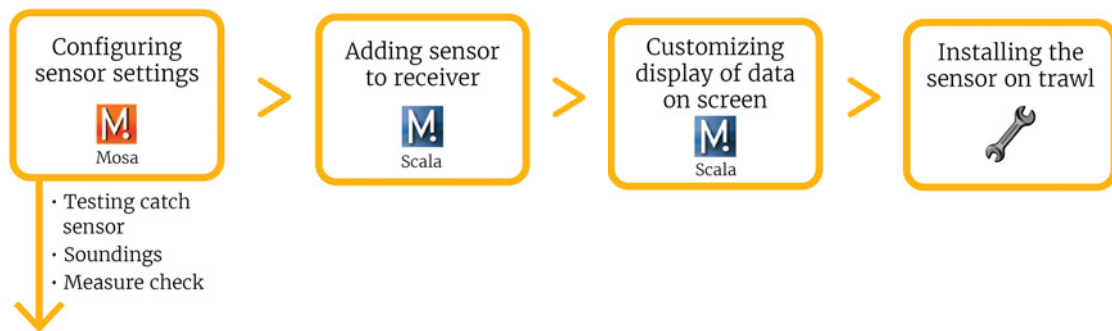
Operational Mode Indicator


Indicators from the transducer

State	Situation	Operation	LED
Charging	Charger plug is connected.	Batteries are charging.	No light.
Running	Sensor is in water or activated with jumper.	After an initialization phase, echo sounder is operating.	 Flashing red
Configuring	Sensor is out of water.	Configuration via Bluetooth. Turns off after 10 minutes without user action.	 Flashing green

Installation Steps


 **Tip:** Click an installation step to jump directly to the corresponding section.



 **Note:** You can customize the display of data on Scala at any time.

Sensor Configuration

Read this section to learn how to configure catch sensor parameters.

 **Note:** This guide refers to the following versions of Mosa: 01.01.01, 01.02.00. If you use another version, the visual interface and options may vary slightly.


Installing Mosa

If Mosa is not already installed on your computer, you need to install it to configure the sensor.

Procedure

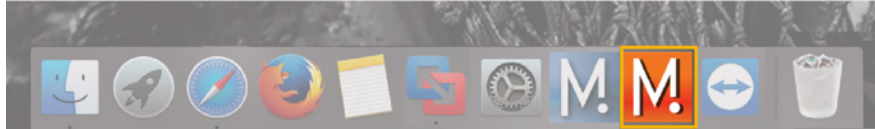
1. Double-click the *.dmg file received from Marport.
2. From the installation window that appears, drag the Mosa icon to the **Applications** icon.



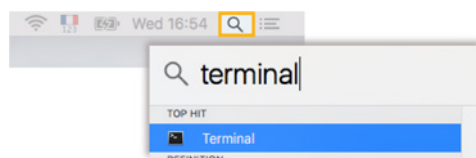
Mosa is added to the **Launchpad** .

3. From the **Launchpad** , click and drag Mosa icon to the Dock at the bottom of the screen.

To open Mosa, click its icon on the Dock.



4. If you have an error message when trying to open Mosa, change the **Security & Privacy** settings:
 - a) From the upper left corner of the screen, click **Apple menu** > **System Preferences** > **Security & Privacy**.
 - b) From the lower left corner of the **Security & Privacy** dialog box, click the lock icon and enter the password, if applicable.
 - c) At **Allow apps downloaded from**, select **Anywhere**, then close the dialog box.
 - d) If you are under macOS Sierra, **Anywhere** option may not be displayed by default. To display **Anywhere**:
 - Click the magnifying glass from the top right corner of your screen and type **Terminal**.
 - Select **Terminal** from the results.



- From the terminal, enter `sudo spctl --master-disable`.
- Press enter.

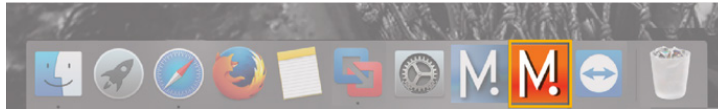
Anywhere option is now displayed in **Security & Privacy** preferences.

Connecting the Sensor to Mosa

To configure the sensor, you need to connect it via Bluetooth to Mosa.

Procedure

1. Open Mosa.



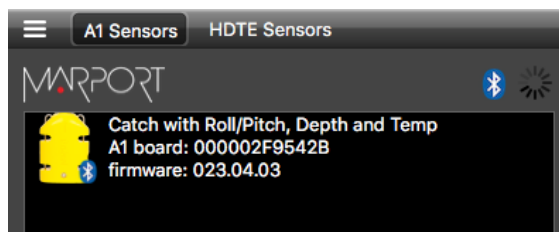
2. Connect the water-switch.

The LED flashes red.

3. Disconnect the water-switch.

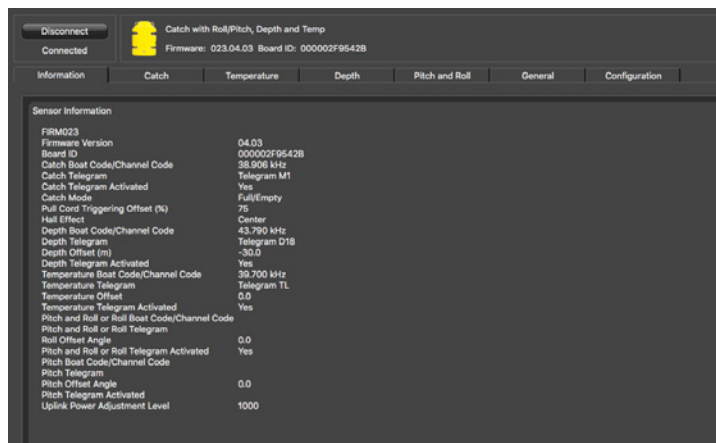
After a few seconds, the LED flashes green.

4. From Mosa, wait a few seconds for the sensor to be recognized. The sensor appears from **A1 Sensors** on the left side of the window.



5. Click the sensor name.

Sensor configuration page is displayed.



What to do next

You can now configure the sensor settings.

Calibrating the Catch Sensor

You need to calibrate the catch sensor to make sure you have correct catch measures. This procedure applies for both Catch Explorer and Catch sensors.

Before you begin


The sensor is connected to Mosa.

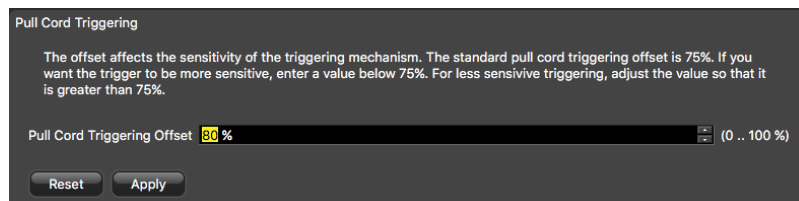
About this task


Catch sensors have two pull cords that are attached to the net. When the trawl fills up, the meshes of the net expand and this pulls the cords. When the cords are pulled up to a certain point, it triggers the catch sensor.

Pull cords can be on the end cap of the sensor (center-pull) or on the side (side-pull). Calibration procedure is the same for both types.

Procedure

1. Click the tab **Catch**.
2. From **Catch Mode**, check that the catch mode is correct:
 - **Center** when pull cords are on the end cap on the top of the sensor.
 - **Side** when pull cords are on the side of the sensor.
3. To change the threshold at which the catch status becomes full when the cords are pulled:
 - a) Click **Menu**  > **Expert Mode** and enter the password **copernic**.
 - b) From the tab **Catch**, click **Pull Cord Triggering**.
 - c) Adjust the offset. Standard offset is 75%.
 - Enter a value below 75% if you want the catch status to become full when the cords are not entirely extended.
 - Enter a value above 75% if you want the catch status to become full only when the cords are fully extended.



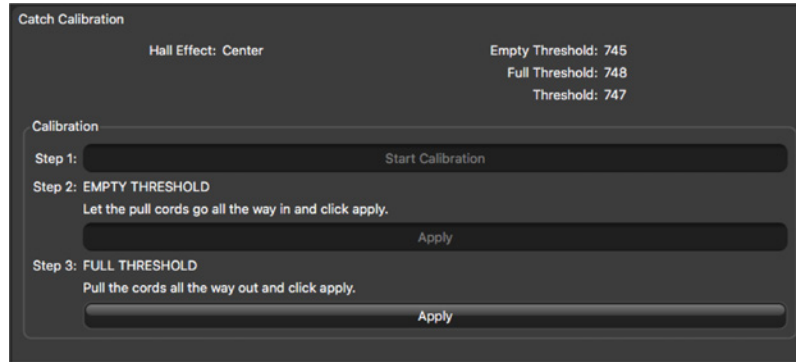
 **Important:** For proper operation, do not set the percentage below 65% or above 85%.

4. To calibrate the catch sensor, from the tab **Catch**, click **Catch Calibration**.
5. Click **Start Calibration**.
6. To calibrate the sensor for the empty status:
 - a) Let the cords hang loose.

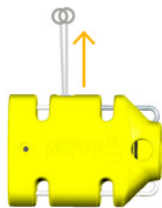


- b) From **Step 2: EMPTY THRESHOLD**, click **Apply**.

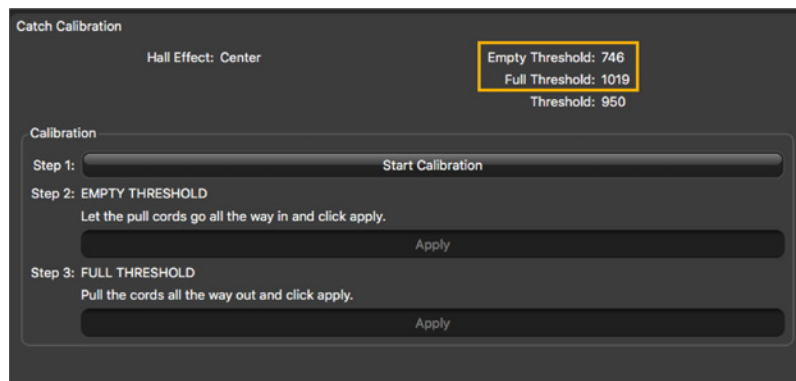
After a few seconds, the **Apply** button becomes gray.



7. To calibrate the sensor for the full status:
 - a) Pull and hold the cords as far as possible.



- b) At the same time, click **Apply** from **Step 3: FULL THRESHOLD**.
After a few seconds, the **Apply** button becomes gray. Measures from **Empty Threshold** and **Full Threshold** change.



What to do next

You can test the catch sensor to check if the empty or full status appear correctly when the cords are pulled.

Testing the Catch Sensor on Mosa

You need to test the catch sensor to check if the empty/full status works correctly. You can do this regularly.

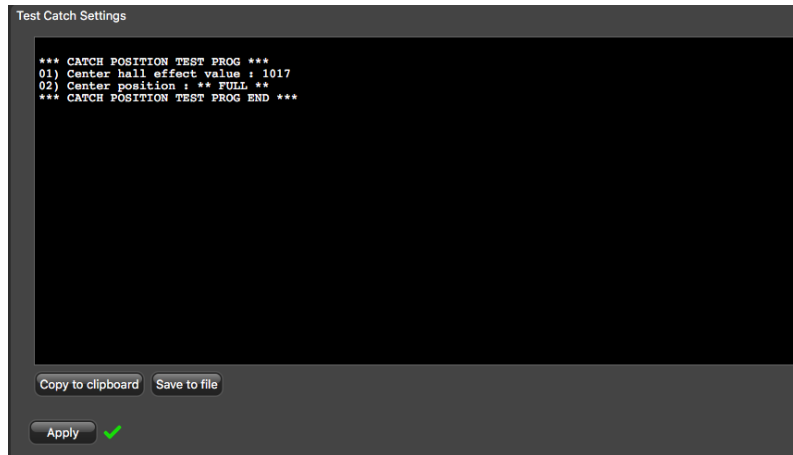
Before you begin

The sensor is connected to Mosa.

Procedure

1. Click the tab **Catch**.

2. Click **Test Catch Settings**.
3. Pull the cords to a desired length and click **Apply** at the same time.
Measures are displayed in the black area.



4. Check from **Center/Side position** that the measure is correct:
 - EMPTY: pull cords hang loose or are pulled for three-quarters of the length.
 - FULL: pull cords are pulled at the maximum length.

 **Note:** The empty/full status depends on the **pull cord triggering offset** set in **Catch** parameters.

Catch Explorer Specific Settings

You need to set these settings for a Catch Explorer sensor.



Configuring the Uplink and Down Settings

You can configure different settings for uplink and down soundings.

Before you begin

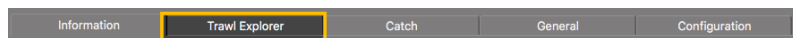
The sensor is connected to Mosa.

About this task

-  **Remember:** Always click **Apply** after you change a setting and make sure there is a green check mark .

Procedure

1. Click the tab **Trawl Explorer**.



- From **Down Sounding Range**, select the range according to how many meters you want to see under the sensor.

Down Sounding Range

The choice of range modifies the data update rate (Depth,Temp,Pitch,Roll,Batt) transmitted by the sensor.

UP/DOWN -> data Updated

- X / 5m -> 0.65s
- X / 10m -> 0.75s
- X / 20m -> 0.95s
- X / 40m -> 1.2s
- X / 90m -> 1.45s
- X / 160m -> 1.95s
- 10m / 80m -> 1.65s
- 40m / 80m -> 2.2s
- 80m / 80m -> 2.4s

Sounding Range Down 20 m

Reset Apply

Note: When you configure the range, be aware that it influences the display of echogram images. When the range is short, data can arrive quicker, which gives better quality images. But the bigger the range is, the lesser the image quality is, because data arrives slower.

Note: The sounding range automatically changes to 20 meters if the distance to the bottom becomes lower than 20 meters. This way, the echogram displays better quality images when the distance to the bottom is smaller. This is the autorange feature. If you do not want the range to adjust automatically, from **Trawl Opening**, enter 20 m or more.

Important: This parameter must be the same in the sensor settings in Scala.

- From **Ping Down Length**, enter a pulse length. Pulse length depends on the distance at which you need to detect fish:

Ping Down Length

Ping Down Length 0.1 ms (0.0 .. 2.0 ms)

Reset Apply

- Detection between 20 cm and 2 m, enter 0.1 ms (recommended for Catch Explorer sensors)
- Detection above 50 cm, enter 0.4 ms.

Note: **TE/Catch V3** Ping length is an important setting for the calibration of the sensor. If you change the ping length on a sensor calibrated for target strength, you need to calibrate the sensor again.

- From **Ping Down Frequency**, enter the frequency for the down sounding.

Ping Down Frequency

Ping Down Frequency 360.000 kHz

OL Down Frequency 815.000

Reset Apply

Important: Frequency needs to be between 360–400 kHz.

Important: **TE/Catch V3** Ping frequency is an important setting for the calibration of the sensor. If you change ping frequency on a sensor calibrated for target strength, you need to calibrate the sensor again.

- From **TE Uplink Frequency**, enter a frequency for the Uplink (signal toward the vessel).

Important: This parameter must be the same in the sensor settings in Scala.

- If you use the autorange feature, from **Trawl Opening**, enter a trawl opening to be sure the sensor will search for the bottom beginning from a certain distance. This prevents the sensor from confusing the bottom of the codend with the bottom of the sea. For example, if the bottom of the codend is at 4 meters, enter a greater distance, such as 5 meters.

- TE/Catch V3** For V3 version of the sensor, **Down channel minimum TS** helps you detecting targets on the echogram. You can put -79 dB if you want to detect small targets. Otherwise, leave the default settings at -73 dB.

Important: This parameter must be the same in the sensor settings in Scala.

- From **Down TVG Mode**, select the appropriate TVG (Time Variable Gain) mode.

Note: Signals sent by the sensor are attenuated in the water. It means the deeper the target is, the more attenuated signals will be received and sent back. TVG (time variable gain) is here to compensate this effect by using a lower gain level when signals travel toward a target at a small distance and higher gain level when signals travel toward deeper targets. The end result is to compensate sounding attenuation and therefore to show a same target strength for a same target at different depths.

TE/Catch V3 For V3 version of sensors:

- 20 log: better target strength for the bottom or a school of fish (recommended for Catch Explorer sensors).
- 40 log: better target strength for individual targets.
- 30 log: compromise between the two above settings.

TE/Catch V2 For V2 versions of sensors:

TVG Down	
TVG Coefficient	0.500 (0.100 .. 1.000)
Attenuator Coefficient	-25 (+/-80)
VCO Coefficient	3 (1 .. 10)
<input type="button" value="Reset"/> <input type="button" value="Apply"/>	

- From **TVG Coefficient**, enter between 0.500 and 0.520 to have approximately the equivalent of 20 log (recommended for Catch Explorer sensors), 0.75 for 30 log or 1 for 40 log.
 - From **Attenuator Coefficient**, enter between **-15** and **-25**.
Note: This coefficient is specific to Catch Explorer sensors.
 - Leave **VCO Coefficient** default settings at 3.
9. You can add a delay to the update of data to increase battery lifetime:
- a) Click **Menu** > **Expert Mode** and enter the password **copernic**.
 - b) From **Delay Prp**, enter a delay between 1 and 5 seconds.

Configuring Catch Sensor Telegrams

If you have a Catch sensor (40kHz), you need to configure the telegrams it transmits. This does not apply for Catch Explorer sensors.

About this task

Telegrams are types of signals sent by the sensor. One telegram corresponds to one type of data, such as temperature, depth.

The temperature, depth, pitch and roll options that are displayed on Mosa depend on the firmware installed.

- ⚠ **Important:** Make sure there is a minimum distance of 100 Hz between PRP telegrams, and of 200 Hz with the uplink frequency of NBTE sensors. See [Appendix A: Frequency Plan](#) on page 59 for a full list of boat/channel codes.
- 🔒 **Remember:** Always click **Apply** after you change a setting and make sure there is a green check mark .

Catch

About this task

Catch telegrams are sent every 20 sec. for a full status and every 30 sec. for an empty status.

Procedure

1. Click the tab **Catch**.

Information	Catch	Temperature	Depth	Pitch and Roll	General	Configuration
-------------	--------------	-------------	-------	----------------	---------	---------------

2. From **Catch Boat Code/Channel Code**, choose a frequency.


Temperature

Procedure

1. Click the tab **Temperature**.



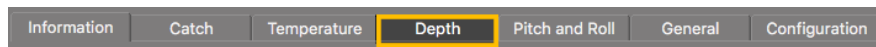
2. From **Temperature Boat Code/Channel Code**, choose a frequency.
3. From **Temperature Telegram**, choose between:
 - **Telegram TL**: sends data between every 11 to 16 sec.
 - **Telegram TN**: sends data between every 3 to 11 sec.

 **Note:** TN sends data more often, but it reduces the battery life.


Depth

Procedure

1. Click the tab **Depth**.



2. From **Depth Boat Code/Channel Code**, choose a frequency.
3. From **Depth Telegram**, choose among the telegrams according to the depth at which you are fishing. They all send data every 3 to 8 sec, but at different depth ranges.

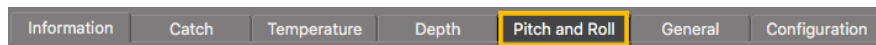
 **Note:** The lower the depth range is, the more precise the measures are.

 - D3 = 300 m
 - D6 = 600 m
 - D12 = 1200 m
 - D18 = 1800 m


Pitch and Roll


Procedure


1. Click the tab **Pitch and Roll**.



2. If you send pitch and roll data on the same channel:
 - a) From **Pitch and Roll or Roll Boat Code/Channel Code**, select a frequency.
 - b) From **Pitch and Roll or Roll Telegram**, choose between:
 - **Telegram CL**: sends data every 11 to 14 sec.
 - **Telegram VQ**: sends data every 5 to 9 sec.

 **Note:** VQ sends data more often, but it reduces the battery life.
3. If you send pitch and roll data on two different channels:
 - a) From **Pitch and Roll or Roll Boat Code/Channel Code**, select a channel for roll data.
 - b) From **Pitch and Roll or Roll Telegram**, choose roll telegrams between:
 - **Telegram D3**: sends data every 3 to 8 sec.
 - **Telegram AL**: sends data every 11 to 15 sec.

 **Note:** D3 sends data more often, but it reduces the battery life.
 - c) From **Pitch Boat Code/Channel Code**, select a channel for pitch data.

- d) From **Pitch Telegram**, choose between:
 - **Telegram D6**: sends data every 3 to 4 sec.
 - **Telegram AN**: sends data every 3 to 6 sec.
4. You can deactivate pitch and roll data to save battery life:
 - a) From Mosa, click **Menu**  > **Expert Mode** and enter the password **copernic**.
 - b) To deactivate the roll: from **Pitch and Roll or Roll Activation**, select **No**.
 - c) To deactivate the pitch: from **Pitch Activation**, select **No**.

Catch Hybrid PI

About this task

Catch hybrid PI firmware is compatible with Simrad PI, Marport and Scanmar systems. Sensors can communicate with Simrad PI and Marport or Scanmar systems at the same time.

Catch data are sent to Simrad PI system and to Marport or Scanmar systems. Depth, temperature, pitch and roll data are sent only to Marport or Scanmar systems.

Procedure

1. Click the tab **Catch**.



2. The settings for catch data sent at 40kHz and settings for depth, temperature, pitch and roll data are the same as above.
3. From **Catch PI Frequency**, choose a frequency to communicate with a Simrad PI receiver.
4. From **Catch PI Telegram**, choose the update rate of data sent to Simrad PI receiver. The update of data is quicker when **Fast** is set, but this reduces the battery life.
 - **Telegram Fast**: sends a full status signal every 5 sec. / Empty status every 5.5 sec.
 - **Telegram Normal**: full status every 32 sec. / Empty status every 34 sec.
 - **Telegram Slow**: full status every 123 sec. / Empty status every 126 sec.
5. If you need to deactivate the transmission of data to PI system, click the tab **Catch** and from **Catch PI Activation**, select **No**.

Catch Hybrid 70

About this task

Catch hybrid 70 firmware is compatible with Marport, Scanmar, Simrad and Wesmar systems. Sensors can emit at 2 frequencies: 40kHz (Marport, Scanmar) and 70kHz (Simrad, Wesmar).

Catch data are sent at 70kHz and 40kHz frequencies. Depth, temperature, pitch and roll data are sent only to 40kHz (Marport, Scanmar).

Procedure

1. The settings for catch data sent at 40kHz and settings for depth, temperature, pitch and roll data are the same as above.
2. From **Catch 70kHz Channel**, choose an appropriate channel for Simrad or Wesmar receivers.

- If you need to deactivate the transmission of data at 70kHz, click the tab **Catch** and from **Catch 70 kHz Activation**, select **No**.

Configuring the Uplink Power

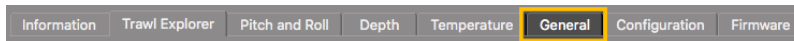
You can increase the uplink power of the sensor to increase the power of the signal transmitted. It is useful if you have interferences or if the sensor is far from the vessel.

Before you begin

The sensor is connected to Mosa.

Procedure

- From Mosa, click the tab **General**.



- From **Uplink Power Adjustment Level**, choose the uplink power (percentage is for Mosa 01.02.00 version and above):

Sensor	Recommended Uplink Powers	Conditions	Battery Life
Catch sensor	1800 / 43%	<ul style="list-style-type: none"> Sensor is far from vessel (e.g. high depth, placed on codend) High level of interferences Issues receiving data Low SNR 	approx. 30 days
	3080 / 92% and up to maximum	Increase if 1800 uplink power is not enough.	The more you increase the uplink power, the shorter the battery life becomes.
Catch Explorer	1800 / 58%	<ul style="list-style-type: none"> Sensor is far from vessel (e.g. high depth, placed on codend) High level of interferences Issues receiving data Low SNR 	<ul style="list-style-type: none"> Approx. 19 hours with PRP delay = 0 sec. Approx. 35 hours with PRP delay = 3 sec
	3080 / 100%	Increase if 1800 uplink power is not enough.	The more you increase the uplink power, the shorter the battery life becomes.

 **Note:** The average battery life also depends on the uplink frequency and range.


Testing Measures

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

Before you begin

The sensor is connected to Mosa.


Procedure

1. From Mosa, click **Menu**  > **Expert Mode** and enter the password **copernic**.
2. Click the tab **General**.
3. From **Measures Test**, click **Apply**.

The measures taken by the sensor are displayed.

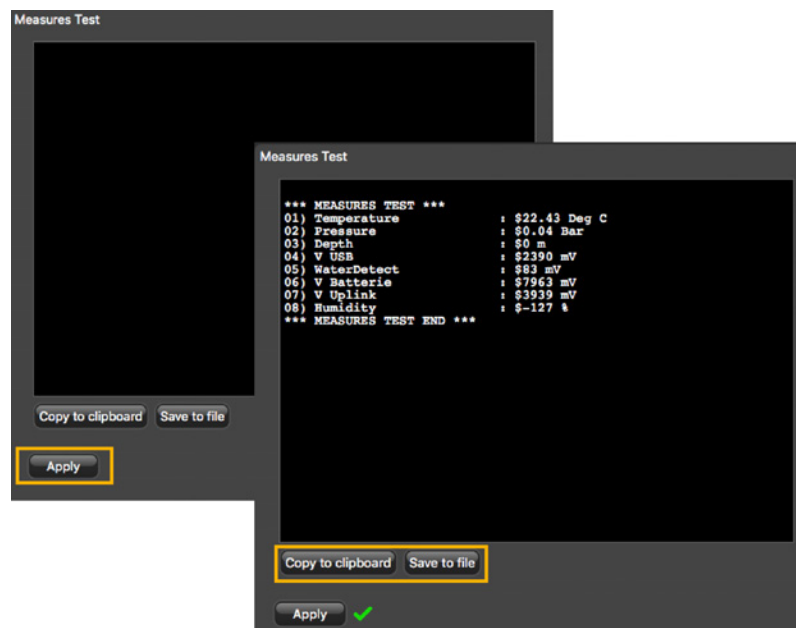
4. Check the following measures:

- The temperature is consistent with the sensor environment.
- The depth is between -1 and 1m.
- The battery is between 6.8V and 8.4V.

 **Troubleshooting:** If depth is incorrect, you can put an offset from **Depth** > **Depth Offset**.

The other measures are useful only for the support service.

5. To save the test on your computer:



- Click **Save to file** to download the file.
- Or, click **Copy to clipboard** then press **Cmd + V** on a word processor like Microsoft Word to paste the contents.

Exporting Configuration Settings for Record Keeping

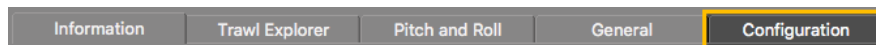
You can export the sensor configuration settings to a *.txt file.

Before you begin

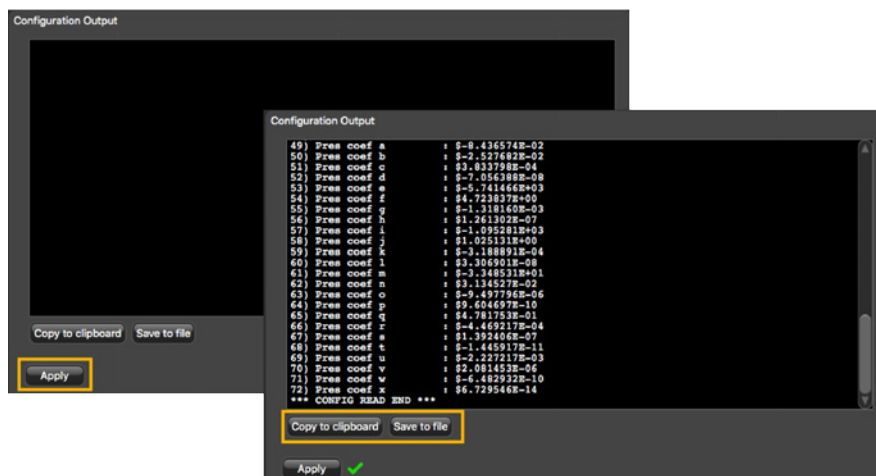
- You have finished configuring the sensor.
- The sensor is connected to Mosa.

Procedure

1. Click the tab **Configuration**.



2. Click **Configuration Output**.
3. Click **Apply** under the black area.
The settings are displayed.
4. To save the settings:



- Click **Save to file** to download the file on the computer.
- Or, click **Copy to clipboard**, then press **Cmd + V** on a word processor like Microsoft Word to paste the contents.

Exporting Sensor Configuration for Receiver

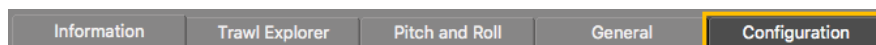
You can export the sensor settings you configured on Mosa on an XML file. You can afterward use this file when adding the sensor to a receiver.

Before you begin

- You have finished configuring the sensor.
- The sensor is connected to Mosa.

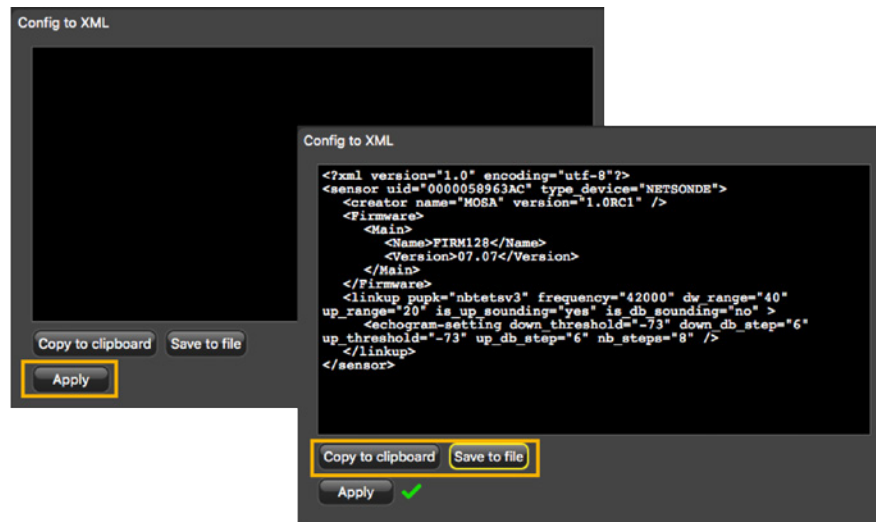
Procedure


1. Click the tab **Configuration**.



2. Click **Config to XML**.

3. Click **Apply** under the black area.
The settings are displayed.
4. To save the settings:



- Click **Save to file** to download an XML file on the computer.
 - Or, click **Copy to clipboard**, then press **Cmd + V** on a word processor like Microsoft Word to paste the contents.
5. Change the name of the XML file saved on your computer.
-  **Note:** When you export the sensor settings, the XML file always has the same name. Changing its name will prevent you from overwriting it the next time you download sensor settings.

What to do next

See [Adding the Sensor with a Configuration File](#) on page 33 to know how to add the sensor to a receiver with this file.

System Configuration and Display

Read this section to learn how to configure the receiver to be able to receive and display catch sensor data.

Adding the Sensor to the Receiver

You need to add the sensor to the receiver in order to display its data on Scala.

Firmware	Receiver version	Scala version
Catch	all	all
TE/Catch V2	04.02.02 or later	01.00.04 or later
TE/Catch V3	04.02.28 or later	01.02.05 or later

Adding the Sensor with a Configuration File

You can add the sensor to the receiver with a configuration file that contains the sensor settings you configured on Mosa.

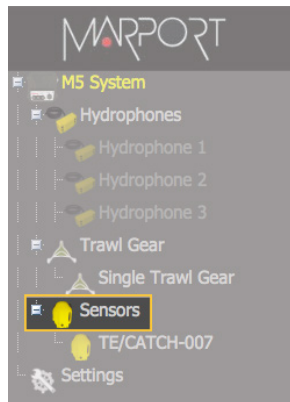
Before you begin

You have exported an xml file containing the sensor settings (See [Exporting Sensor Configuration for Receiver](#) on page 31.

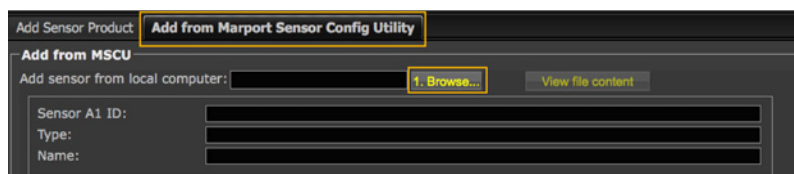
❗ **Important:** You need to have **Firefox version 22 to 51**.

Procedure

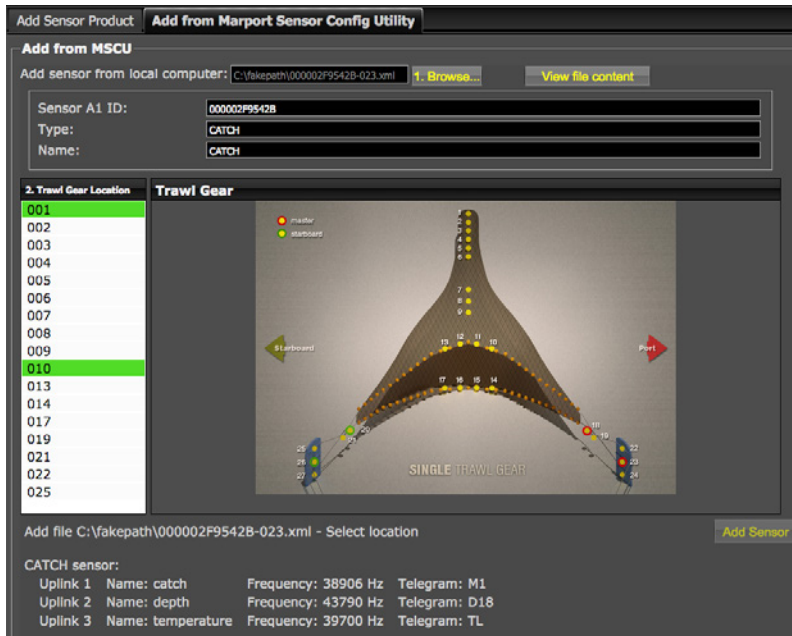
1. Enter your receiver IP address in Firefox web browser to access the system control panel web page.
2. From the left side of the page, click **Sensors**.



3. Click the tab **Add from Marport Sensor Config Utility**.
4. Click **Browse** and select the XML file.

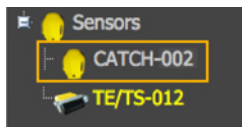


Information about the sensor is displayed.



- Select a node from the list on the left. Nodes in green are already used.

Note: We recommend you to choose nodes between 1 and 6 because they are placed on the codend.
- Click **Add Sensor**.
The sensor is added to the system, with all its settings.



Results

You can see incoming data from the control panels, in **Sensors Data**.

What to do next

- If you want to apply filters on data received by the sensor, see [Configuring the Sensor Settings](#) on page 35.
- You can now configure the display of incoming data in Scala.

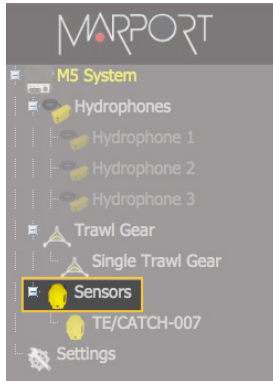
Adding the Sensor Manually

You can add the sensor to the receiver from Scala, by entering the same settings as the ones in Mosa.

Adding the Sensor to the Receiver

- From Scala, click **Menu** > **Expert Mode** and enter the password `copernic`.
- Click menu again, then **Receivers**.


3. From the left side of the receiver page, click **Sensors**.



4. From the page **Add Sensor Product** select the options according to your type of sensor:


Type of sensor	Product category	Product Name	Trawl Gear Location
Catch Explorer	TE/Catch	<ul style="list-style-type: none"> TE/Catch (V3) with different options* TE/Catch (V2) 	Codend: nodes between 1 and 6
Catch	Catch	<ul style="list-style-type: none"> Catch Catch with different options* 	
Catch hybrid PI	PI Sensor	PI Catch	

*The options depend on the firmware installed.

 **Note:** Sensors with Catch hybrid 70 firmware can be added to Marport, Scanmar, Simrad and Wesmar receivers. They transmit at a frequency around 40kHz for Marport and Scanmar receivers and also at a frequency around 70kHz for Simrad and Wesmar receivers.

 **Note:** Sensors with Catch hybrid PI firmware can be added to Marport, Scanmar and Simrad PI receivers.

Configuring the Sensor Settings

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

Catch Sensor

 **Note:** The options (depth, temperature, etc.) vary according to the firmware installed.

1	Sensor name displayed in Scala and its features.
2	<p>This setting helps detecting the signal of the sensor among other sensor or echosounder signals. Change only if you have issues receiving data.</p> <ul style="list-style-type: none"> • Detection and 2D: default value. This setting helps distinguishing the sensor signals when there are a lot of interferences (e.g. echosounders). It selects the correct signals according to very selective criteria. • Detection: If you do not receive data, it may be because the Detection and 2D setting is too selective with the signal. Detection is less selective and allows more signals to be received. • Detection for Seiner: no need for this sensor
3	<ul style="list-style-type: none"> • Low: if the signal of the sensor is high = the trawl is close to the vessel (SNR min. 18dB). • Medium: Default setting. Compromise between the two other settings (SNR min. 12dB). • High: if the signal of the sensor is low = the trawl is far from the vessel (SNR min. 6dB).
4	Enter the same frequencies as those entered in Mosa in Boat Code/Channel Codes .
5	Enter the same telegrams as those entered in Mosa for each option.

6	<p>Click Configure to change filters applied on incoming data.</p> <p>Tip: Catch telegram has a specific filter called Debounced: you can choose to display status as full when receiver has received 2, 3 or 4 "full" signals from the sensor.</p>
---	--

PI Catch Sensor

PI-CATCH-003

Sensor Name

Sensor Name: 1

Sensor Product:

[Remove](#)

Sensor Options

Sensor Processing

Detection: 2 Sensitivity: 3

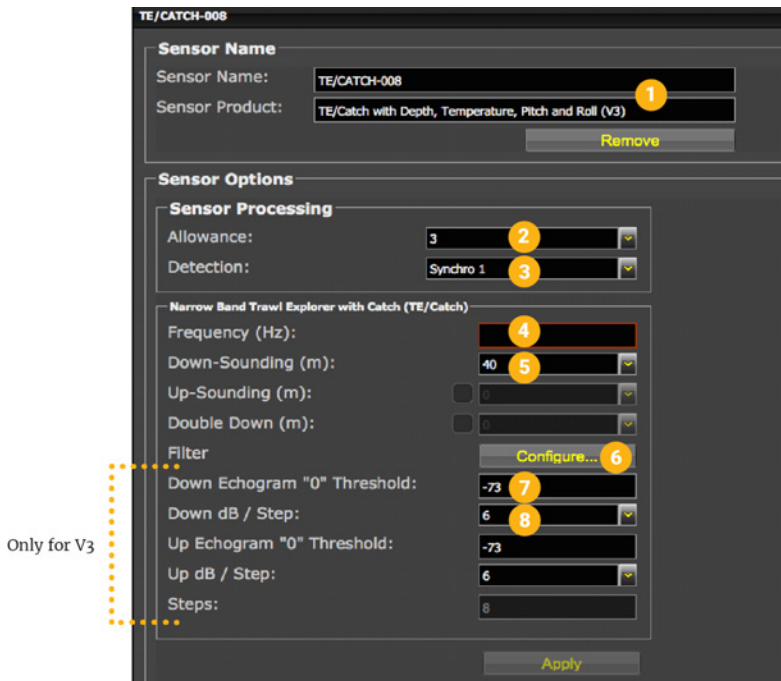
PI Catch

Frequency (Hz): 4 Telegram: 5 Filter: [Configure...](#) 6

[Apply](#)

1	Sensor name displayed in Scala and its features.
2	<p>This setting helps detecting the signal of the sensor among other sensor or echosounder signals. Change only if you have issues receiving data.</p> <ul style="list-style-type: none"> • Detection and 2D: default value. This setting helps distinguishing the sensor signals when there are a lot of interferences (e.g. echosounders). It selects the correct signals according to very selective criteria. • Detection: If you do not receive data, it may be because the Detection and 2D setting is too selective with the signal. Detection is less selective and allows more signals to be received. • Detection for Seiner: no need for this sensor
3	<ul style="list-style-type: none"> • Low: if the signal of the sensor is high = the trawl is close to the vessel (SNR min. 18dB). • Medium: Default setting. Compromise between the two other settings (SNR min. 12dB). • High: if the signal of the sensor is low = the trawl is far from the vessel (SNR min. 6dB).
4	Enter the same frequency as the one entered for the uplink frequency in Mosa.
5	<p>Enter the interval at which signals are sent. They must be the same as in Mosa. The update of data is quicker when Fast is set, but this reduces the battery life.</p> <ul style="list-style-type: none"> • Fast: full every 5 sec. / Empty every 5.5 sec. • Normal: full every 32 sec. / Empty every 3 sec. • Slow: full every 123 sec. / Empty every 126 sec.
6	Click Configure to change filters applied on incoming data.

Catch Explorer



1	Sensor name displayed in Scala and its features.
2	<p>This setting helps detecting the signal of the sensor among other sensor or echosounder signals. Change only if you have issues receiving data.</p> <ul style="list-style-type: none"> • 0-2: select only if no interferences on the vessel (not recommended). • 3-4: default setting. • 5-6: select if you have issues receiving data. It will allows you to receive more data, but be aware they might be wrong data.
3	This setting also helps detecting the sensor signal. Leave default setting at Synchro 1.
4	Enter the same frequency as the one entered for the uplink frequency in Mosa.
5	Range of the down sounding (do not select the other soundings). Corresponds to Sounding Range in Mosa.
6	<p>Click Configure to change filters applied on incoming data. It is particularly useful to reduce interferences on the echogram data.</p> <p>Tip: Catch telegram has a specific filter called Debounced: you can choose to display status as full when receiver has received 2, 3 or 4 "full" signals from the sensor.</p> <p>Tip: Please refer to Scala user guide for more information about filters.</p>
7	Helps you detecting targets on the echogram. Corresponds to Channel minimum TS in Mosa. Put -79 dB to detect small targets. Otherwise, leave the default settings at -73 dB.
8	Do not change this setting.

Configuring Data Display on Scala

You can display on pages in Scala measurements taken by the sensors (e.g. catch status, depth, pitch and roll...).


About this task

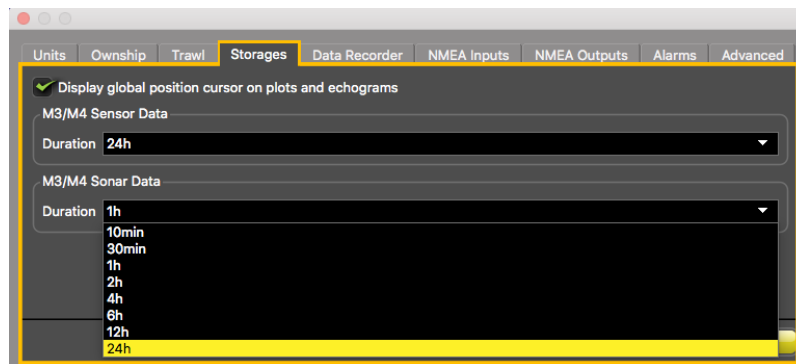
Sensor measurements are displayed in the control panels, under **Sensors Data**. Data title should be:


- **TE/CATCH** for a Catch Explorer
- **CATCH** for Catch sensors
- **PI-CATCH** for Catch hybrid PI sensors.

The title is followed by the node where the sensor was placed when added to the system. Data displayed (e.g. pitch & roll, temperature) depends on the firmware installed.

Procedure

1. For a Catch Explorer, we recommend to put in Scala a storage time of data of 24h. It can take a few hours before the trawl is full. If you do not change the storage time, you can only zoom out on a scale of 2 hours. With 24h, you will be able to zoom out on a larger scale and see the progression of the trawl filling up.
 - a) Click **Menu**  > **Settings**.
 - b) Click the tab **Storages**.
 - c) From **M3/M4 Sensor Data** and **M3/M4 Sonar Data** duration, select **24h**.

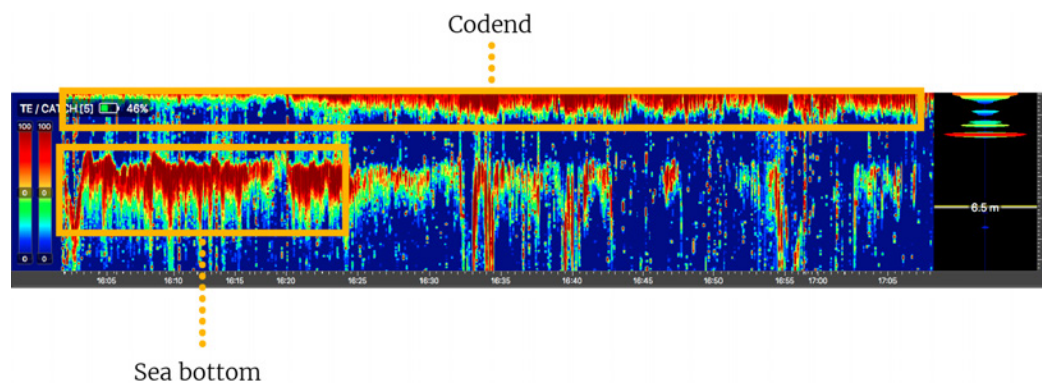


2. From the top left corner of the screen, click **Menu**  > **Customize**.

- To display echogram images of a Catch Explorer: from **TE/CATCH** in Sensors Data, click + hold **Range of Sonar Data** and drag it to the page display.




Below is an example of an echogram image.



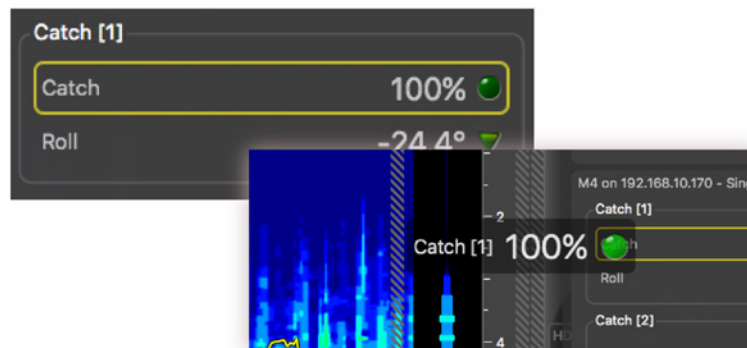
When the codend is not totally full, you can see the bottom of the sea. When the codend is filling up, you can see at the top that the echogram gets denser and the sea bottom disappears. It is because fish can block the signal.

Note: When the trawl is empty, the codend moves a lot, as well as the sensors attached to it. You may not have correct echogram images at the beginning of a tow because the sensors are not correctly oriented toward the vessel. The

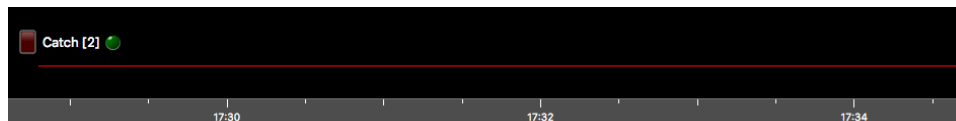
codend and sensor become stable when the trawl begins to fill. The codend can move again when the codend is full.

 **Note:** We recommend you to deactivate **Draw Bottom Line** option. Right-click the echogram to check if it is activated.

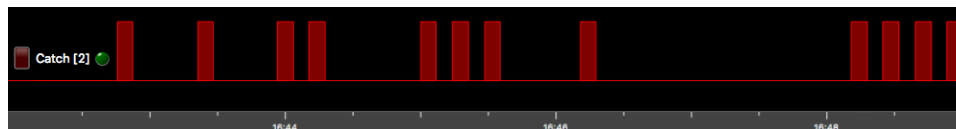
4. To know if the trawl is empty or full:
 - a) From the **Control panels**, click + hold Catch data and drag it to the page display.



- b) From the **Choose new Gauge Type** dialog box, select **History Plot**.
When the codend is empty, the history plot is:




When the codend is filling up:



When the codend is full:



5. 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, select the tab **Alarms**.
 - c) Click **Add**.

d) In **Alarm Data** and **Alarm Conditions**, enter the following settings:

Alarm on Sensor Data

Alarm Data

Category: Trawl Data

Sensor / Trawl Part: Catch 1

Data Type: Catch

Alarm Conditions

This alarm will trigger when the catch

☒ is full

☐ is empty

Alarm Notifications

☒ Show in status bar

☒ Sound: catch-full

☐ Repeat sound

Priority: Normal

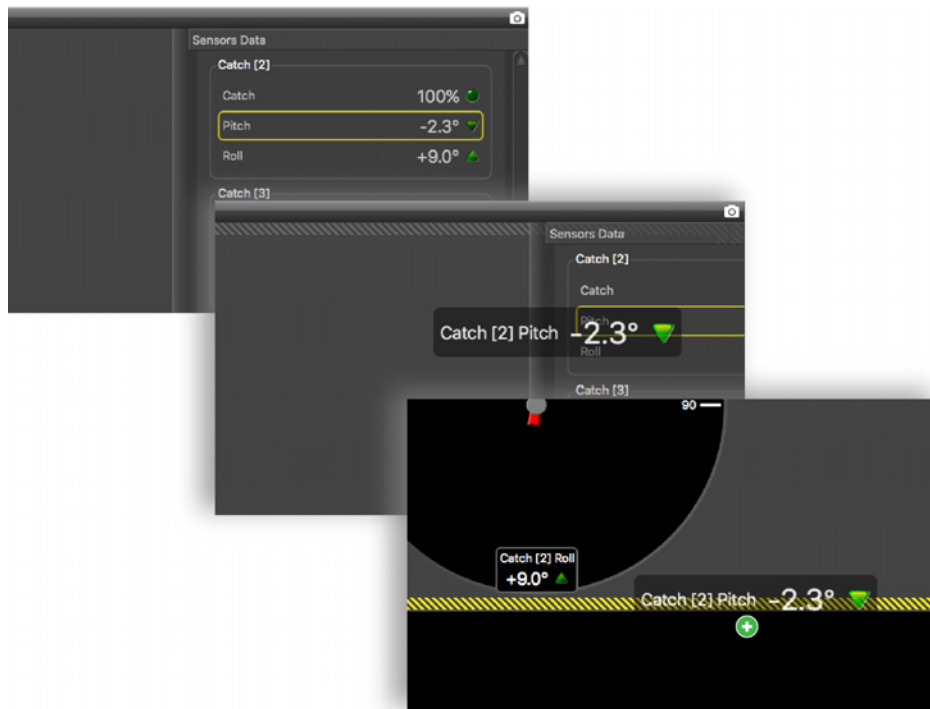
Cancel OK

 **Note:** If you have several Catch sensors, you can select other sensors from **Sensor/Trawl Part**.

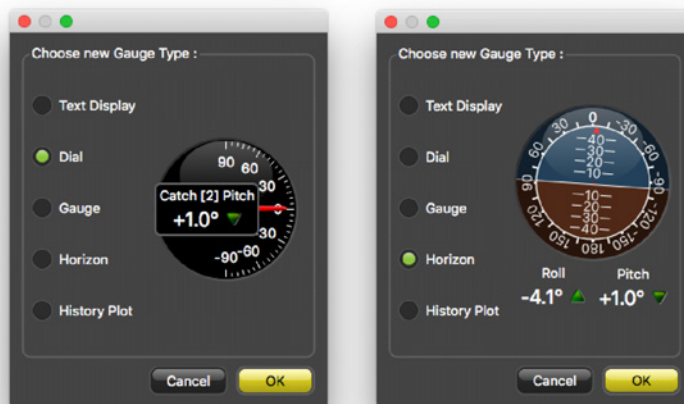
e) In **Alarm Notifications**, choose if you want to display a visual notification in the status bar and a sound.

01/06/17 08:55:10B **Catch 1 is full**

6. To display pitch and roll data, click + hold data for 3 seconds, until a rectangle appears and drag it to a page in the middle of the screen.



From **Choose new Gauge Type** dialog box, select the type of display. You can for example select **Dial** or **Horizon**.



Installation

Read this section to learn how to install catch sensors on the trawl gear.

Installing the Sensor on the Trawl


You can install one or several Catch and Catch Explorer sensors on the codend of the trawl.

About this task

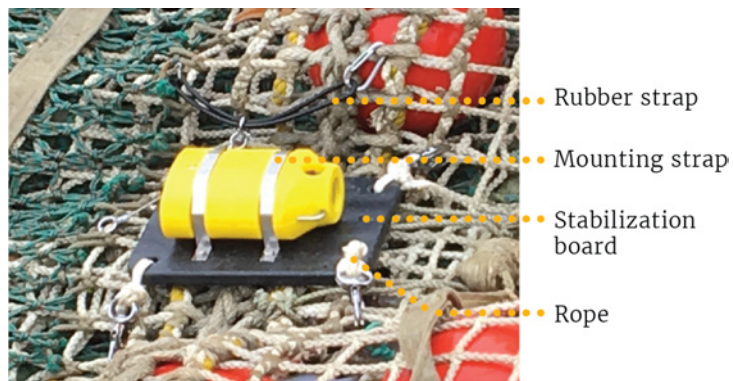
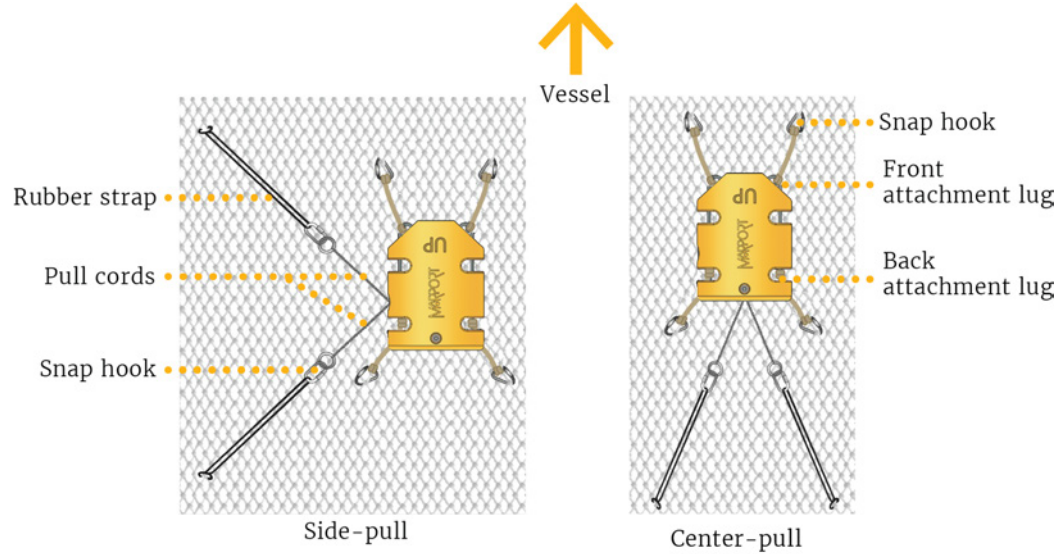
Sensors can be installed with the pull cords on the side or on the center of the sensor. Pull cords are attached to the net. When the net fills up and the meshes expand, cords are pulled and this triggers the catch sensor.

You can install a stabilization board for Catch Explorer sensors.

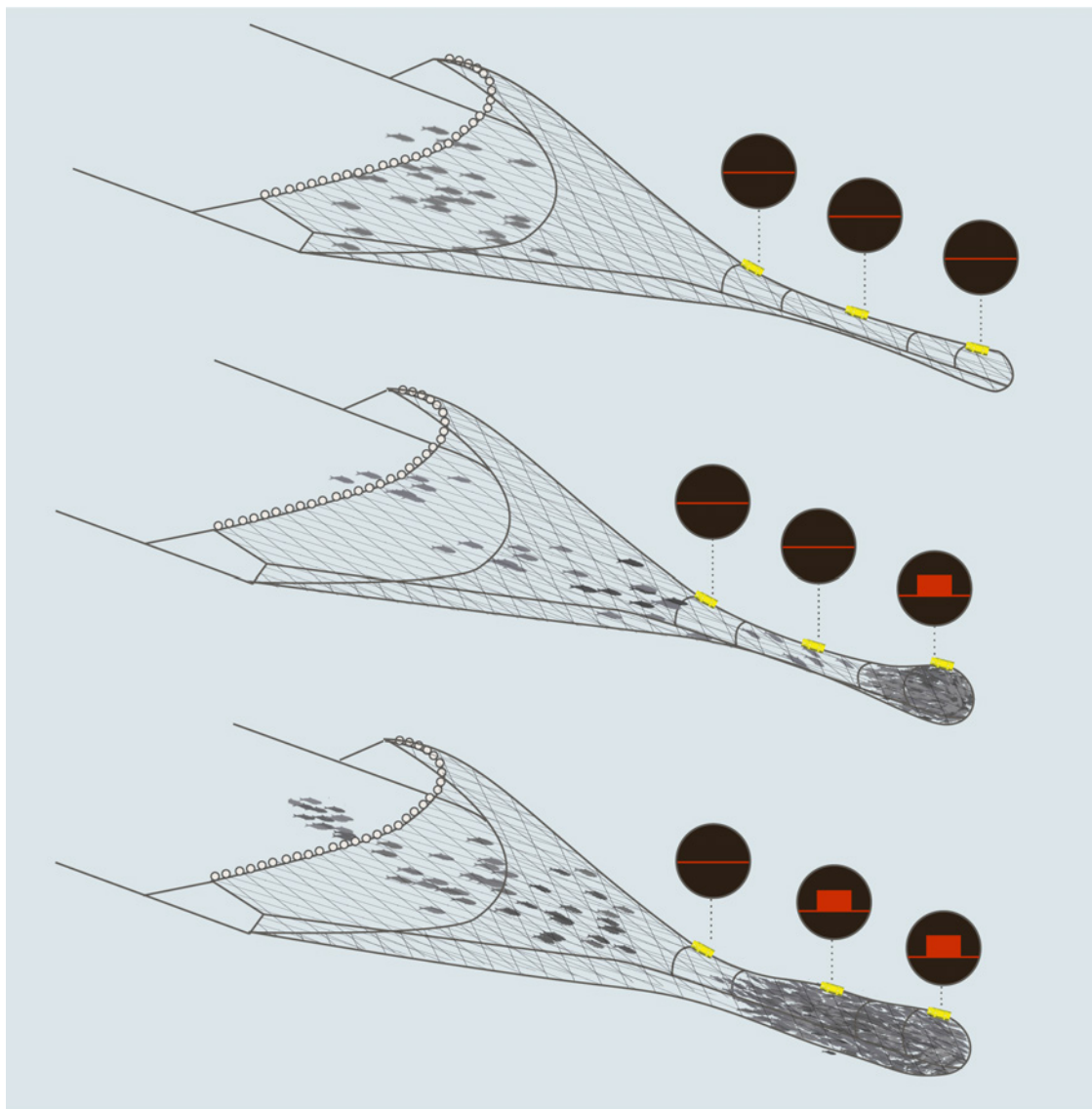
Procedure

1. Install the sensor on the top of the codend with the **UP** side of the housing oriented toward the vessel. Make sure there is nothing in front of it that would block its signal.
 -  **Tip:** If the meshes of the net obstruct the Catch Explorer 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 lashing the shackles to 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. If you use a stabilization board:
 - a) Put the mounting straps through the lugs on the sides.
 - b) Attach the stabilization board with rope to prevent rapid wear on the board.

4. 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.



5. Install several sensors on the codend to better follow the filling processes. The sensors will trigger one by one, according to the amount of fish inside the codend. After a few tows, you can estimate the amount of tonnage of fish that you have depending on whether one, two or three sensors display a full status.



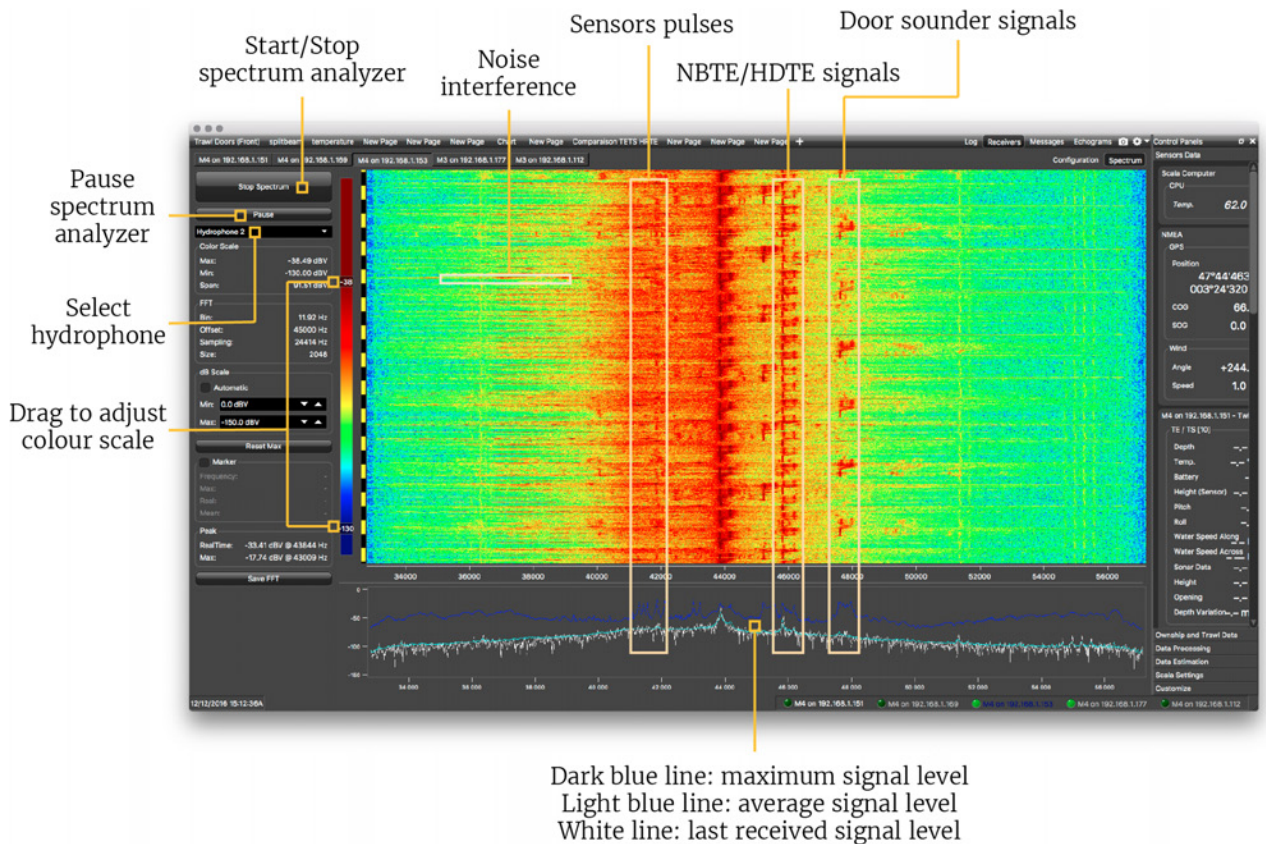
Servicing and Maintenance

Read this section to learn how to maintain catch sensors.

Interference Check

Spectrum Analyzer Display

The following picture explains the main parts of the spectrum analyzer on Scala.



Checking Noise Interference

You can use the spectrum analyzer to check the noise level of the hydrophones and check if there are no interference.

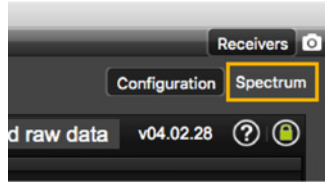
About this task

See **Spectrum Analyzer Display** above for details about the spectrum analyzer display.

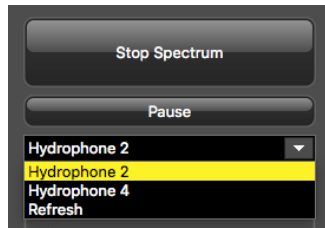
Procedure

1. From the top left corner of Scala window, click **Menu** > **Expert Mode** and enter the password **copernic**.
2. Again in the menu, click **Receivers**.

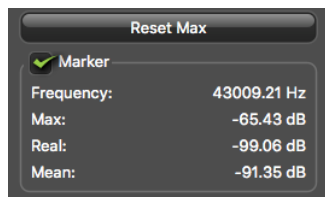
- From the top right corner of the screen, click **Spectrum**.



- From the top left corner of the screen, click **Start Spectrum**.
- Select the hydrophone you want to test. Only the hydrophones that are switched on are displayed. Select refresh to update the list.

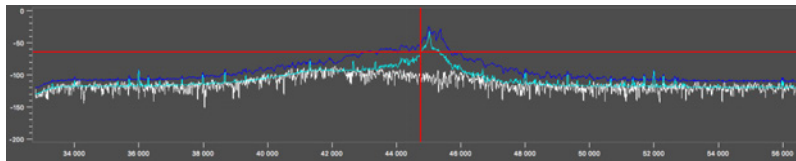


- To check the maximum, mean and real measures of noise level at a specific frequency, select **Marker** on the left side of the screen.



- Click the plot at the bottom of the screen to display the marker, made of two crossing red lines. Move your mouse over the plot to place the marker on a frequency.

The noise levels are displayed under the part **Marker**. Use the marker to see at which frequencies sensors are transmitting and at which frequencies the signal noise is higher. Look at the **Max** and **Mean** measures of the noise level.



The acceptable average level of noise depends on the conditions (distance from the sensor to the hydrophone, fishing method, type of hydrophone). You can have better performance with the following levels:

- Active wideband hydrophone with high gain, or narrowband: below -80 dBV
 - Active wideband hydrophone with low gain: below -100 dBV
 - Passive hydrophone: below -110 dBV
- Click **Reset Max** to reset the maximum value.
 - Check that there is more than 12dBV between the maximum noise level (dark blue line) and the average noise level (light blue line) on the peak of the sensor frequency.
 - Data displayed in **Peak** is the higher noise level coming from sensors signals and their frequency. **RealTime** is the last peak recorded, and **Max** is the highest peak since the spectrum is recording.
 - To save data recorded by the spectrum in a *.txt file, click **Save FFT**.

12. When you have enough data, click **Stop Spectrum**.

Charging the Sensor

Charge the sensor at any battery level with either **Marport Basic Sensor Charger** or **Marport Medusa II Multi-charger**.

About this task

The sensor uses lithium-ion batteries. Charge them only with Marport's chargers.

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

Procedure

1. Before charging the sensor: wash with fresh water and dry the sensor. This prevent corrosion of the charging pins.
2. Place the sensor and charger in a dry room like the deck or bridge. The optimal temperature while charging is between 10 and 25 °C.
3. Place the sensor away from any installing material (e.g. wet ropes) and fix the sensor with brackets to keep it stable while charging.
4. Allow good air circulation around the charger for cooling.
5. Connect the 3-pin charging connector to the sensor shoulder bolts.

Tip: You can apply a small film of electrical contact grease lubricant on pins. To maintain the electrical pins, polish them with fine sandpaper.

Important: Check that the shoulder bolts are not damaged. If they are, contact your local Marport dealer for replacement. Below is an example of shoulder bolts damaged because of insufficient maintenance.



6. Plug in the charger to a 110–240 V AC 50–60 Hz socket.
7. If you have the multi-charger, turn the power switch to the **ON** position. The power switch lights on. If not, check the AC power cord connection.
8. Wait for the battery to charge: standard charging cycle takes 6 to 8 hours. A fast charge configuration allows a 70 % charge in 1 hour and full charge in 2.5 hours.
9. Look at the LED(s) on the charger box to know the charge status. For the multi-charger, there is a LED for each sensor charging cable. The charge status are:
 - ● Green LED: > 90%
 - ● Orange LED: from 70% to 90%
 - ● Red LED: < 70%

Results

Once charged, the operational life time can be up to approximately 740 hours for a Catch sensor and 19 hours for a Catch Explorer.

The operational life time depends especially on the uplink power of the sensor, but also on the sensor settings (e.g. sounding range, uplink frequency, options).

Maintenance

Only an approved Marport dealer can access the internal unit. Warranty will become void if anyone other than an approved dealer tries to do internal maintenance duties on the sensor.

- ⚠ **CAUTION:** Never remove shoulder bolts directly from the end cap (black part). Shoulder bolts are attached to cables and trying to remove them will damage the cables.
- ⚠ **CAUTION:** Always inspect and correctly install all the o-ring seals inside the sensor when doing internal maintenance duties. If o-ring seals are worn out, missing or incorrectly installed, sensor may be flooded.

Cleaning the Sensor

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

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.

Regularly check that the sensor is clean. If not:

- Remove any marine life with a piece of wood or screwdriver.
- Wash away mud or debris with warm water.
- ⚠ **CAUTION:** Do not use highly abrasive materials or jet wash.
- ⚠ **CAUTION:** Special care should be taken with sensors and components sensitive to mechanical shock or contamination.

Maintenance Checklist

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

Interval	Maintenance operation
Before use	<ul style="list-style-type: none"> • 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.
After use	Wash the sensor with fresh water.
Between uses	<ul style="list-style-type: none"> • 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). • If you put the sensor into storage for a long period of time, charge it once in a while. If you do not, batteries can become inoperable.
Every 2 years	Return the sensor to an approved Marport dealer for inspection and maintenance.

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

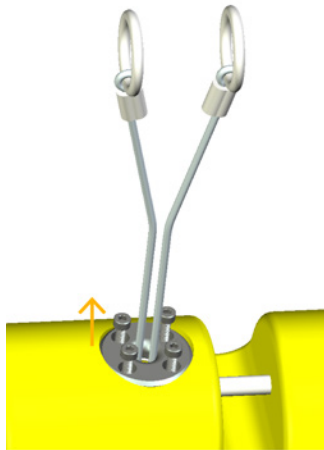


About this task

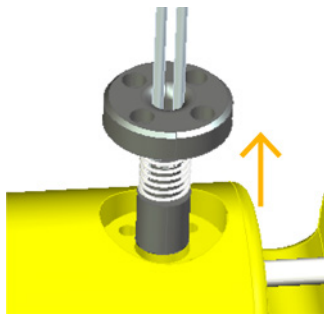
Only qualified Marport technicians can do this task.

Procedure

1. Remove the four screws on the pull cord assembly with a 9/64 size Allen key.



2. Remove the cords, spring and magnet from the hole.



3. Install the new pull-cord assembly on the side or on the end cap of the sensor.



4. Apply anti-seize on the four screw threads, then tighten the screws with the 9/64 size Allen key.

What to do next

You need to calibrate the new catch sensor. See [Calibrating the Catch Sensor](#) on page 20.

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

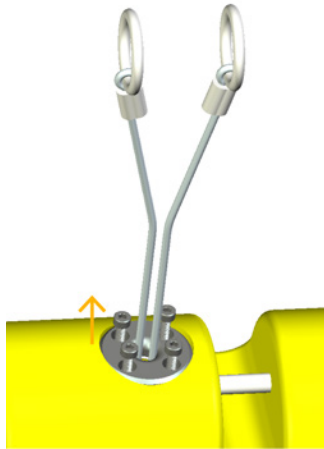


About this task

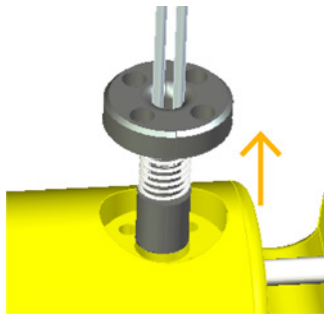
Only qualified Marport technicians can do this task.

Procedure

1. Remove the four screws on the pull cord assembly with a 9/64 size Allen key.



2. Remove the cords, spring and magnet from the hole.



3. 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.



- 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.
4. Install the pull-cord assembly in the hole on the side or end cap of the sensor.

5. Apply anti-seize on the four screw threads, then tighten the screws with the 9/64 size Allen key.

What to do next

You need to calibrate the new catch sensor. See [Calibrating the Catch Sensor](#) on page 20.

Troubleshooting

Mosa does not start due to error message

Mosa displays an error message saying Mosa cannot be opened.

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

1. From the upper left corner of the screen, click **Apple menu** > **System Preferences** > **Security & Privacy**.
2. From the lower left corner of the **Security & Privacy** dialog box, click the lock icon and enter your password (if applicable).
3. At **Allow apps downloaded from**, select **Anywhere**.
4. For some macOS Sierra versions, click **Open Anyway** or see [Installing Mosa](#) on page 19 to know how to add the **Anywhere** option.
5. Close the dialog box.

Data in Scala is wrong

Data displayed in Scala is wrong. For sensors with echograms, the echogram is noisy.

→ There are signal interferences.

1. First, check that the sensor frequencies and telegrams are the same in the sensor configuration (via Mosa) and the receiver configuration (via Scala).
2. Check the frequencies of your other sensors to make sure there is enough distance between them.
3. Check the noise on the spectrum (see [Checking Noise Interference](#) on page 47). If the frequency where the sensor is placed is too noisy, change for a less noisy frequency:
 - a. Catch sensor: see [Configuring Catch Sensor Telegrams](#) on page 26
 - b. Catch Explorer: see [Configuring the Uplink and Down Settings](#) on page 23

⚠ **Important:** Do not forget to also change the frequency on Scala receiver page.
4. You can increase the uplink power of the sensor to increase the power of the signal transmitted to the receiver: see [Configuring the Uplink Power](#) on page 29.
5. For sensors with echograms you can change the Echogram filter on Scala receiver page:
 - a. From Scala, click **Menu** ≡ > **Expert Mode** and enter the password **copernic**.
 - b. Click again **Menu** ≡ > **Receivers**.
 - c. From the left side of the receiver page, click the name of the sensor.
 - d. From the sensor configuration page, click **Configure** next to **Filter**.
 - e. From NBTE Echograms Filter select **Echosounder and Interference Reduction Medium** or **High**.

Echogram is fixed and blue

The echogram displayed in Scala is completely blue. There is no yellow line moving on top of the echogram, which means that no sonar data is received.

→ Sounder frequency may be outside the correct frequency range.

1. From Mosa, click **Trawl Explorer** > **Ping Down Frequency** and check that the frequency is between 360–400 kHz.
2. If not, change the frequency.

→ You may have dragged and dropped wrong sonar data to the display.

1. Check that the name of the sensor on the top left corner of the echogram is Catch Explorer.
2. If not, from **TE/CATCH** in Sensors Data, click + hold **Range of Sonar Data** and drag it to the page display.

→ The sounder in the transducer is damaged.

Contact the support service for repair.

Sensor has difficulty connecting to Mosa

Mosa is very slow or unable to detect the sensor.

→ The bluetooth does not work correctly.

1. Connect and disconnect the sensor to a charger to make the sensor reboot.

→ The sensor is out of the bluetooth range.

1. Bring the sensor closer to the computer.
2. To extend the Bluetooth range, you can use a Bluetooth key (ref. TRENDnet TBW-106UB) with a USB extender connected to the computer. Place the Bluetooth key as close as possible to the sensor.

Catch Explorer images are incorrect when beginning towing

At the beginning of a tow, the Catch Explorer does not display correct echogram images.

→ When the trawl is not full yet, the codend moves a lot, as well as the sensors attached to it. You will not have correct echogram images at the beginning of a tow because the sensors are not correctly oriented toward the vessel.

The codend and sensor will become stable when the trawl begins to fill.

Catch status remains full or empty

Catch status displayed on Scala remains blocked on full or empty status.

→ The catch magnet may be broken.

1. From Mosa, test the catch sensor (see [Testing the Catch Sensor on Mosa](#) on page 22).
2. If the status remains full or empty, the catch magnet placed at the basis of the pull-cords may be broken. See [Replacing the Catch Magnet](#) on page 53 to check and replace it.

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:

FRANCE

Marport France SAS
Parc Technologique de Soye,
Espace MEDIA, 2 Rue Galileee
56270 Ploemeur, France
supportfrance@marport.com

SPAIN

Marport Spain SRL
Camino Chouzo 1
36208 Vigo (Pontevedra), Spain
supportspain@marport.com

ICELAND

Marport EHF
Fossaleyni 16
112 Reykjavik, Iceland
supporticeland@marport.com

USA

Marport Americas Inc.
12123 Harbour Reach Drive
Mukilteo, WA 98275, USA
supportusa@marport.com

Appendix A: Frequency Plan

When the system is installed, you can add sensors to it. 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.

Type of sensor	Interval between frequencies
PRP (e.g. Catch sensor, Trawl Speed, Door Spread sensor...)	100 Hz
NBTE (e.g. Speed Explorer, Trawl Explorer, Catch Explorer, Door Sounder)	800 Hz
HDTE	Normal 1200 Hz / Wide band 2000 Hz

Boat Codes

This list shows the standard frequencies for PRP telegrams. When you configure boat codes, make sure to respect the correct interval between frequencies (see table above).

Codes	
BC / CH	Frequency
C-1/CH1	42833
C-1/CH2	41548
C-1/CH3	41852
C-1/CH4	40810
C-1/CH5	42500
C-1/CH6	43200
C-2/CH1	42631
C-2/CH2	41417
C-2/CH3	41690
C-2/CH4	40886
C-2/CH5	42300
C-2/CH6	43100
C-3/CH1	42429
C-3/CH2	41285
C-3/CH3	41548
C-3/CH4	40970
C-3/CH5	42100
C-3/CH6	43000
C-4/CH1	42226
C-4/CH2	41852
C-4/CH3	41417
C-4/CH4	41160
C-4/CH5	42700
C-4/CH6	43300
C-5/CH1	42024
C-5/CH2	41690
C-5/CH3	41285
C-5/CH4	41060
C-5/CH5	42900
C-5/CH6	43400
C-6/CH1	39062
C-6/CH2	39375
C-6/CH3	39688
C-6/CH4	40000
C-6/CH5	40312
C-6/CH6	40625
C-7/CH1	38906
C-7/CH2	39219
C-7/CH3	39531
C-7/CH4	39844
C-7/CH5	40156
C-7/CH6	40469

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