Marport Compact System User Manual

MARPORT

Contents

Legal

History

V1	03/30/22	First release
V2	04/26/22	• Added topics in Troubleshooting on page 37.
V3	02/01/23	• Clarified prerequisite to use the Configuration Cable when modifying sensor settings. • Added system operating temperatures in Technical Specifications on page 9. • Added equipment references in List of Equipment on page 10. • Added guidelines for the Up sounding mode in Data Display Options on page 27. • Clarified guidance in Changing the Model of Trawl Doors on page 32.
V4	10/02/23	• Added instructions about the uploading of a configuration file: Replacing the Configuration on page 34. • Removed instructions from the user manual regarding advanced system settings.

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Introduction and Presentation

Read this section to get a basic knowledge of the Marport Compact system.

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

Introduction

Marport Compact offers an easy-to-use trawl monitoring system. Its advantage lies in a "plug and play" principle, making the installation and configuration easier. It is specifically designed for smaller vessels, who need a compact system with the basic necessary sensors to efficiently monitor their trawl gear.

It is designed to work with outrigger trawls, single and twin trawls, single and twin dredges and purse seine. We offer a pre-defined set of sensors, among which you can choose the sensors you need and their options. The sensors are the following:

- Trawl Explorer to see fish entering the trawl,
- Speed Explorer to measure the water flow and see fish entering the trawl,
- Door and dredge spread sensors to monitor the behavior of the trawl doors or dredges,
- Catch sensors to monitor the trawl filling process,
- Seine and Seine Explorer sensors to monitor your purse seine. The Seine Explorer provides an echogram view to see the contents of the purse seine.

The system is composed of a computer and a Mx receiver mounted on the same plate, working with two wideband hydrophones installed on the hull.

Safety Guidelines

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

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 installation and maintenance interventions.

Description

Marport Compact System Overview
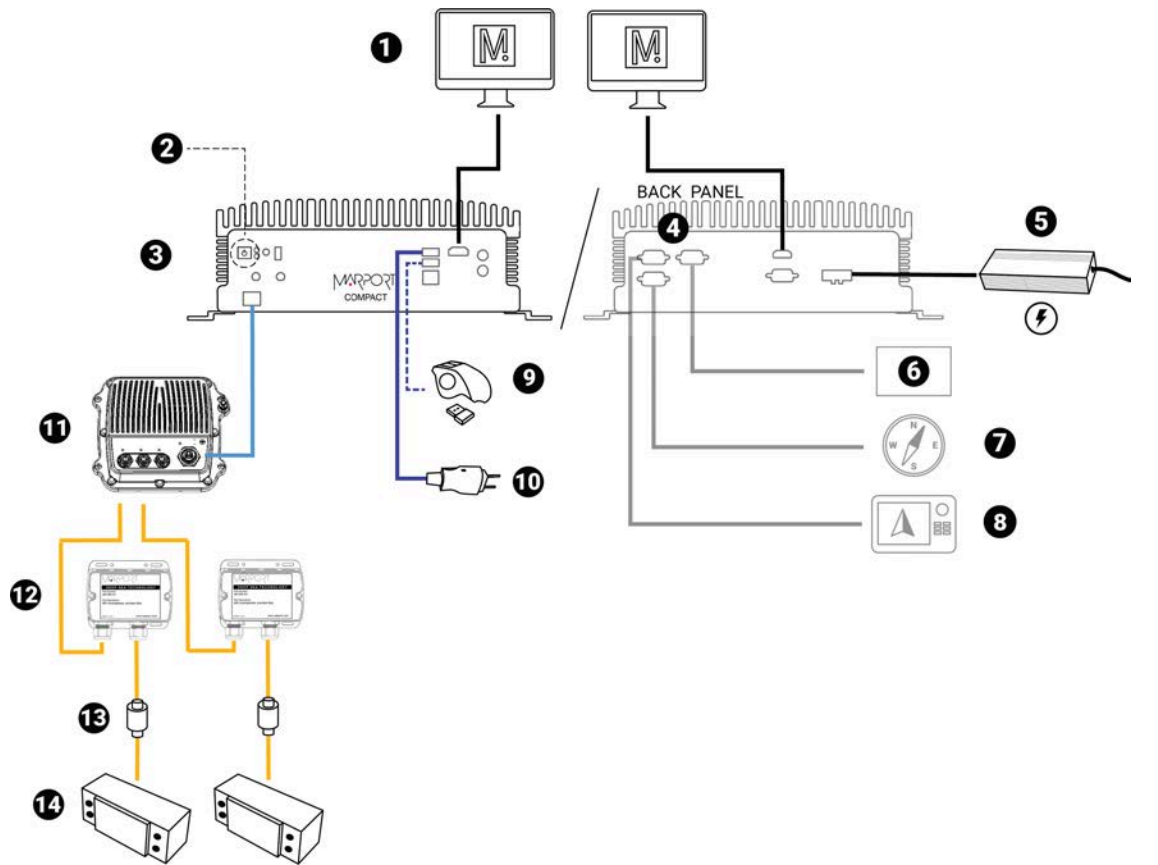
—	Ethernet cable
—	Configuration Cable
—	Marport junction box extension cable & hydrophone cable

| — | Manufacturer standard cable |
| | (Blurred) Optional elements |

1 Screen(s)

2 On/Off

3 Marport Compact computer

4 DB9 connectors (x3)

5 Power supply

6 NMEA OUT

7 NMEA IN (example: Compass)

8 NMEA IN (example: GPS)

9 Wireless trackball mouse

10 Configuration Cable (optional, ref. ACC-CBL-010720)

11 Mx Receiver (ref. M3REC/M5REC)

12 Junction boxes (x2) (ref. 46-055-01)

13 Thru-hull penetration (ref. TH-1-XX)

14 Hydrophones (ref. NC-1-XX)

Technical Specifications

System Equipment

Operating temperature	Ambient with airflow Max. – 15°C ~ 45°C
Storage temperature	–45°C ~ 70°C (–49°F ~ 185°F)
Storage humidity	5~95% @ 40°C, non–condensing

Marport Compact computer

Serial ports	3 x DB9 RS422
USB	2 x USB 3.0
Display outputs	• 2 x HDMI • 1 x VGA
Power supply	24V DC/ 7.8A / 9 − 36V with 3–pin terminal block

Serial port configuration

- 2 NMEA 0183 inputs
- 1 NMEA 0183 output

The NMEA data is transmitted according to the following configuration:

- RS422 standard
- Baud rate: 4800
- Data bits: 8
- Parity: none
- Stop bit: one
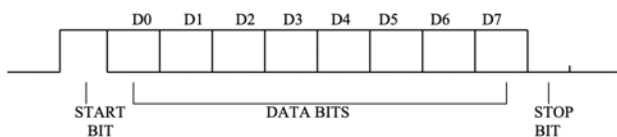
Mx Receiver

Frequency range	33KHz to 57KHz
Active bandwidth	24 kHz
Number of Rx/Tx channels	3
Hydrophones inputs	3
Hydrophone temperature inputs	2 NTC + 1 NMEA

Network cables	CAT5e, 100 meters max., U/FTP shielding

Dimensions
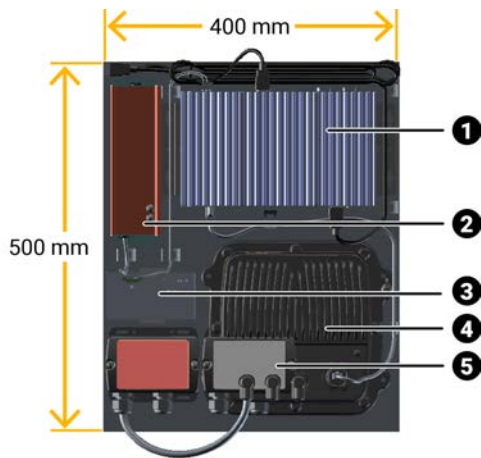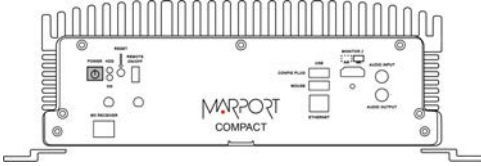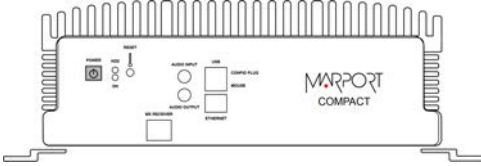
1. Marport Compact computer
2. Mean Well power supply
3. Uninterruptible Power Supply
4. Mx Receiver
5. Junction boxes x 2

Thickness: 2 mm

List of Equipment

The following equipment is part of the Marport Compact system.

- 1 mounting plate with necessary screws and bolts
- 1 Marport Compact computer:

Airmar P/N	Marport P/N	Manufacturer P/N*	Computer front
CMPTR-MX-011222	SDS-0-02	PO boxer-6641	
CMPTR-MX-010419	SDS-0-01	PO boxer-6639M	

*The manufacturer product number is written on a sticker under the computer.

- 1 USB trackball mouse
- 1 power supply
- 1 Uninterruptible power supply
- 1 Mx Receiver (M3REC/M5REC)
- 1 junction box (46-055-01)
- 1 Marport active wideband hydrophone (NC-1-XX)
- 1 Configuration Cable (ref. ACC-CBL-010720) (**not included in default package**)

System Installation on Board

Learn how to install Marport Compact system, the hydrophones and the sensors.

Marport Compact System Installation

Marport Compact Computer Power States

Learn how to turn on, shut down and restart the computer.

Procedure

1. To turn on the computer, press the power button ⏻ and wait a few seconds.

2. To shut down the computer, do one of the following:

   - Click the wheel icon ✿ on the top right corner of the screen, then go to **Shutdown**. Click **Shut down Computer**.

   - Or, press the power button ⏻.

     📝 **Note:** We recommend to shut down the computer in the application instead of pressing the power button, so that the application stops correctly.

3. To restart the computer, do one of the following:

   - Click the wheel icon ✿ on the top right corner of the screen, then go to **Shutdown**. Click **Restart computer**.

   - Or, press the power button ⏻. Wait for the lights on the computer to turn off and press again.

Connecting the Computer and Receiver On-Board

Install Marport Compact computer and Mx Receiver on-board according to the following guidelines.

📝 **Note:** The location of the connectors are different according to the version of the computer. Labels indicate to which cable correspond each connector.

1. Install the mounting plate vertically on a wall using the 5 screw holes.
2. Connect the power supply to an outlet with a voltage between 100 and 240 V.
3. Connect the hydrophone(s) cable(s) to the junction boxe(s).
4. Connect the screen(s) (up to two) to the HDMI port(s) on the computer.

   📝 **Note:** Drawings on the computer faces indicate to which monitor the HDMI port correspond. Monitor 1 will display the first page of Scala and monitor 2 the second page.

5. The Mx Receiver is already connected to the computer. But if you replace the Mx Receiver, you need to restart the computer for the change to be effective.

Hydrophone Installation

📝 **Note:** Refer to the Hydrophone Installation manual available on Marport website or from your local Marport office to have complete installation procedures.

List of Compatible Hydrophones

Marport Compact system is equipped with the Marport active wideband hydrophone NC-1-08.

If hydrophones are already installed on the vessel, you can connect them to the Marport Compact system. It is compatible with all Marport hydrophones and other brands' hydrophones such as Simrad PI and Scanmar.

Up to three frequency bands can be configured for the sensors, according to the type of trawl gear. **Band 1** is compatible with all wideband (NC-1-06, NC-1-08) and narrowband (NC-1-07) hydrophones. **Band 2** and **Band 3** are compatible with wideband hydrophones only.

Marport hydrophones

Product Reference	Name	Bandwidth (3 dB)	Typical current consumption	Cable
NC-1-08	**Active wideband hydrophone (integrated preamplifier)**	**30k-60k**	**18-22mA**	**Yellow**
NC-1-02	Active narrowband hydrophone (integrated preamplifier)	38-45 KHz	8-12 mA	Black
NC-1-04	Active narrowband hydrophone (integrated preamplifier)	38-45 KHz	8-12 mA	Black
NC-1-06	Active wideband hydrophone (integrated preamplifier)	30-60 KHz	25-29 mA	Yellow
NC-1-07	Active narrowband hydrophone (integrated preamplifier)	41-44 KHz	4-6 mA	Green
NC-1-03/NC-1-05 + NC-2-02	Passive hydrophone + Wideband preamplifier box	33-60 KHz	25-29 mA	Blue

Sensor Installation

Overview of the Sensor Locations

Single Trawl
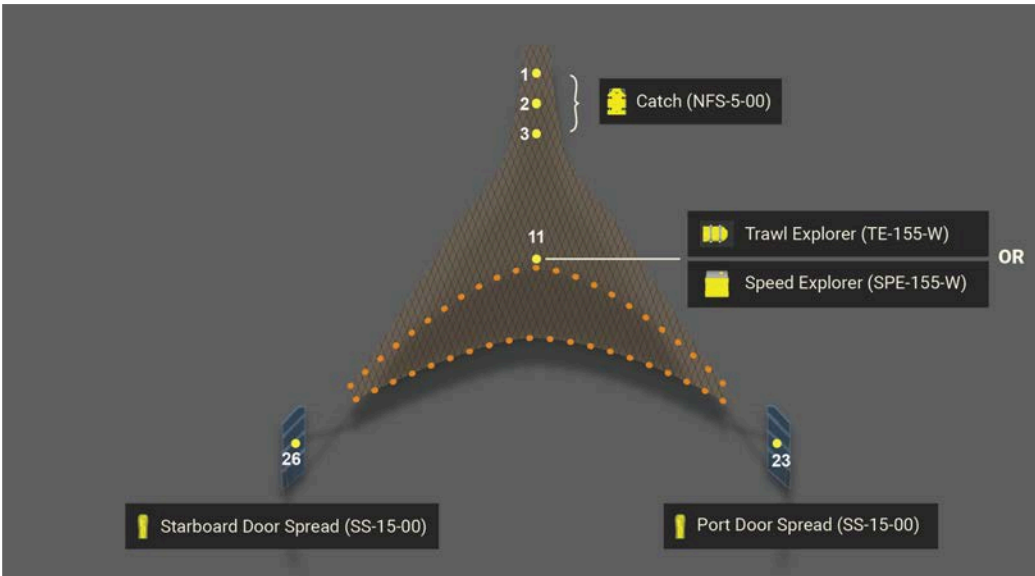
Twin Trawl
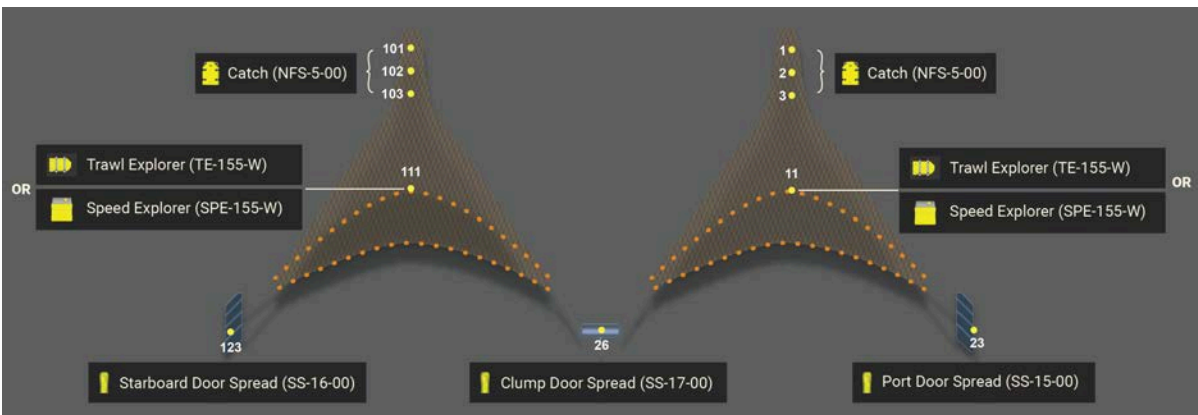
Twin Outrigger
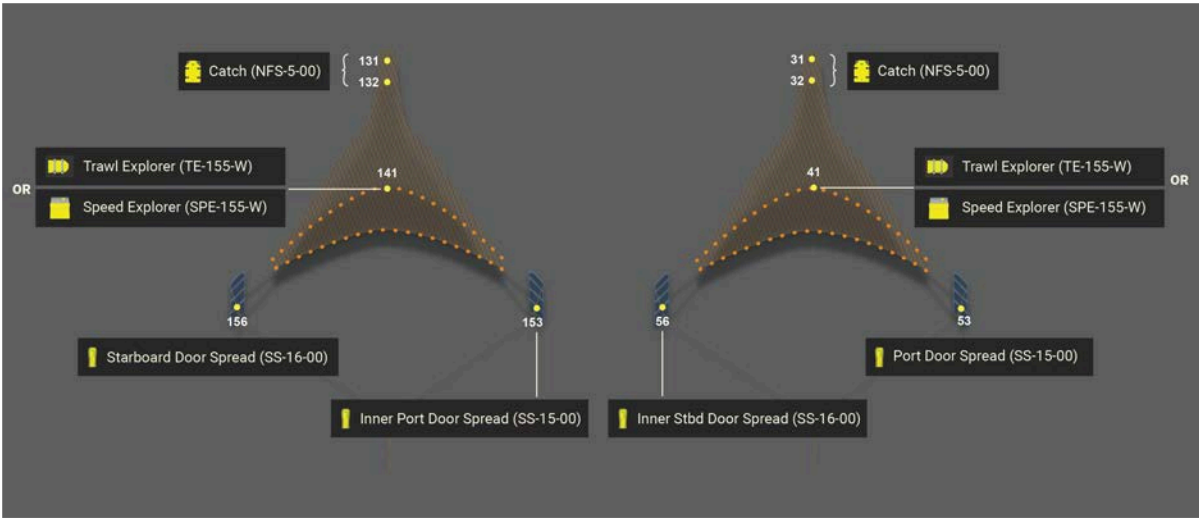
Single Dredge
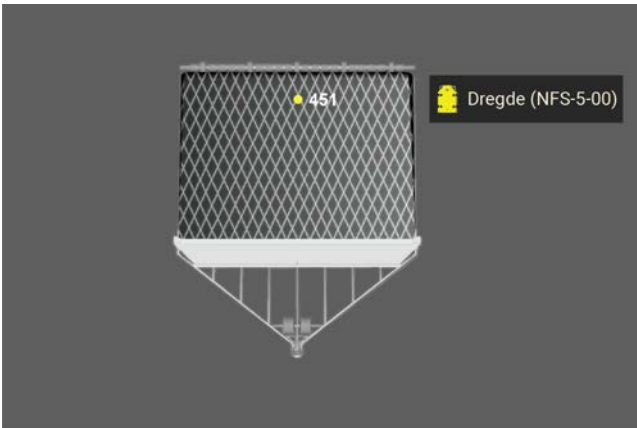
Twin Dredge
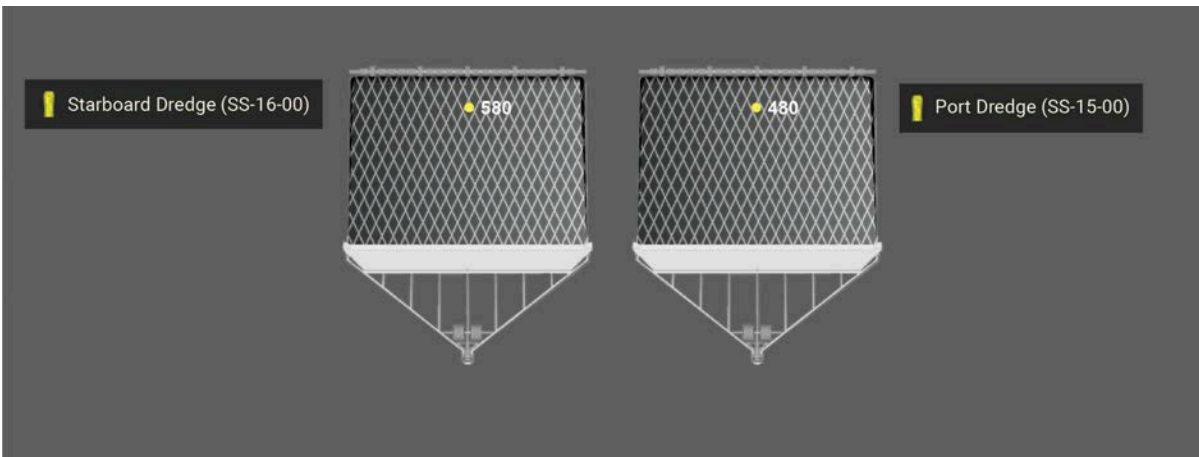
Seine (Port)
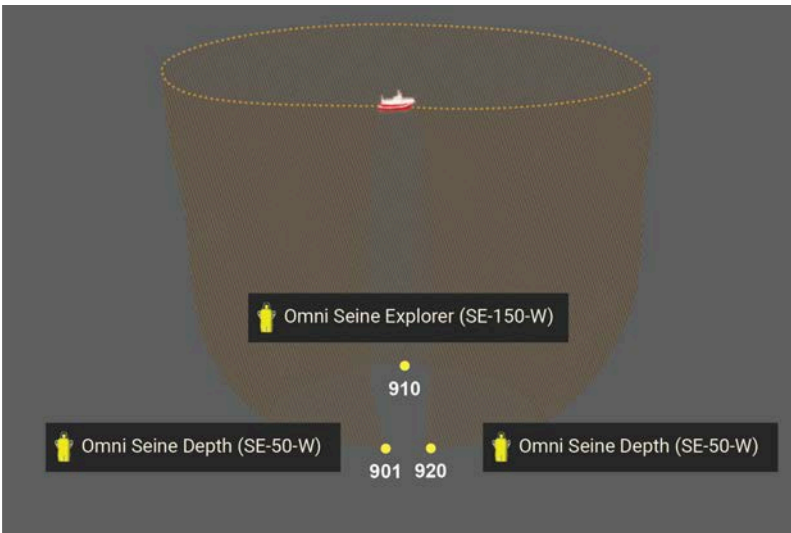
Seine (Starboard)
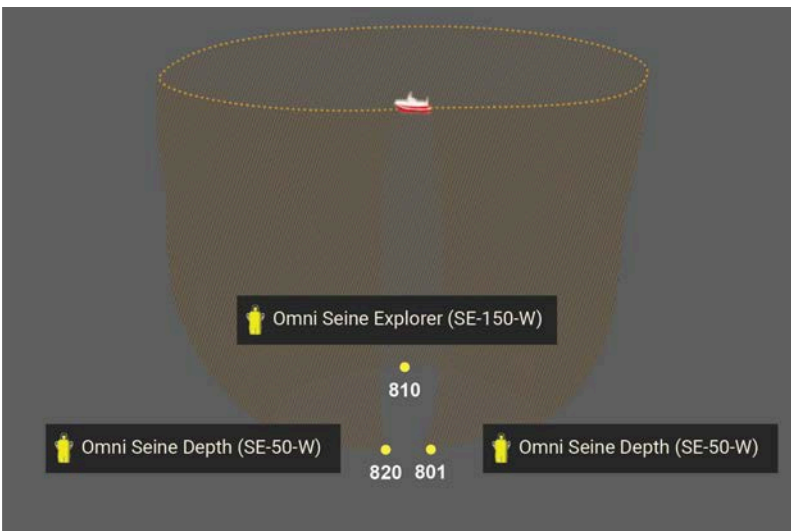
Installing Catch Sensors

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.

Procedure

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 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.
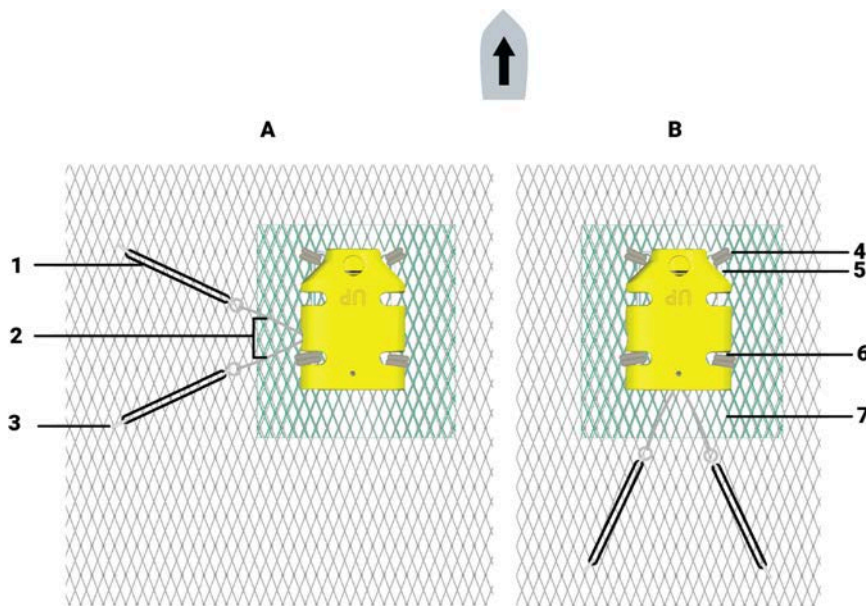
	1. Rubber strap	**5.** Front attachment lug
A. Side-pull	**2.** Pull cords	**6.** Back attachment lug
B. Center-pull	**3.** Snap hook	**7.** Double-mesh piece of netting for stabilization
	4. Knot with rope	

Installing the Trawl Explorer

Procedure

1. Place sensor (**1**) at the centre of the net's headrope (**2**), facing the vessel. If you want to see the footrope, move back the sensor of a few meters, as illustrated below.

2. Install a double-mesh piece of netting (**3**) to stabilize the sensor.Install a double-mesh piece of netting (**3**) to stabilize the sensor.

3. Buoys (**4**) on either sides provide a level platform for the unit during trawling operations.

4. Buoys ensure that down-looking transducer beam (**5**) is vertical for footrope (**6**) detection.

5. The signal is oriented toward the vessel (**7**).
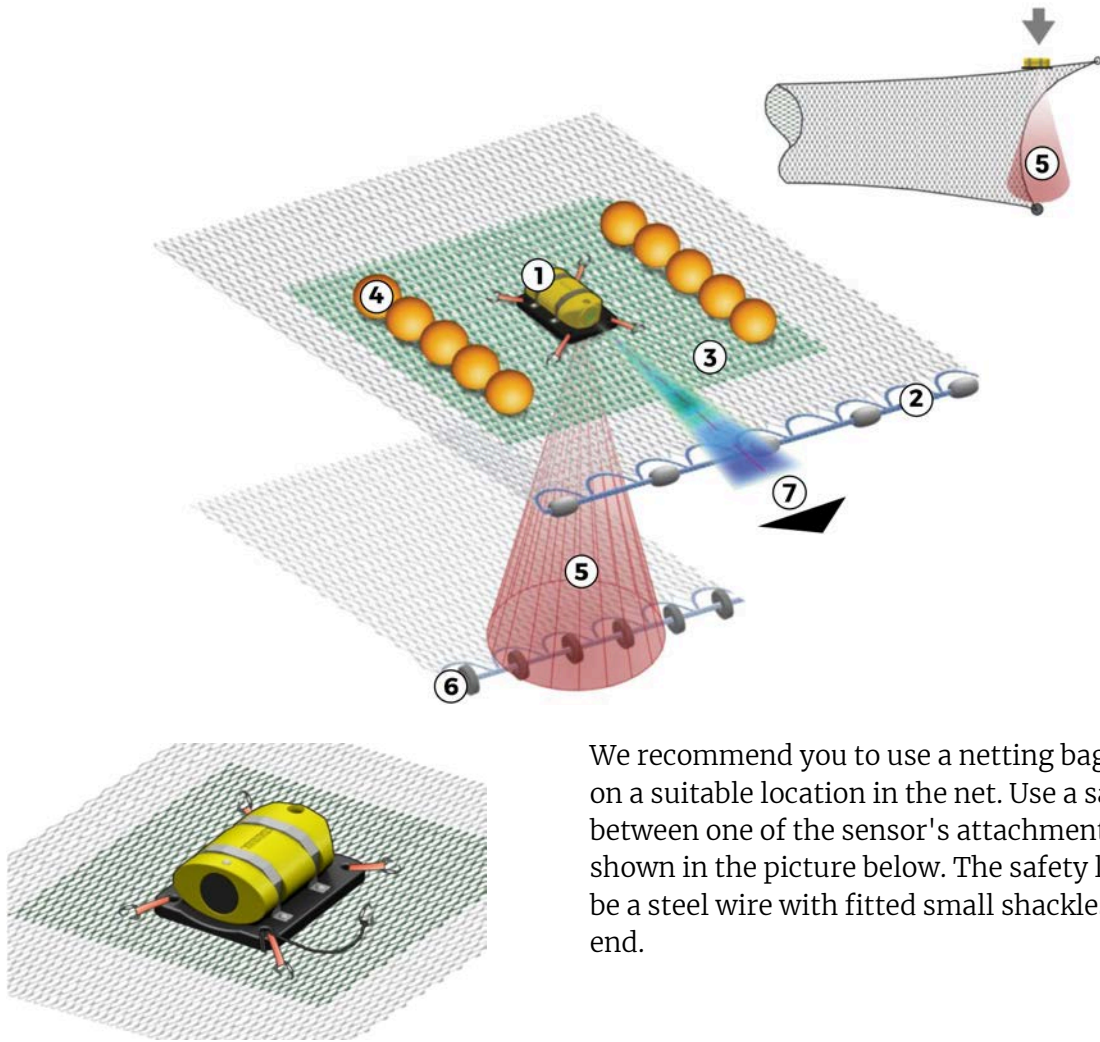
We recommend you to use a netting bag placed on a suitable location in the net. Use a safety line between one of the sensor's attachment lugs, as shown in the picture below. The safety line should be a steel wire with fitted small shackles at either end.

Important: Sensors not properly secured may be lost during fishing operations.

Installing the Speed Explorer

About this task

CAUTION:

Handling precaution and a good maintenance of the EM log head is essential for the proper operation and lifetime of the flow sensors. Make sure to always use a protective cage when using the sensor. The protective cage must be approved by Marport. Any additional protective devices installed in front of the head may disrupt the flow and therefore alter the water speed measurements.

Even when the sensor is protected with a cage, make sure the head of the sensor does not hit any rail or protruding object when hauling the trawl on deck.

Procedure

1. Install the sensor below the headrope, EM log pins facing down, in order to send signals to the correct direction.

   > **Note:**
   > When the Speed Explorer is installed on the headrope, you may not see the footrope. If you want to see it, move back the sensor of a few meters.

2. Place the sensor in a way that there is less than +/- 5 degrees of pitch and roll. You may need to add floats to the back of the sensor to achieve less than +/- 5 degrees.

3. The sensor is maintained in the cage by a latch mechanism. Pull the cord at the back of the sensor to release the latch and remove the sensor from the cage. The cage will stay mounted to the headrope.
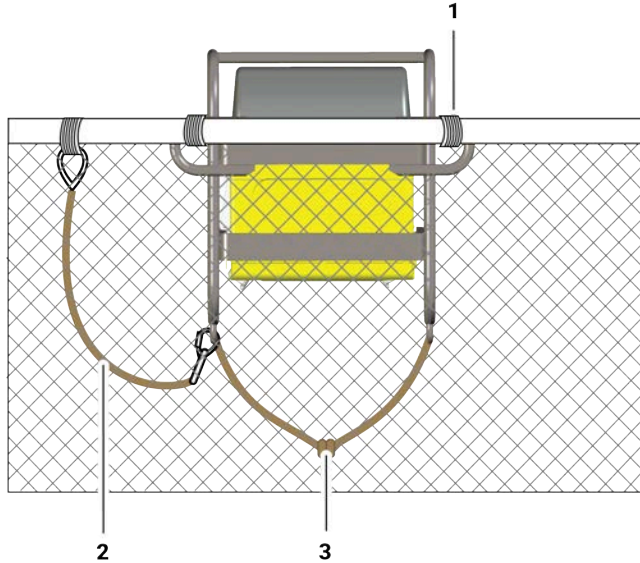
1. Attached to headrope

2. Safety wire with small shackles on both ends to secure the sensor

3. Rope passing between 2 housing attachment lugs and attached to the net
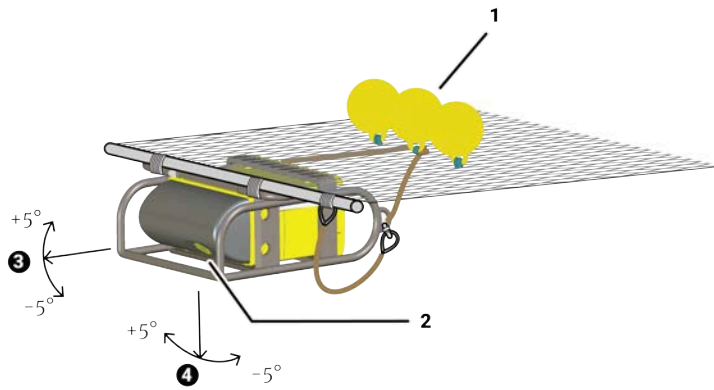
1. Floats at the back help stabilizing the pitch and roll of the sensor.

2. EM log pins facing down. Make sure nothing is in front (rope, floats): it would impede its signal.

3. Maximum pitch + 5° / – 5°

4. Maximum roll + 5° / – 5°

4. The Speed Explorer can also be installed upside down, with the EM log pins facing up instead of down. In this case, the Speed Explorer is installed on a board to provide more stability. The aim of this installation is to prevent the EM log pins and transducer to hit the deck when the trawl is hauled.

> **Note:** A specific configuration needs to be applied to the Speed Explorer to correctly work in this setup. Contact your local dealer or Marport office for instructions.

Installing the Seine Sensor on a Purse Seine

Procedure

1. Attach two separate chains on the 2 front attachment lugs of the sensor using snap hooks.
2. Attach the chains to the lead line with one snap hook. The yellow transducer must points toward the surface when purse seining and the bottom of the sensor must hang freely to be always aligned with the seabed.
3. Attach a safety wire from one back attachment lug to a pursing ring (not on the lead line).
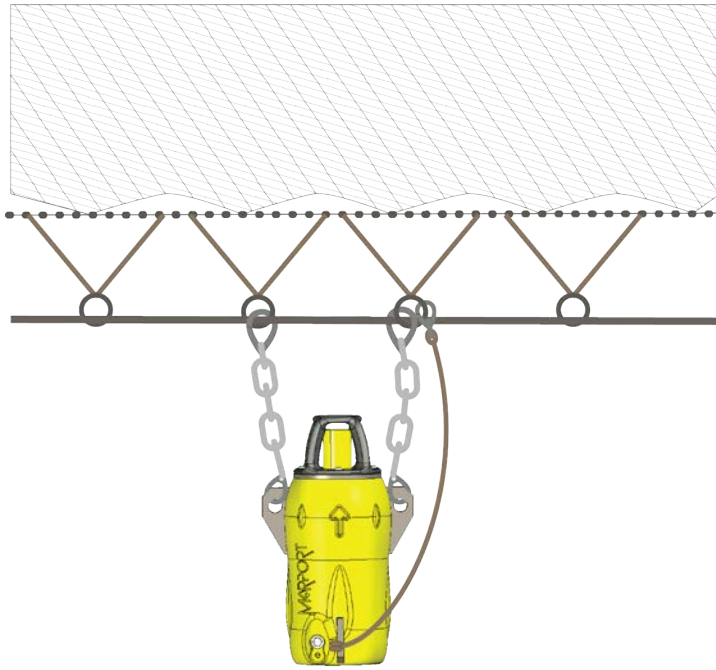
Installing Spread Sensors

To install Spread sensors on the doors, you need to have specifically designed sensor pockets welded to the trawl doors. Refer to the Door Sensor manual for complete guidelines about the pocket installation.

Single Trawl

Before you begin

For a single trawl you need:

- A Master Spread sensor
- A Starboard Spread sensor

Procedure

1. Remove the screw holding the pocket cover.
2. Install the Master sensor (red marker) on the port door and the Starboard sensor (green marker) on the starboard door.
3. The top of the transducer (side with marker on housing) must be oriented toward the vessel and the side of the transducer with the circle/A must be oriented toward the opposite door.

   Note: Pockets can have an alignment bar that ensure correct positioning of the sensors. Simply slide the sensor into the alignment bar.
4. Attach the safety line from the sensor to the pocket and fasten the pocket's screw.
5. Make sure that both sensor transducers are aligned with each other during towing. This way, they can communicate with each other.
6. Make sure there is nothing in front of the sensors that would block their signal toward the vessel.

Port   Starboard

Twin Trawls

Before you begin

For twin trawls you need:

- A Master Spread sensor
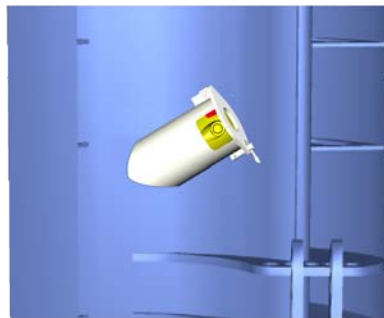- A Starboard Spread sensor
- A Clump sensor

Procedure

1. Remove the screw holding the pocket cover.
2. Install the Master sensor (red marker) on the port door and the Starboard sensor (green marker) on the starboard door.
3. Install the Clump sensor (black marker) on the clump.
4. The top of the transducer (side with marker on housing) must be oriented toward the vessel. For Master and Starboard sensors, the side of the transducer with the circle/A must be oriented toward the opposite door. For a Clump sensor, it must be oriented toward the Master sensor on the port door.
5. Attach the safety line from the sensor to the pocket and fasten the pocket's screw.
6. Make sure that all three sensors are correctly aligned, to be able to communicate with each other.
7. Make sure there is nothing in front of the sensors that would block their signal toward the vessel.

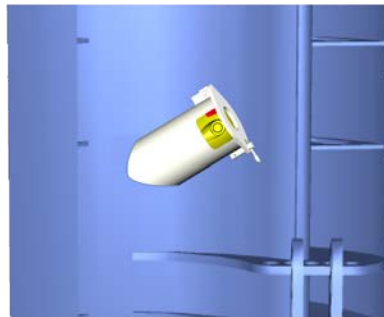Port   Starboard
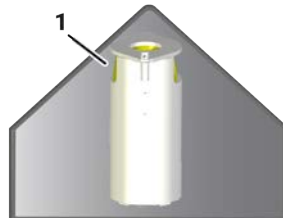
Clump

1. Down sounder (marked with a circle)

Installing Dredge Sensors

Metal pockets need to be welded to the dredges' frame, so that sensors can be placed inside during the tow.

The sensors must point toward the vessel: their elevation angle, or tilt angle, should be between 15° and 20°. Adjust the elevation angle of the pocket based on the operational depth of the dredge during fishing operations.

Depth sensor

1. The side of the sensor's transducer with a circle/A must point toward the bottom.
2. The sensor's transducer must be placed further forward of the front frame of the dredge, to be able to look toward the bottom. Make sure there is nothing underneath that would block its signal.

Spread sensors on twin dredges

1. Make sure there is nothing:
    1. In front of the sensors that would block their signal toward the vessel,
    2. Or between them that would block the communication between each other.
2. Make sure that both sensor transducers are aligned with each other during towing so that they can communicate correctly.
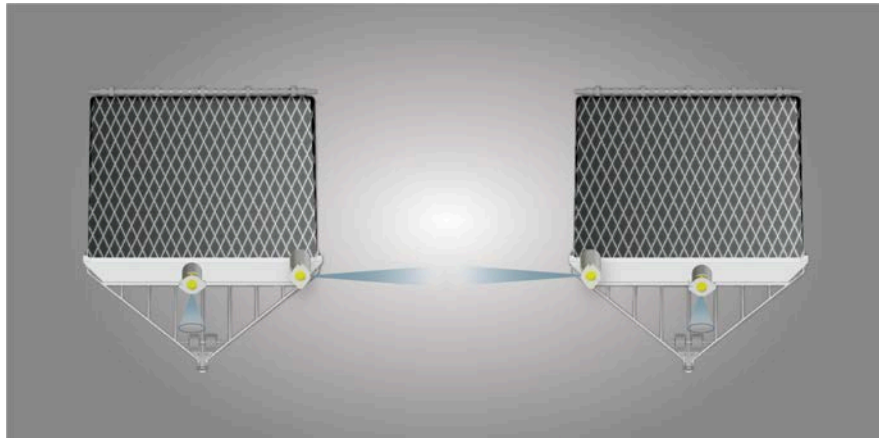3. Placement in the pockets: the Master sensor with a red marker is on the port dredge and the Starboard sensor with a green marker on the starboard door. The top of the transducer (side the marker) must be oriented toward the vessel and the side of the transducer with the circle/A must be oriented toward the opposite door.

Calibrating the Pitch and Roll Measurements of the Door Spread Sensors

Before you begin

Note: For this procedure, you need to use a computer with Mosa2.

Tip: Some trawl door manufacturers measure the pitch and roll offsets themselves and write it on the doors. Check on trawl doors.

About this task

The sensor pocket is usually welded to the door at a 15 to 20 degree vertical angle. This means that when trawl doors are vertical, the sensors will already have a pitch angle and maybe a roll angle. You need to calculate these angles and offset them in order to have 0° of pitch and roll when doors are vertical.
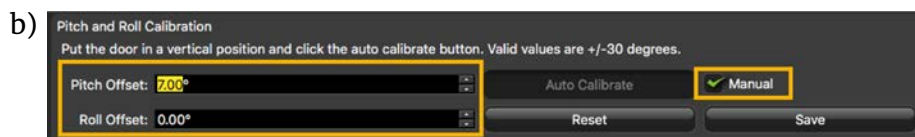
If you do not know the pitch and roll offsets, doors need to be taken out and placed on the ground in order to calibrate the pitch and roll.
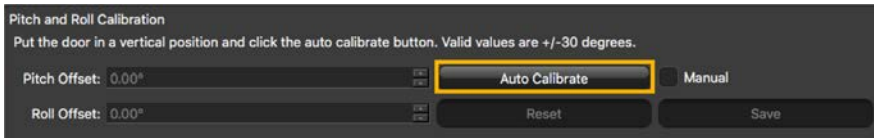
Procedure

1. If you do not know the offsets, prepare the doors:

   a) Remove all rigging, shackles and attachment points from the doors.
   b) Remove the net gear attached to the door.
   c) Using a crane or forklift, place the door on a flat surface, such as a dock or similar location.
   d) Using the necessary rigging, hang doors with angles as close to 0 degree as possible on the vertical and horizontal plane. Use a carpenter level to help you.
   e) Insert the sensor in the pockets on the doors.

2. Open Mosa2 application.
3. Activate and deactivate the water-switch to connect the sensor to Mosa2 via a wireless signal.
4. Click the tab **Pitch and Roll**.
5. Click **Pitch and Roll Calibration**, then:

   a) If you already know the pitch and roll offsets, select **Manual**, then manually enter the offsets.
   b)

   If you do not know the pitch and roll offsets, click **Auto Calibrate**. Offset values change according to the position of the sensor on the door.

Pitch and Roll Calibration
Put the door in a vertical position and click the auto calibrate button. Valid values are +/-30 degrees.

Pitch Offset: 0.00°   Auto Calibrate   Manual
Roll Offset: 0.00°   Reset   Save

6. Click **Save**.

7. From **Opening Angle**, enter the angle between the door and the sensor (horizontal plane) in degrees. If you do not know the angle, ask the manufacturer for the angle of attack. If you cannot know the angle, you can put 35° but be aware that a wrong angle impacts pitch and roll measurements.
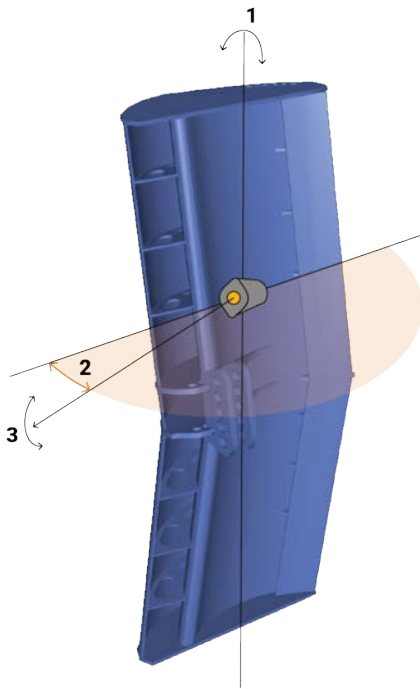
1. Roll

2. Opening angle: 25–40°

3. Pitch

8. Click **Apply** and make sure there is a green check mark ✓.

Checking the Proper Functioning of the System

Once the system is installed and turned on, you need to check that it correctly receives data from the sensors.

Procedure

1. Click the wheel icon ⚙ on the top right corner of the screen.

2. Click **Diagnostics** on the left side of the screen: information about the system (for example Mx license, system versions) and NMEA communication are displayed.
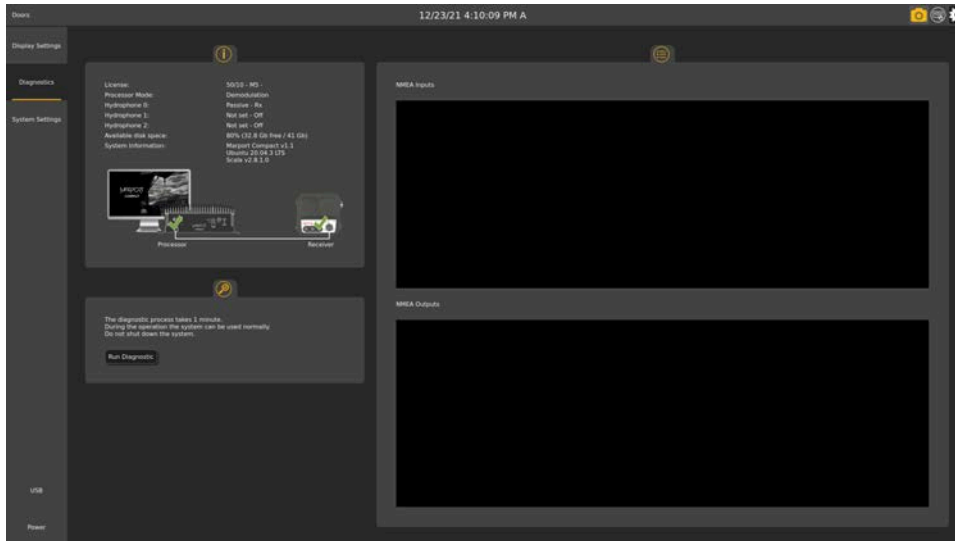
3. Click **Start Diagnostic**.

The diagnostic operation lasts for 1 minute approximately. The first minute, a spectrum analyzer is recorded. The data received on Scala during the last hour and next hour are also recorded. You will see a countdown in the **Diagnostics** area and a yellow status bar on the bottom of the screen. In the meantime, you can use the system normally.

⚠️ **Important:** Do not turn off the system or you will have to start over.

4. Put the sensors into water and check from Scala that data are received.

What to do next

Diagnostic data are saved on the computer. The support technicians can retrieve them using a USB key, as explained in Backing Up System Data on page 34.

System Setting Modification

You can change settings related to the sensors, trawl gear or display of data on Scala.

Data Display Options

You can change the display of data appearing on the screen.

Echogram view

| Filtered Data	Activated by default. The system applies filters to data to smooth the measures received.
Vertical Display	Only for Seine Explorer with side-looking sounding.
Show Palettes	Change the default colors of the echogram.
Hide Scope	Shown on the right side of the echogram by default. The scope displays the latest received sonar data.
Set VRM	Set a range marker at a given depth.
Time Synchronization	Synchronize the time stamp and zoom on echograms and history plots placed one above each other.
Draw Bottom Line	Display a line at the bottom of the trawl and a line at the beginning of the seabed.
True Mode	By default, the echogram is displayed beginning from the sensor position. When this option is activated the echogram is displayed beginning from the water surface. This is useful to see the trawl descent from the sea surface to the seabed.
Bottom Expansion	Display a more precise view of the bottom to better see fish close to the bottom.
Manual Z Scale	Manually adjust the depth scale.
Z Scale Follow Bottom	Keep the zoom you set on the depth scale and follow the bottom to always keep it on the image.

Z Scale Auto Range	Keep the depth value that you set on the top of the scale and adjust the zooming to always keep the bottom on the first third of the image.
Up/Down Data, **Down Only**, **Up Only**	Only if the sensor has the Up sounding: choose the direction of the sounding displayed on the echogram image.

History plots

| Reset Scale	Reset the scale of values on the right side of the plot.
Show Raw Data	Show data without the filters applied by the system.
Show Points	Show a point on the plot whenever a measure is received from the sensor.
Vertical	Rotate the plot to a vertical position.
Show Bars	Show a red bar on the right side of the plot, beginning from 0 to the value of the measure.

MultiTrawl view

Controls
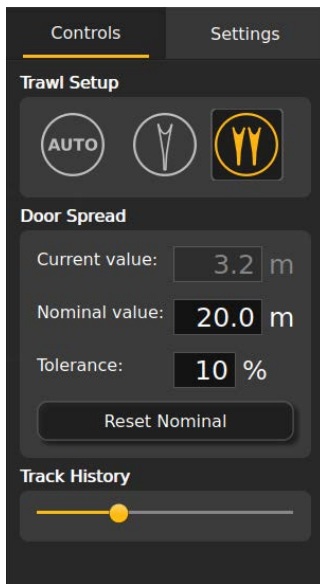
- **Trawl Setup**: select **Auto** to automatically detect the number of trawls or select manually the type of trawl gear in use. If you change the trawl gear, change this setting accordingly.
- **Door Spread**:
  - **Current value**: current total spread distance.
  - **Nominal value**: total spread distance you want to have. If the value of the current distance becomes larger or smaller than the nominal value, the alignment axis appears in red.
  - **Tolerance**: tolerance threshold between the current and nominal values.
- **Reset nominal**: if the current spread distance is correct, click to make this distance the nominal value.
- **Track History**: zoom in and out of the time scale of the trawl tracks.

Settings
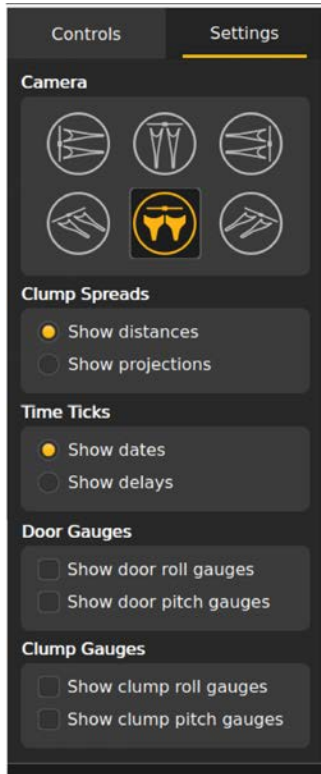
- **Camera**: change the viewing angle of the 3D view.
- **Clump Spreads**:

  - **Show distances**: real values of spread between two door sensors.

  - **Show projections**: calculated values of linear spread between door sensors. These values have a yellow dot instead of a green dot.

    Note: Spread distances and projection distances should be the same. If not, it means the doors or clumps are not aligned.

- **Time Ticks**: select **Show dates** to show the current time on the timescale or **Show delays** to show the time that has elapsed since the trawl was put in water.
- **Door Gauges** and **Clump Gauges**:
  - **Show roll gauges** and **Show pitch gauges**: displays angular gauges to help with door pitch and roll monitoring.

Door 3D View

| Display Door Trail	Display a trail behind the door 3D view.
Display Ground	Display a 3D view of the ground.
Horizontal Camera	See the doors from above.
Vertical Camera	See the door from the side.
Free Camera	Click and drag on the display to adjust the view.

Setting an Alarm on Incoming Data

You can set an alarm to be alerted when data received have a given value.

Procedure

1. Click the wheel icon ⚙ on the top right corner of the screen, then go to **Display Settings**.
2. In **Alarms**, click **Add**.
3. In **Alarm Data**, choose on which equipment and type of data you want to set an alarm.
4. In **Alarm Conditions**, choose the conditions on which the alarm is triggered.

5. In **Alarm Notifications**, choose if you want to display a pop-up notification and/or a sound.
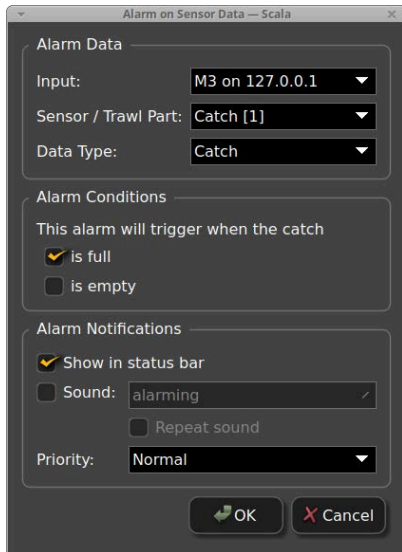
Changing the Units of Data

You can change the unit of data displayed on the application pages.

Procedure

1. Click the wheel icon ⚙ on the top right corner of the screen, then go to **Display Settings**.
2. In **Units**, click the drop-down boxes to display the choices of units.

Changing the Transmission Power

You can change the power of the signal toward the vessel to adapt to the fishing depth.

Before you begin

You need to use the Configuration Cable. Make sure to have all the sensors at hand.

Procedure

1. Click the wheel icon ⚙ on the top right corner of the screen.
2. Click **System Settings** on the left side of the screen, then click **Transmission Power**.
3. Choose between:
   · **Low**: works for most conditions.
   · **Medium**: if the sensor is far from the vessel (e.g. more than 800 m depending on conditions, high depth), or if there is a high level of interferences.
   · **High**: if you still have issues receiving data.

4. Click **Apply Changes** and follow the wizard instructions.

Changing the Frequency Plan

You can change the frequency plan if there are perturbations with other sensors.

Changing the frequency plan will change the emitting frequency of all the sensors. Be prepared to connect all the sensors to the computer using the Configuration Cable.

About this task

Three sets of frequency plans are defined, allocating different frequencies to all the sensors.

By default, the system uses the first frequency plan. You can choose between three frequency plans:

- **Band 1**: default. Narrowband.
- **Band 2**: wideband (low).
- **Band 3**: wideband (high).

⚠️ **Important:** **Band 1** is compatible with all wideband (NC-1-06, NC-1-08) and narrowband (NC-1-07) hydrophones. **Band 2** and **Band 3** are compatible with wideband hydrophones only.

Procedure

1. Click the wheel icon ✿ on the top right corner of the screen.
2. Click **System Settings** on the left side of the screen, then click **Frequency Plan**.
3. Select a frequency plan.
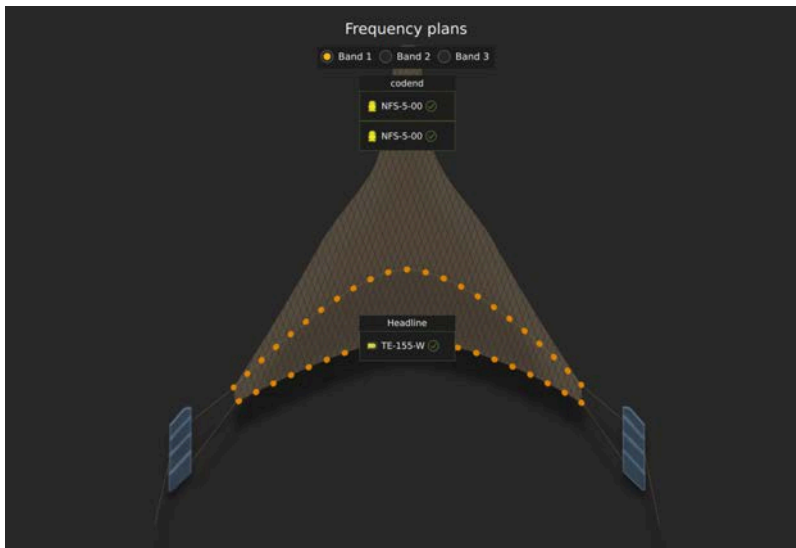
4. Click **OK** and follow the wizard instructions.

Changing the Model of Trawl Doors

When you change the models of trawl doors that are deployed, you also need to change the models in Scala settings.

Before you begin

- Door spread sensors have been calibrated and their offsets saved in Marport Compact .
- You need to use the Configuration Cable. Make sure to have all the door spread sensors at hand.

About this task

The pitch and roll offsets of the sensors corresponding to each model of trawl doors have been saved in Scala. When changing the trawl doors in operation, upload the corresponding offsets into the sensors using the Configuration Cable.

It is important to select the correct model of trawl door in use in order to have the correct pitch and roll offsets and opening angles.

Procedure

1. Click the wheel icon ⚙ on the top right corner of the screen.
2. Click **System Settings** on the left side of the screen, then click **Door Models**.
3. Click **Select** next to the set of doors that will be deployed.
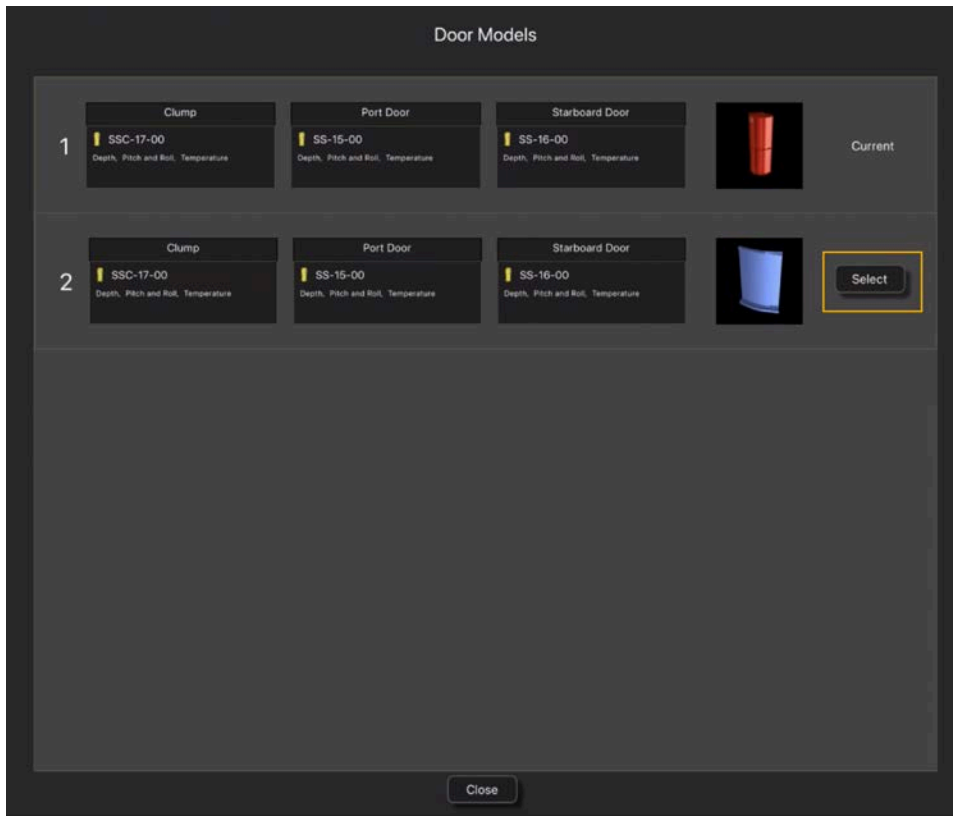
The configuration wizard opens and asks to connect the sensors with the Configuration Cable.

4. Click **Close** when you have finished.

Changing the Number of Trawls or Dredges

You can switch between twin and single trawl or dredges from the application.

About this task

If the system is configured to work with twin trawls or dredges, you can also switch to a single gear if the gear in water is changed.

⚠️ **Important:** When switching to single, make sure that the **PORT** trawl or dredge is deployed.

Procedure

1. On the right corner of the screen:

   · **Trawls**: click ⬤ to switch to single or ⬤ to switch to twin.

   · **Dredges**: click ⬤ or ⬤.

2. The pages are updated with the corresponding display.

Maintenance and Troubleshooting

Read this section for troubleshooting and maintenance information.

Backing Up System Data

You can back up the data that was saved during a diagnostic operation.

Important: Compatible USB key formats are FAT32 (recommended), FAT16 and ExtFAT. We recommend to use a FAT32 USB 3.0 for a better transfer speed.

About this task

The USB backs up the diagnostic data that have been saved when doing a diagnostic operation (see Checking the Proper Functioning of the System on page 25). Diagnostic files include: the recorded SDS files from the last and next hour (2 hours maximum) with a 1-minute spectrum and XML files that contain the full system configuration. A system configuration file is also saved: this file can be used to load the configuration to another system (see Replacing the Configuration on page 34).

Procedure

1. Connect the Backup USB key to the computer. **USB Key Options** page opens.
2. Click **Backup Archive**.
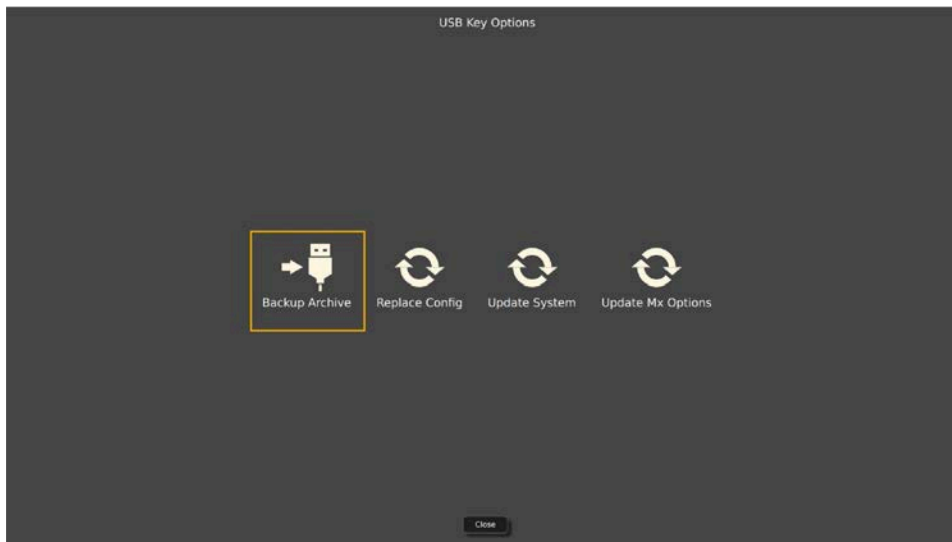
3. Wait for the backup to complete, then disconnect the USB key when prompted.
4. The contents of the archive are saved in a folder on the USB key, its name is a set of numbers corresponding to the date and time of the backup.
5. When replaying the files, an event marker appears at the time when the backup was started.

Replacing the Configuration

You can replace the configuration of a system, by uploading the configuration from another system.

Before you begin

You need to have the configuration file exported from an existing system. To know how to get this file, see Backing Up System Data on page 34.

! **Important:** Do not change the name of the configuration file or the operation will not work.

Procedure

1. Copy the configuration file (*.tar.gz) that is in the archive folder that was created when backing up data, and store it at the root of the USB key.

   ✏ **Note:** Compatible USB key formats are FAT32 (recommended), FAT16 and ExtFAT. We recommend to use a FAT32 USB 3.0 for a better transfer speed.

2. Connect the USB key to the computer. **USB Key Options** page opens.

3. Click **Replace Config**.

4. Select the file from the dialog that appears.
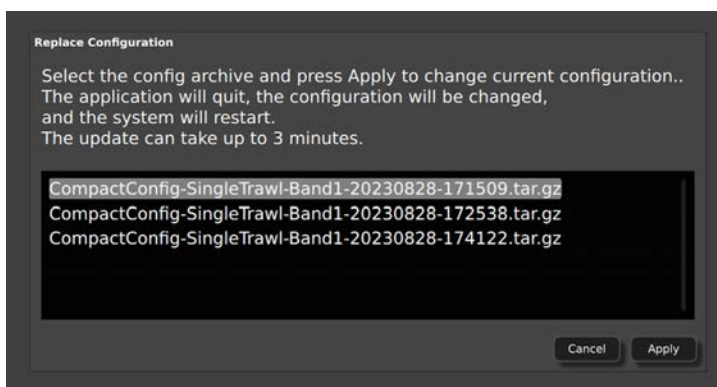
5. Wait for the upload to complete and the computer to restart. Then check if the configuration has been correctly applied.

Updating the System Software

You need to update the software when new releases of Scala are available.

About this task

When a new version of the software is available, you can update the system using an update file sent by Marport offices.

Procedure

1. Copy the .mcs file to a USB key.

   📝 **Note:** Compatible USB key formats are FAT32 (recommended), FAT16 and ExtFAT. We recommend to use a FAT32 USB 3.0 for a better transfer speed.

2. Connect the USB key to Marport Compact computer. **USB Key Options** page opens.

3. Click **Update System Software**.
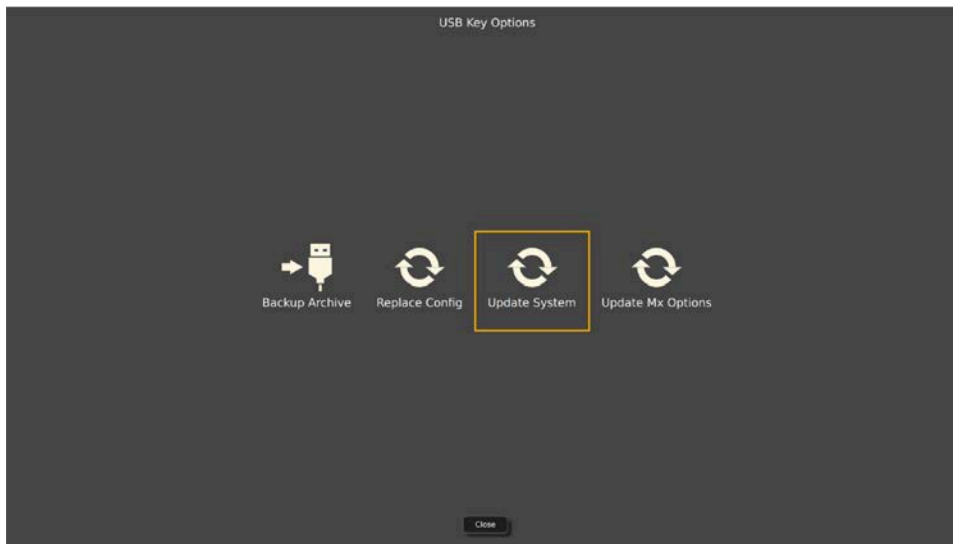
4. Select the update file from the dialog box.

5. Wait for the update to complete and the computer to restart.

Results

The screen displays the data pages and the system is ready to use.

Updating Mx Receiver Options

You can upgrade the system to be able to add more sensors.

About this task

By default, Marport Compact System is limited to 12 data options and 1 Explorer sensor. You can upload a license file to be able to use 50 data options and 2 Explorer sensors.

Procedure

1. Copy the license file to a USB key.

   📝 **Note:** Compatible USB key formats are FAT32 (recommended), FAT16 and ExtFAT. We recommend to use a FAT32 USB 3.0 for a better transfer speed.

2. Connect the USB key with the license file to the computer. **USB Key Options** page opens.

3. Click **Update Mx Options**.

4. Select the license file from the dialog box.

   The system is now upgraded.

Troubleshooting

Learn how to solve common problems.

Main Scala window disappeared after main monitor has been disconnected

When you disconnect then reconnect the main monitor, both screens display only the secondary window and you do no longer access the main window.


Figure 1: Main screen display after the disconnection

➡ The screens switched into a mirror display.

1. Press the power button ⏻. Wait for the lights on the computer to turn off and press again.
2. Once Scala is open, the two windows should be displayed correctly.

Screens are mirrored after the system installation

*After you have installed the system with the installation key, the two screens are in mirror mode, and only display the **Trawl** page (page 2), with no access to the settings.*
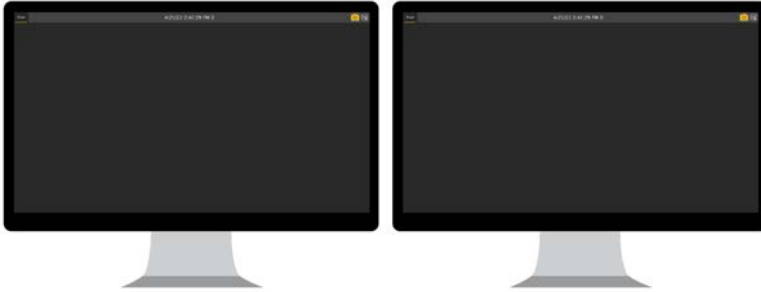
➜ You need to disconnect the second screen and change the display settings.

1. Disconnect the second screen. Both pages are displayed on the first screen.
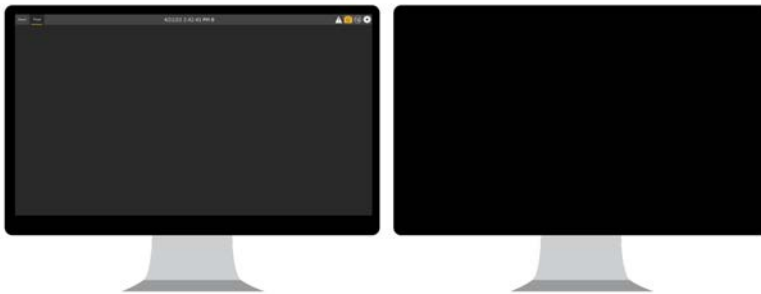
2. Click the wheel icon ⚙ on the top right corner of the screen, then go to **Display Settings**.

3. Click **Configure Screens**. The **Display** settings window appears. Do not change the settings now.

4. Connect again the second screen.

5. When you see the **Display** settings window on both screens, click **Extend to the right** from one of them. Scala pages are now grouped together on the first screen only.
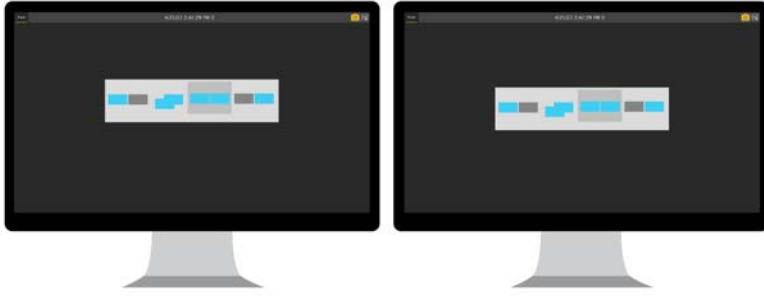
6. Disconnect then connect the second screen. The two pages are now displayed each on one screen.

"Communication Error" message during sensor configuration

When you are configuring the sensors with the Configuration Cable, the error message "Communication Error" appears on the screen.

· Disconnect and reconnect the USB connector of the Configuration Cable from the computer, then try again.

The wizard freezes when the sensor is connecting

After you have connected the Configuration Cable to the sensor, the progress bar freezes when trying to connect to the sensor.

· Click **Cancel**, then try again.

The echogram from the Explorer sensor with Up sounding is too slow

The echogram data displayed in Scala2 appears too slowly on the screen.

➜ When a sensor has both a Down and Up sounding, the echogram data are distributed between the two directions. As a result, data arrives slower to the receiver and echogram images are also of lesser quality. If you do not need to see in both directions, you can deactivate one of them.

· Right-click the echogram and click **Up Only** or **Down Only**.

The System Settings are not available

*You need to change **Installation** or **Configuration** settings from the **System Settings** page, but the access has been removed.*

➜ The access to part or totality of the **System Settings** has to be removed at the end of the system configuration in order to permanently set the configuration and to prevent any unwanted modifications. Depending on the restriction that was chosen, the users can be able to access only the **Configuration** settings, or no system setting at all. When locked, these settings cannot be accessed and changed anymore.

The Configuration Cable wizard shows an error

When connecting a sensor with a Configuration Cable, the screen shows "Configuration Cable error" with the following image:

➜ Check the Configuration Cable version. If you have a Configuration Cable rev003, it is compatible only with Marport Compact version 01.05.07.x and later. Upgrade the system if your Marport Compact version is older.

Appendix

Frequency Plans

Up to three frequency plans are available for the sensors, according to the type of trawl gear.

Note: The twin trawl and twin outrigging have only two frequency plans.

Important: **Band 1** is compatible with all wideband (NC-1-06, NC-1-08) and narrowband (NC-1-07) hydrophones. **Band 2** and **Band 3** are compatible with wideband hydrophones only.
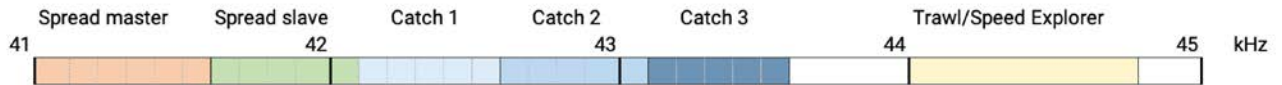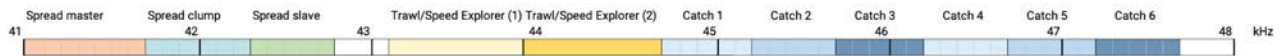
41
| : Marks every 10 kHz.

: Sensor bandwidth
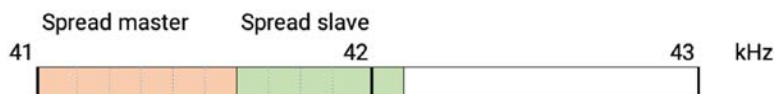
: 1 PRP data (100 Hz)

Band 1

Single trawl

Twin trawl

Twin outrigging
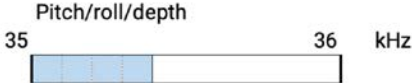
Single dredge
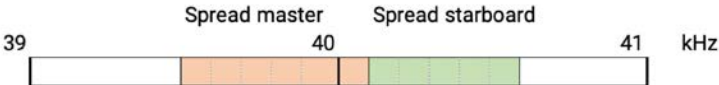
Twin dredge

Purse seine

Depth 1   Depth 2   Seine Explorer

41   42   43   kHz

Band 2

Single trawl

Catch 1   Catch 2   Trawl/Speed Explorer   Catch 2   Catch 3   Catch 3   Spread master   Spread slave

35   36   37   38   39   40   41   kHz

Twin trawl

Trawl/Speed Explorer (1) Trawl/Speed Explorer (2)   Catch 1   Catch 2   Catch 3   Catch 4   Catch 5

35   36   37   38   39   40   41   42

Catch 6   Spread master   Spread clump   Spread slave

47   48   49   52   53   54   55   kHz

Twin outrigging

Trawl/Speed Explorer (1) Trawl/Speed Explorer (2)   Catch 2   Catch 3   Catch 4   Catch 5

35   36   37   38   39   40   41   42

Spread master   Spread master   Spread slave   Spread slave
(trawl 1)   (trawl 2)   (trawl 1)   (trawl 2)

52   53   54   55   kHz

Single dredge

Pitch/roll/depth

35   36   kHz

Twin dredge

Spread master   Spread starboard

39   40   41   kHz

Purse seine

Depth 1   Depth 2   Seine Explorer

35   36   37   kHz

Band 3

Single trawl

| Catch 1 | Catch 2 | Catch 3 | | Trawl/Speed Explorer (1) | | | | Spread master | Spread slave | |
| 46 | | 47 | | 48 | | 49 | 50 | ... 53 | 54 | 55 kHz |

Single dredge

Pitch/roll/depth

45   46   kHz

Twin dredge

Spread master   Spread slave

53   54   55   kHz

Purse seine

Depth 1   Depth 2   Seine Explorer

45   46   47   kHz

Index