Marport Seine Explorer

Seine Net Monitoring

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Global Offices & Partners

Marport Seine Monitoring

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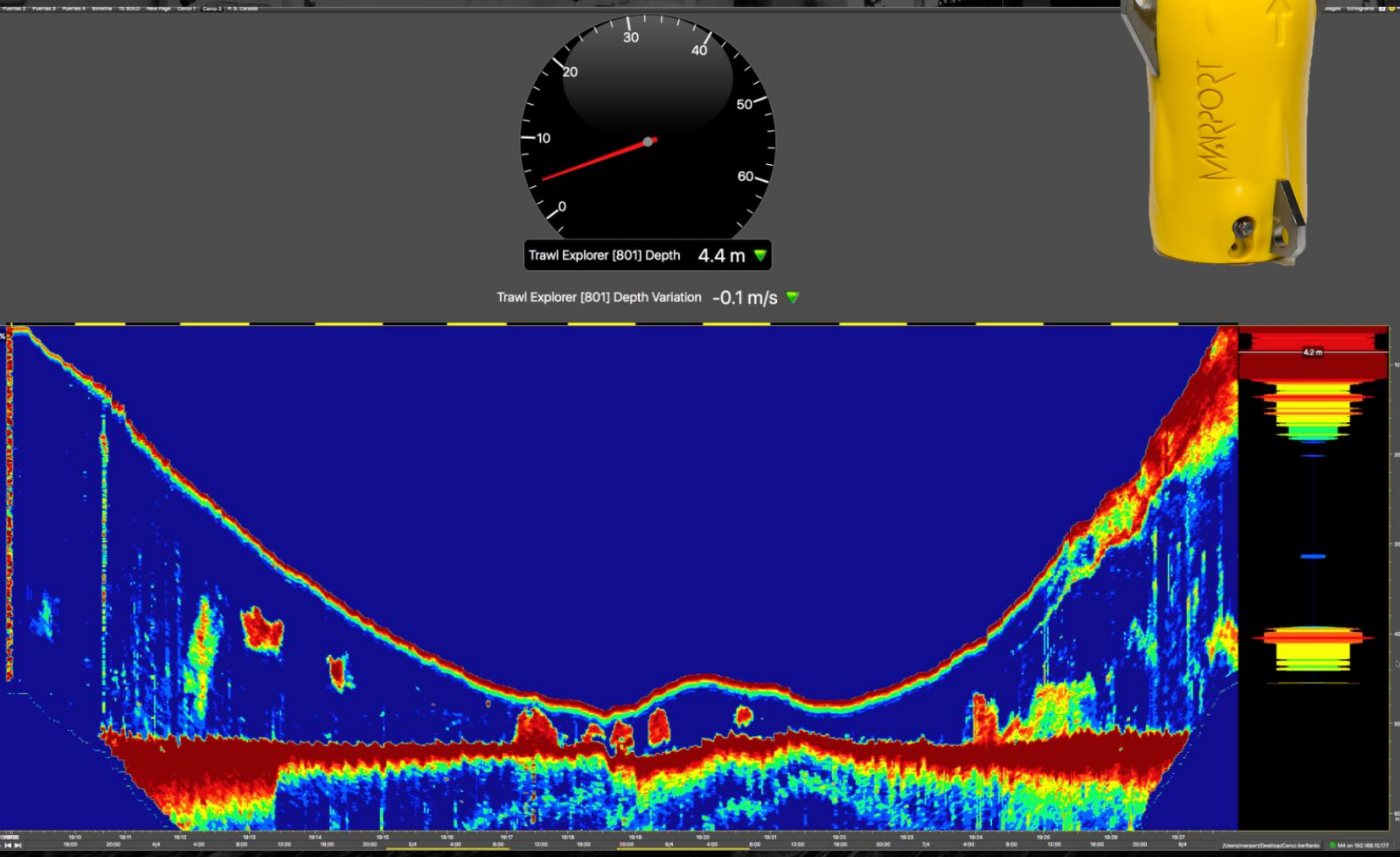

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How it works

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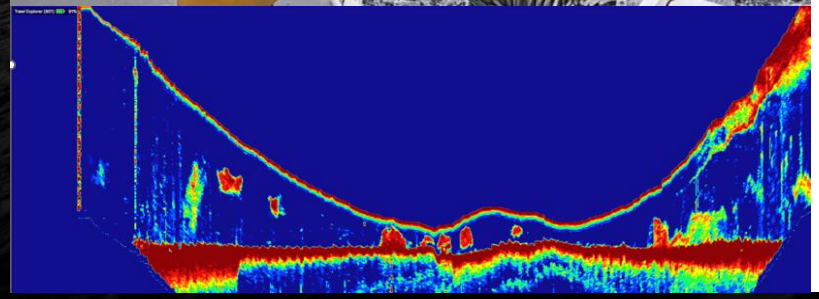

The Seine sensor is mounted on the lead line of a purse seine in a robust protective steel framed housing.

It relays data back to the wheelhouse from the moment the purse seine is shot away and during the fishing operation.

It has an omnidirectional uplink signal, which ensures that there is no loss of signal during the fishing operation.

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Seine sensor options

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Various seine sensor configurations:

- Seine sensor with depth (SE-50)
- Seine sensor with depth and temperature (SE-50)
- Seine sensor with depth, height and temperature (SE-100)
- Seine Explorer with temperature, depth, height, battery and echogram (SE-150)

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Sounding Modes

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Down 1

Sensor sends pings towards down direction (**1**) only.

You can control the distance with the seabed.

Pings are sent quicker than with the other modes, so more data is received, which enables a better horizontal resolution. This mode is recommended for better quality echogram images.

Down 1 + Up

Sensor sends pings towards down (**1**) and side (**2**) directions.

With the down sounding, you can control the distance with the seabed. If applicable, with the side-looking (**2**) sounding (called up sounding in Mosa2), you can see schools of fish inside the net when the purse seine is deployed and going down.

Fewer pings are sent because they are distributed between the 2 directions. As a result, data arrives slower to the receiver and echograms are of lesser quality.

Down 1 + Down 2

Sensor sends 2 consecutive pings towards down direction (**1** and **2**).

This mode is useful if you need to send two different pings towards the down direction. For example, sending one short and one long ping, or sending one low frequency and one higher frequency ping.

Like down + up mode, fewer pings are sent because they are distributed between the two different down soundings. As a result, data arrives slower to the receiver and echograms are of lesser quality.

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What your see

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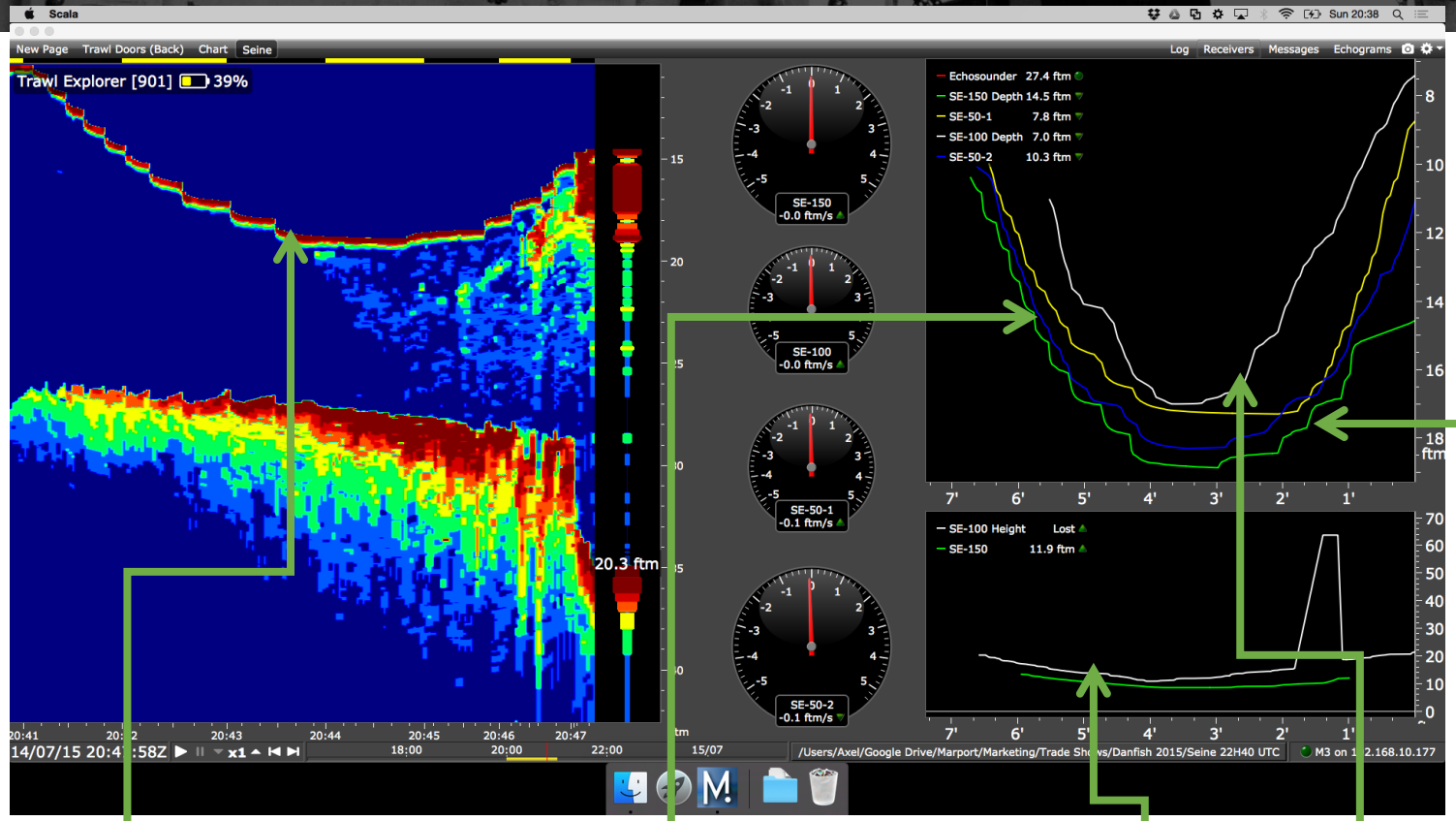

SE50 Depth Only

During the shot, depending on your type of Seine sensor, you can see the depth of water above the lead line, the distance from the lead line to the seabed (height) and an echogram of the area below the lead line.

SE150 – Full Echo and Depth

SE100 – Depth and Height

What your see

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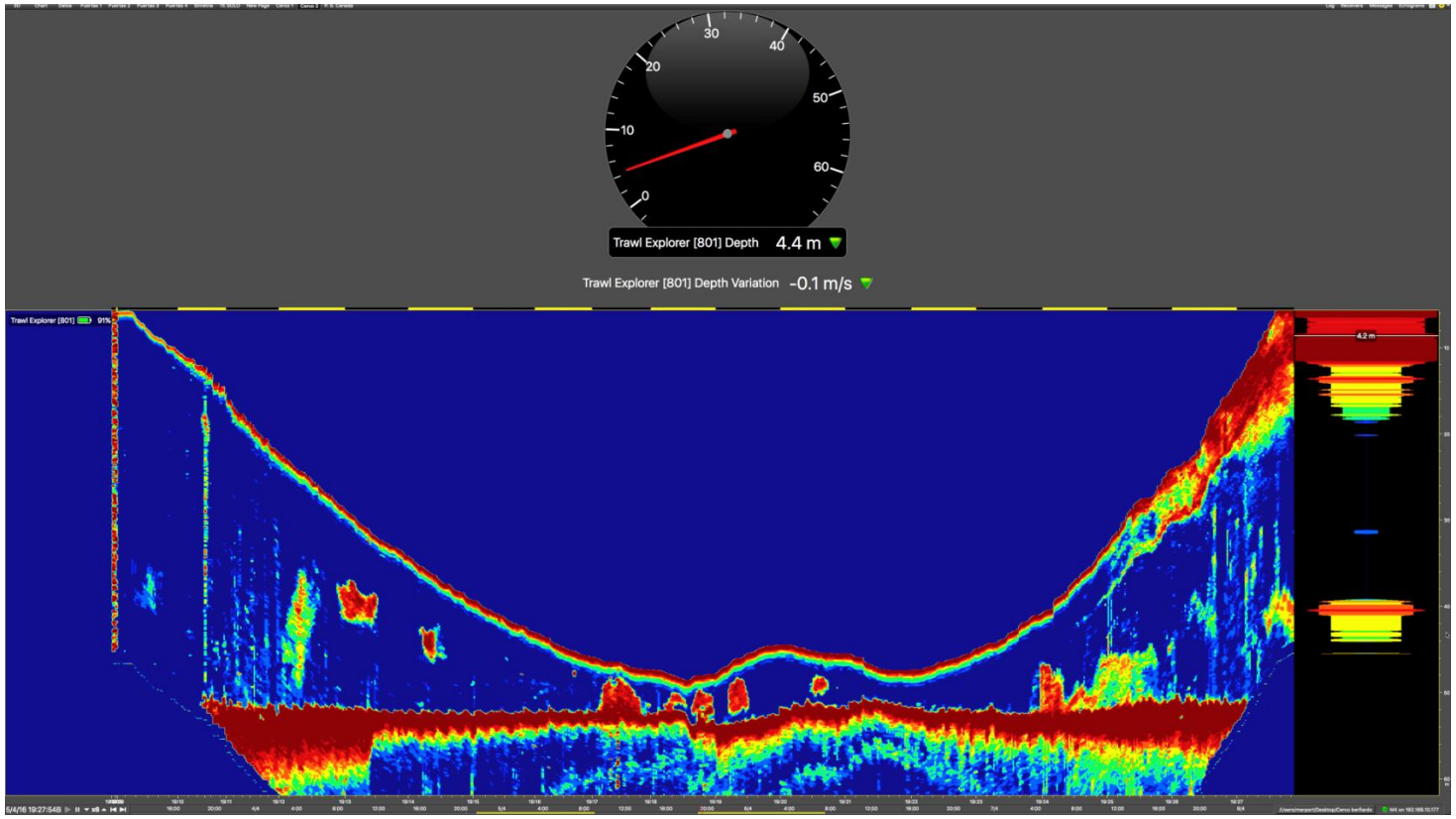
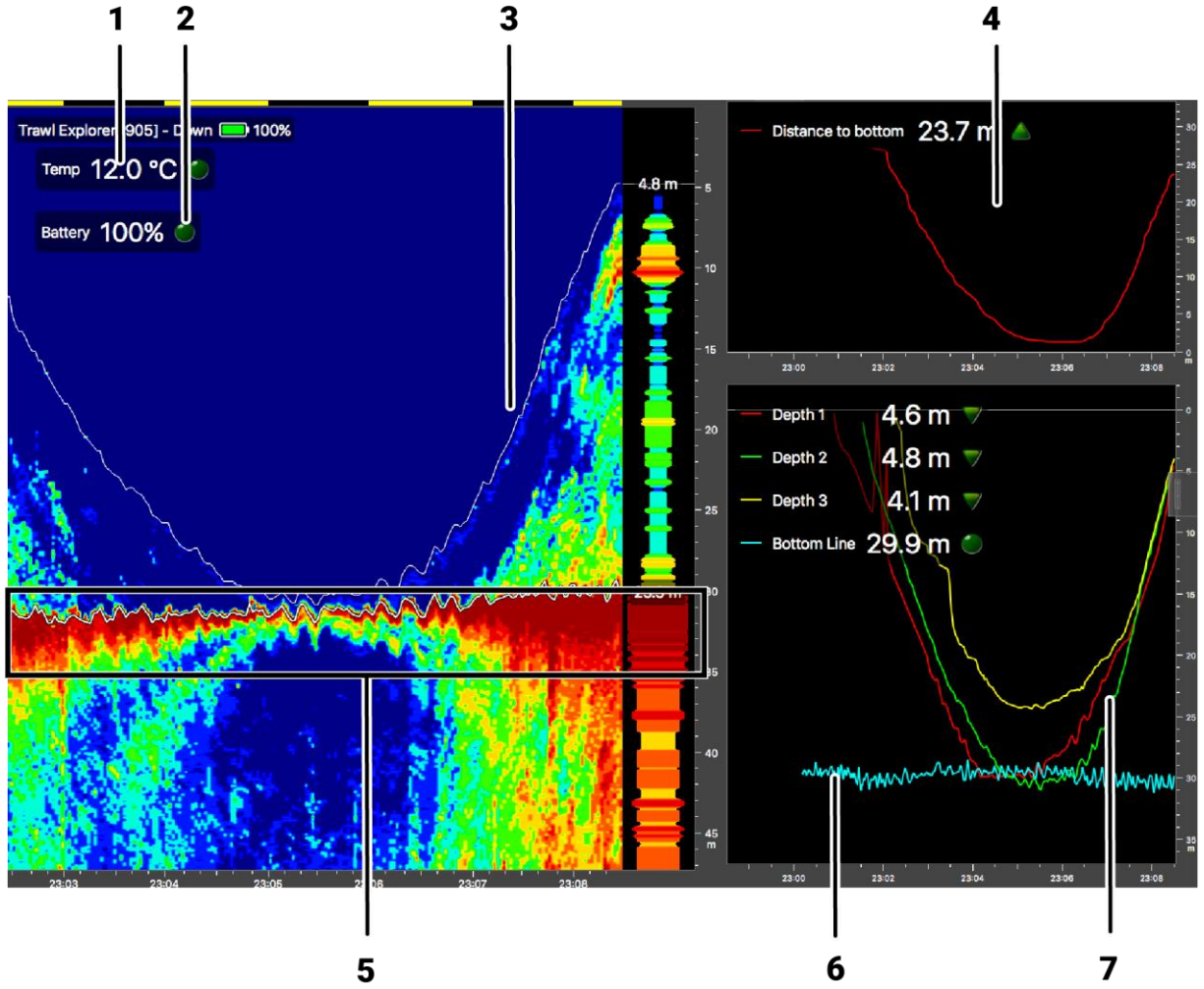


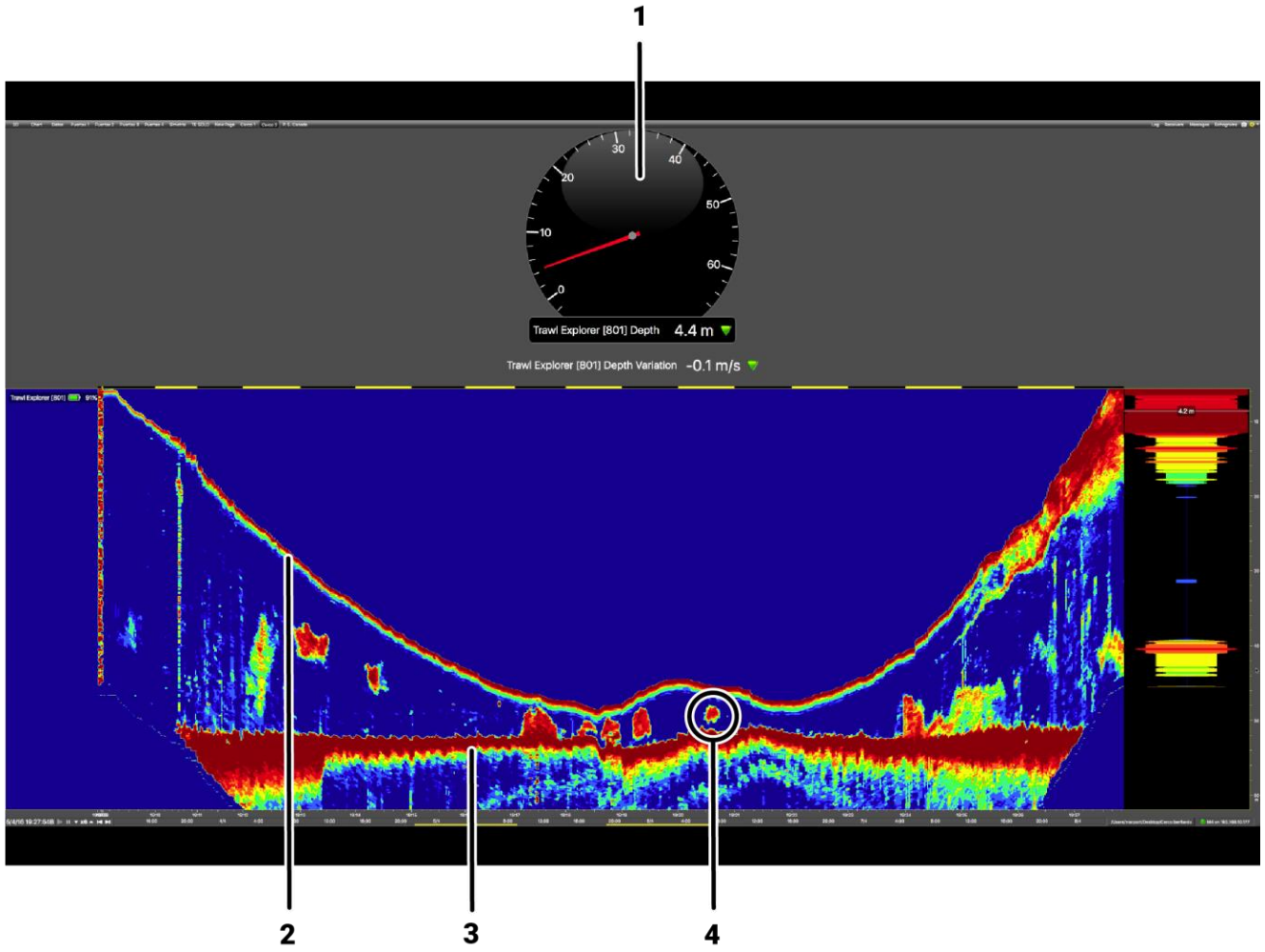
On most recent models, there is also an echogram of the contents of the purse seine during its descent. Measuring the depth at rapid time intervals provides the user with an accurate descent rate of the lead line.

Display Configuration



1. Temperature
2. Sensor battery level
3. Leadline
4. Distance from the sensor to the seabed
5. Seabed
6. Seabed (echosounder)
7. Depth of seine sensors

Display Configuration continued...



1. Distance from the water surface to the headline
2. Lead line
3. Seabed
4. You can see missed schools of fish if seine is pulled in too fast

Advantages

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- Know exact depth and sink rate of your net wall, especially handy when setting in currents
- Know exactly when to haul (gear is at target depth)
- When purse seining in shallow water, Marport's Seine sensors are an essential tool to ensure the gear is kept at a safe distance from the seabed. This way, you can avoid damage to the gear.

System overview

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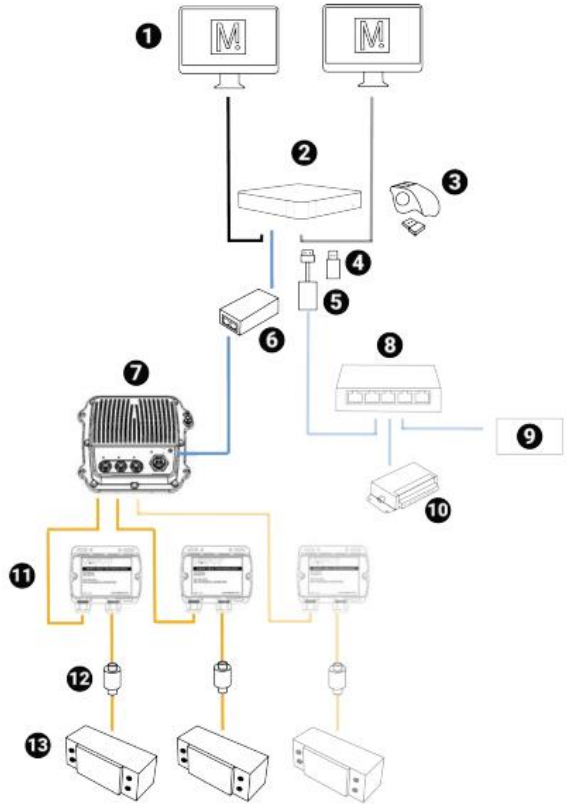
M3 System Overall Architecture



Ethernet cable

Marport junction box extension cable & hydrophone cable

Manufacturer standard cable

(Blurred) Optional elements

1 Screen(s)
2 Mac Mini i5 (ref. PC-0-03)
3 Wireless trackball mouse
4 Scala/Scala2 software dongle
5 USB Ethernet Adapter
6 PoE adapter (ref. 25-766-01)
7 Mx Receiver (ref. M3REC/M5REC)
8 Ethernet switch
9 Internet
10 NMEA multiplexer
11 Junction boxes (x2) (ref. 46-055-01)
12 Thru-hull penetration (ref. TH-1-XX)
13 Hydrophones (ref. NC-1-XX)

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Installation on net

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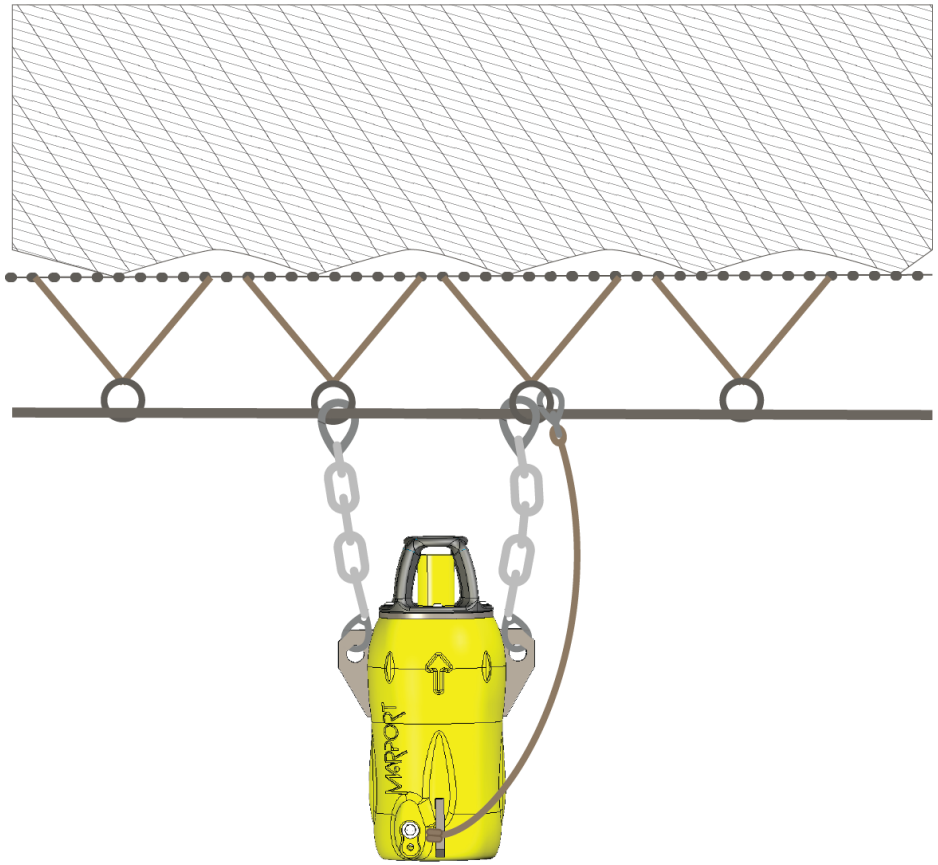

1. Attach two separate chains on the 2 front attachment lugs of the sensor using snap hooks.

2. Attach the chains to the lead line with one snap hook. The yellow transducer must point 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).

Installation on net continued...

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1. Outside of purse seine
2. Inside of purse seine
3. Signal toward the vessel (uplink)
4. Side sounding
5. Down sounding

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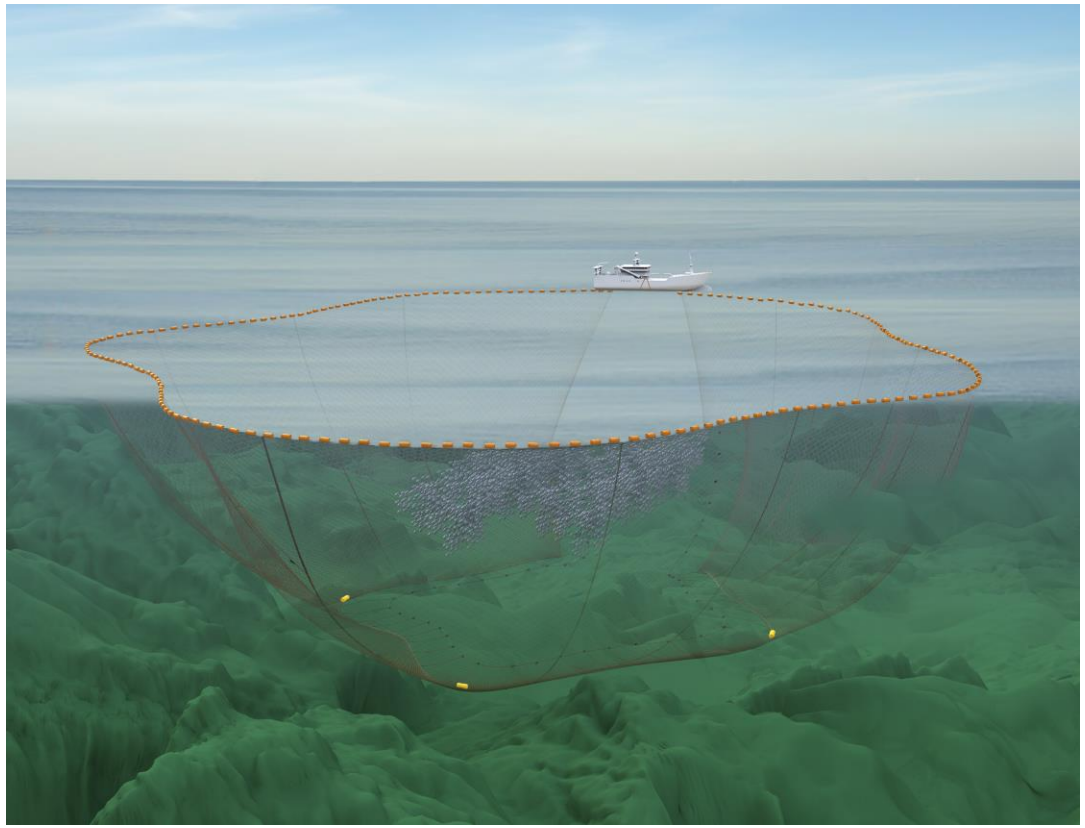
Installation on net continued...



4. Ideally, you can place three sensors at different locations on the lead line of the purse seine: one on a quarter of the length, one in the middle and one on three-quarters of the length. If you have a Seine Explorer, we recommend to install it on the middle of the length.

5. If the net stays on the deck for a long time after hauling, dry the end cap of the sensor to make sure it does not continue to operate.

Hydrophone installation (ships hull)

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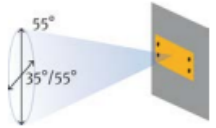
Example of Mounting Equipment for Two Seine Hydrophones

Planning the Installation for Purse Seining

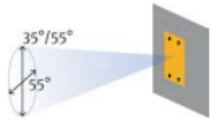
You need to carefully plan the position of the hydrophone so it is efficient when fishing with a seine purse.

You can install one or two hydrophones. It is recommended to install two hydrophones to better receive signals from the sensors and to cover a larger area. If you use a purse seine that has a size above the average size with a large coverage area, we strongly recommend to use two hydrophones.

Note: The hydrophone can be placed horizontally or vertically:



Horizontally: signals are detected within a horizontal beamwidth of 35° (55° for NC-1-05 when 1 cell is connected) and within a vertical beamwidth of 55°.



Vertically: signals are detected within a horizontal beamwidth of 55° and within a vertical beamwidth of 35° (55° for NC-1-05 when 1 cell is connected).

Important: The hydrophone must have an unobstructed line-of-sight to Marport sensors attached to the seine net.

Hydrophone installation continued...

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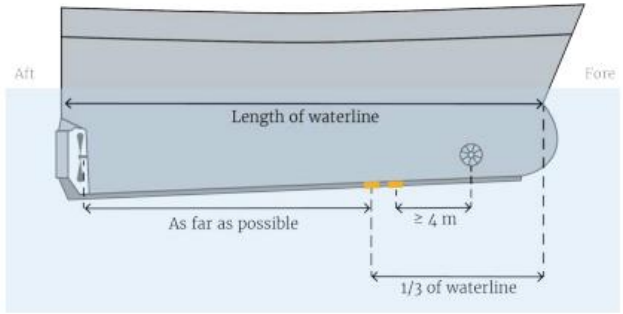
Dual Hydrophones

Location

- Place the hydrophones according to the guidelines above.
- You can install both hydrophones in the same mounting arrangement using appropriate angles so that they can cover a bigger area.



Horizontal coverage

- When the seine is placed forward of the beamwidth when pursing, you need to adjust the hydrophone angle:
  - If the seine net is pursed in the sector from approximately 0° to 130° relative to the bow, the forward hydrophone should be installed with an angle of 50° and the aft hydrophone with an angle of 90° relative to the vessel's centreline.
  - If the seine is pursed outside this sector, adjust accordingly.

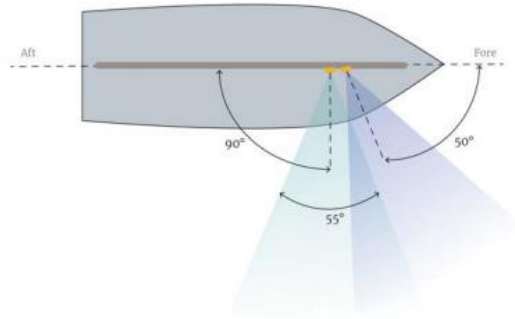


Figure 3: Example of coverage with hydrophones placed vertically (view from below)

Vertical coverage

- Hydrophones should have vertical tilt angles of 15° to 25°. Each hydrophone should have slightly different tilt angles to provide a larger vertical sector coverage:
  - Forward hydrophone: 25°
  - Aft hydrophone: 15°

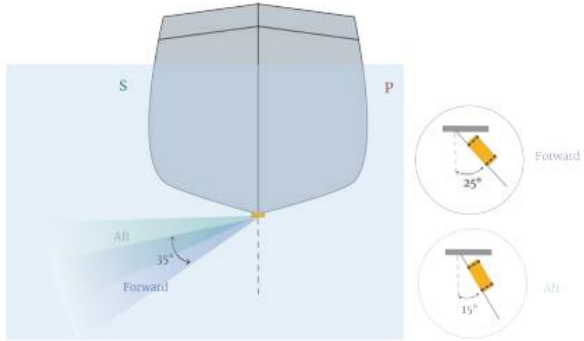


Figure 4: Example of coverage with hydrophones placed vertically (view from bow)

Video Example: Seine shooting in Adrian Ocean

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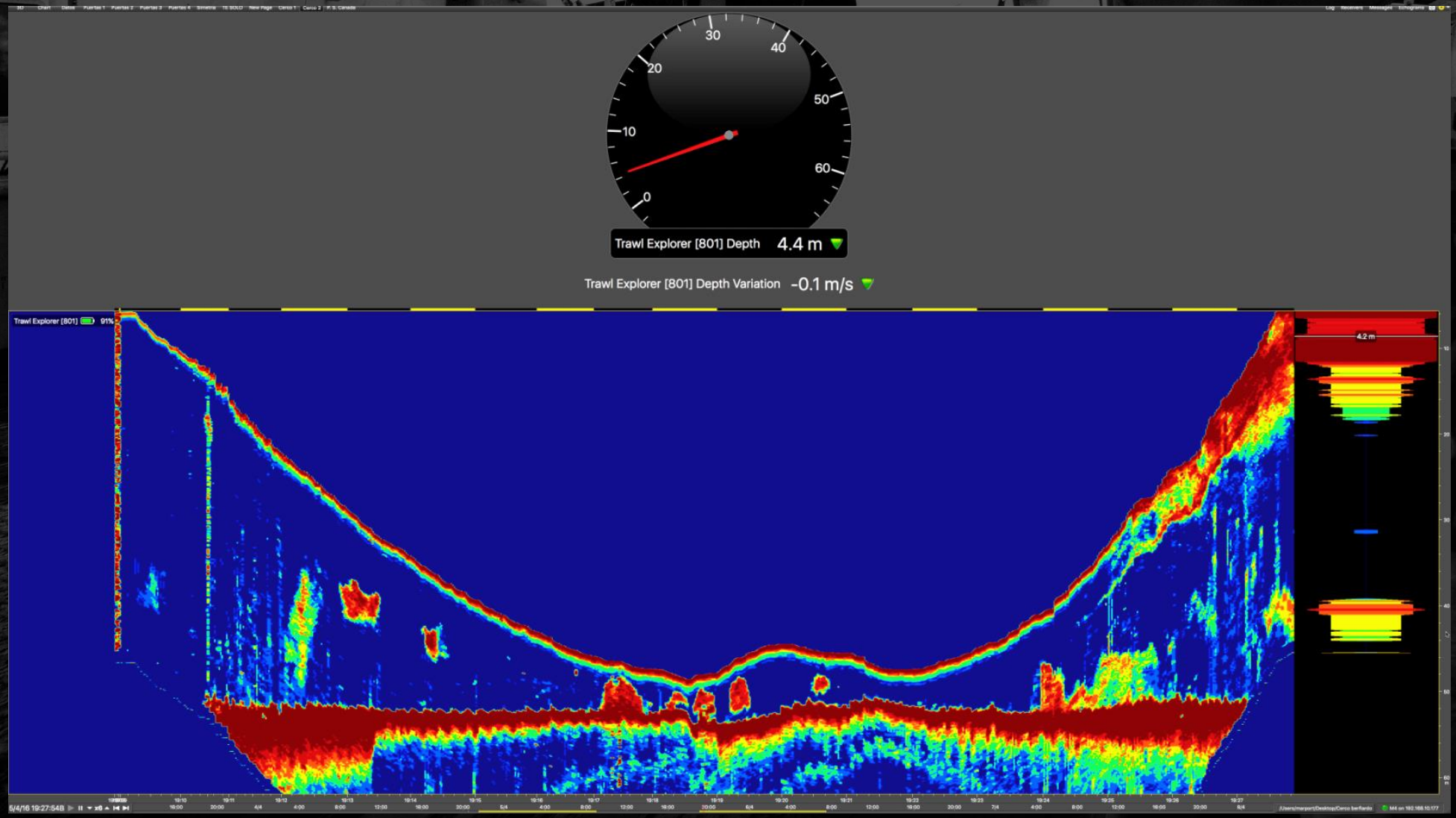

Beamwidths

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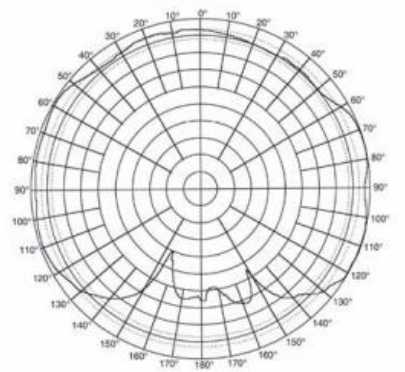
Beamwidth for uplink pings is omnidirectional.



Beamwidth for down pings:

Beamwidth	@ 125 kHz	@ 160 kHz	@ 200 kHz
-3dB	26°	24°	22°

Beamwidth for side pings (if applicable):

@ 360 kHz	
3dB	-13°

Tech Specs

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Seine sensors with depth / temperature and Seine sensors with height / depth / temperature

Uplink frequency	30 to 60 kHz
Range to vessel	up to 2500 m*
Sounder broadband frequency (height option)	Configurable between 120-210 kHz
Data update rate	Depth: 1-8 sec. - Temp: 3-16 sec. - Height: 1-14 sec.
Depth range	up to 1800 m
Depth resolution	0.1m with 0.1% accuracy
Temp measurement range	-5° C to +25° C
Temp accuracy	±0.1° C
Typical battery life	• SE50 (depth): up to 744 hours, depending on options † • SE100 (height): up to 72 hours, depending on options †
Charging time	Standard: 8-12 hours ‡
	Fast Charge: 4 hours
Battery type	Lithium-Ion
Heavy-duty model's weight in air (with housing)	10 kg
Heavy-duty model's weight In water (with housing)	5.8 kg
Light model's weight in air (with housing)	7.2 kg
Light model's weight In water (with housing)	3.3 kg
Warranty	2 years (Sensor & Battery)**

Seine Explorer

Important: Sensors with product number 46-134-1-01 have only a down looking transducer. Sensors with product number 46-137-1-01 have down and side looking transducers.

Uplink frequency	30 to 60 kHz
Range to vessel	up to 2500 m*
Down sounder broadband frequency	Configurable between 120-210 kHz
Up sounder broadband frequency	Configurable between 360-400 kHz
Sounder range	V2: 5 to 80 m - V3: 5 to 160 m
Data update rate	Depth: 1-8 sec. Temp/Battery/Height: every 6 sec.
Echogram update rate	Up to 3 images per second
Temp measurement range	-5° C to +25° C
Temp accuracy	±0.1° C
Depth resolution	0.1m with 0.1% accuracy
Typical battery life	12-24 hours †
Charging time	Standard: 8-12 hours ‡
	Fast Charge: 4 hours
Battery type	Lithium-Ion
Heavy-duty model's weight in air (with housing)	10 kg
Heavy-duty model's weight In water (with housing)	5.8 kg
Light model's weight in air (with housing)	7.2 kg
Light model's weight In water (with housing)	3.3 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

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Dimensions

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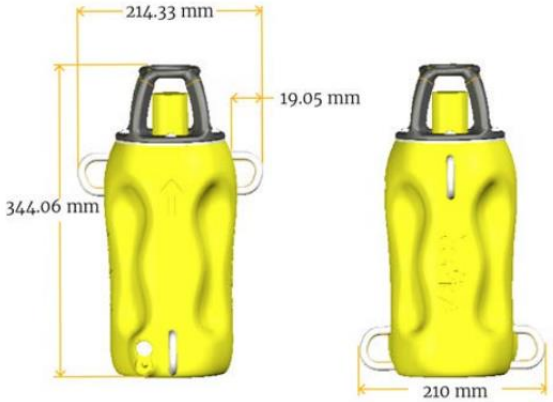
Heavy-duty

Light-weight



Flexability with competitors systems

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- Seine sensors with depth only or with depth, height and temperature can send depth and temperature data to a Scanmar system.
- There is also a version of Seine sensors with depth and temperature that is compatible with Simrad PI systems.

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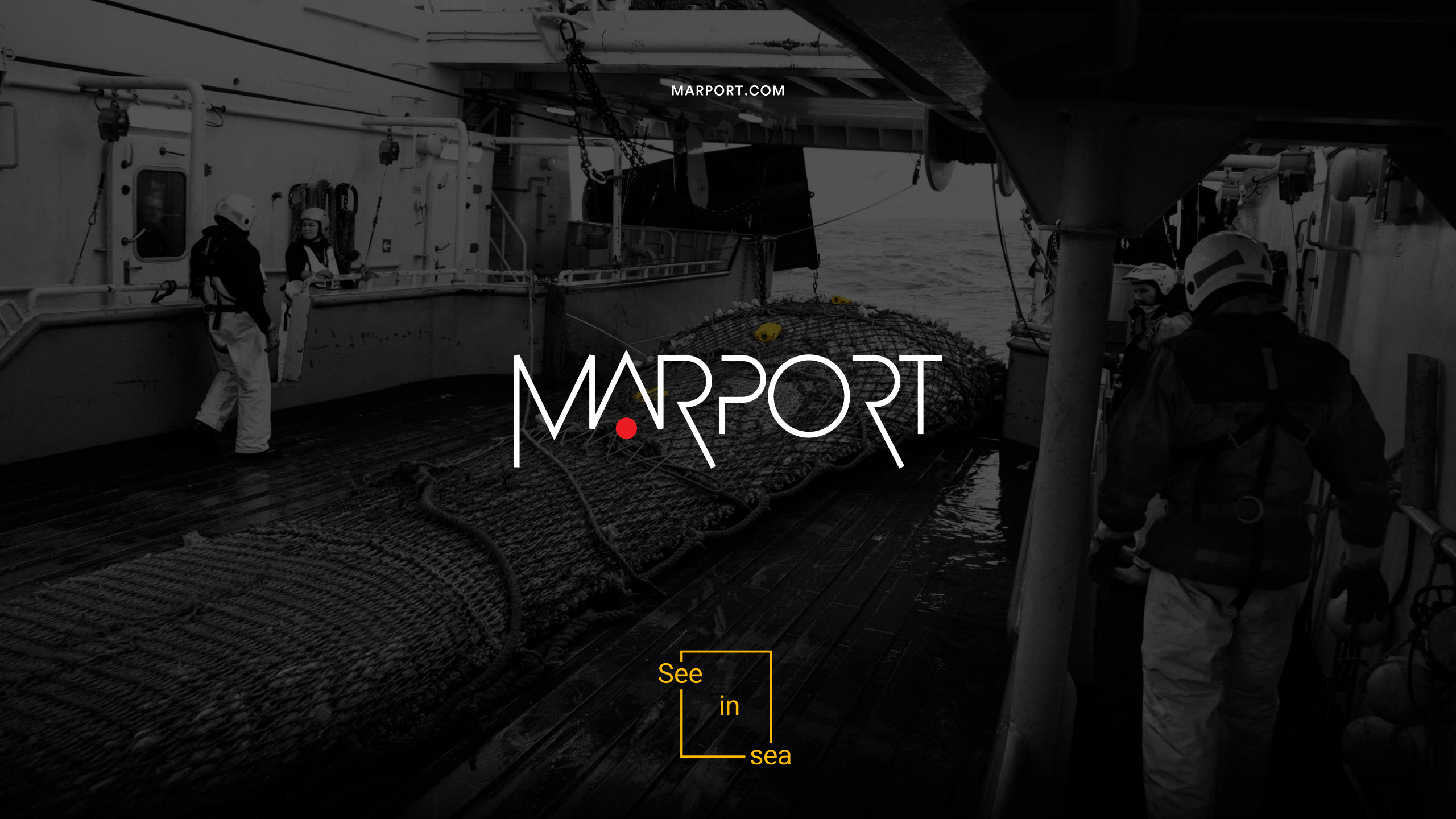
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