MARPORT SPEED SENSORS

QUICK REFERENCE GUIDE

Purpose

Marport's flow sensors family includes two categories of sensors:

- The Flow sensors, that include the Trawl Speed sensor, Grid sensor and Symmetry sensor.
- The Speed Explorer

They all track pitch & roll data. Each of them has different functions and purposes.

The **Grid sensor** is placed on the grid of a trawl. It tells you if the grid does its job: selecting out the unwanted catch while target species enter the codend. It monitors the angle of the grid and the flow of water passing through it. This way, you know if the grid is twisted or blocked and you can fix the problem before losing significant catches.

The **Trawl Speed** sensor can be placed on the headline. It measures water flow in two axis: the flow along the direction of the trawl and across it. You can control if the trawl is moving at the right speed and with the right geometry.

The **Symmetry** sensor is placed on the headrope. It measures the across speed, so that you can control if the trawl is perpendicular to the current.

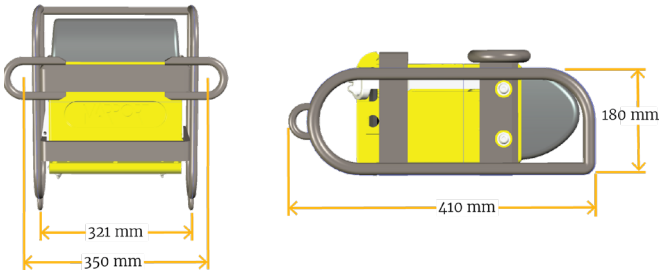
Finally, the **Speed Explorer** has the functions of a Trawl Speed sensor and a Trawl Explorer sensor combined. Placed on the headrope or tunnel, it measures water flow along the direction of the trawl and across it and displays an echogram. This way, you can see fish passing through the trawl and have an overview of the trawl's opening and the effects of the currents around it. It also track pitch & roll, depth and temperature data. Data is received more often than with the other speed sensors.

Firmware

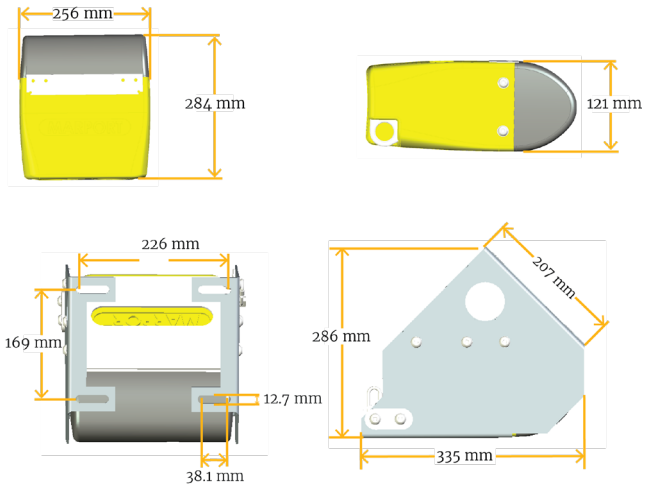
Product Category	Product Name	Specific Options	Firmware
Flow sensor	Trawl Speed	Along & across speeds	3N1 (FIRM058)
	Symmetry	Across speed only	
	Grid	Along speed & grid angle	
Speed Explorer	TE/TS V2	Echogram with autorange, depth, temperature, along & across speeds	TE/TS (FIRM056)
	TE/TS V3	Echogram with autorange, target strength values, Depth, temperature, along & across speeds	TE/TS V3 (FIRM059)

Dimensions

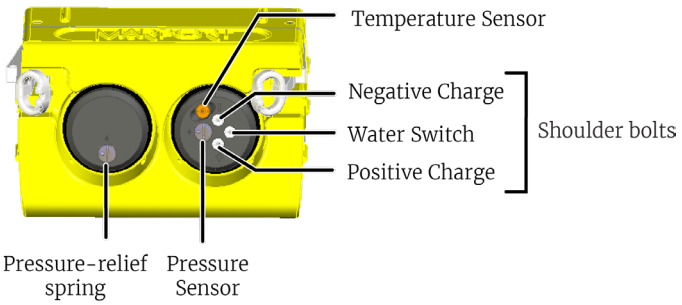
Trawl Speed, Symmetry and Speed Explorer sensors

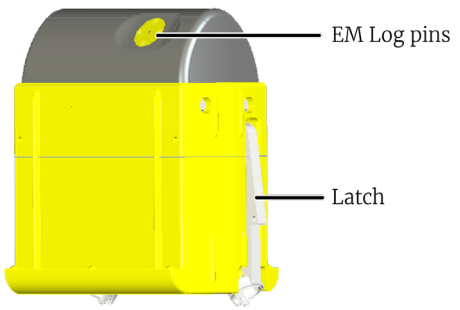


Grid sensor



Main Parts





Speed Explorer Beamwidths

Beamwidths for Uplink pings

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

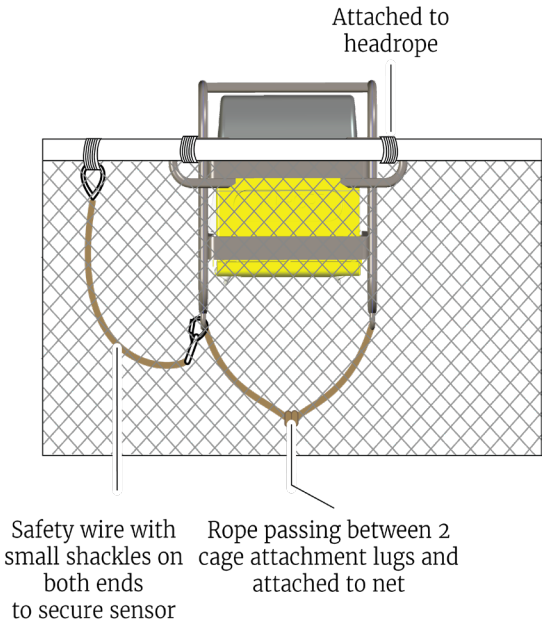
Beamwidths for Up and Down pings

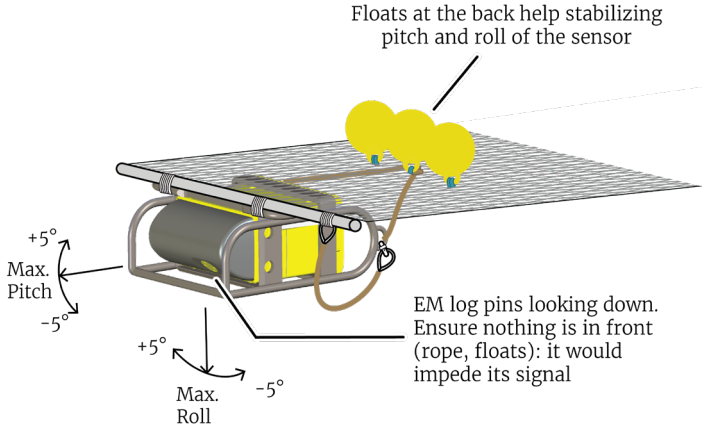
Beamwidth	@ 125 kHz	@ 165 kHz	@ 200 kHz
-3 dB	26°	24°	22°

Installing

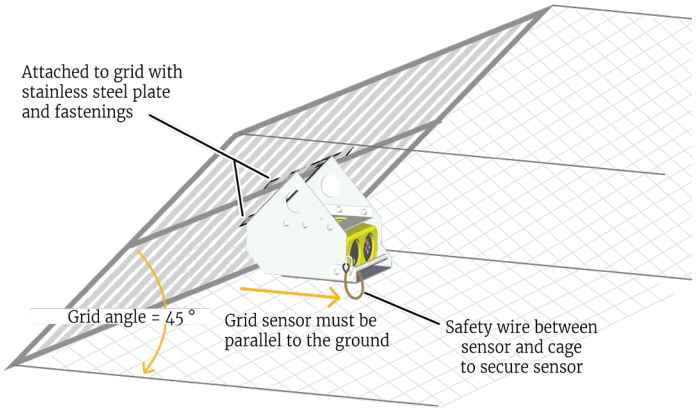
Speed Explorer, Trawl Speed & Symmetry sensors

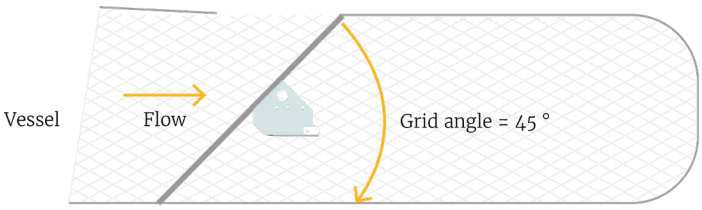
⚠ Sensor must be correctly attached on the net so that the pitch does not vary more than +/- 5°. Above these values, speed readings could be affected.





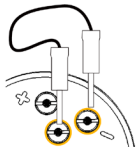
Grid sensor





Sensor Configuration

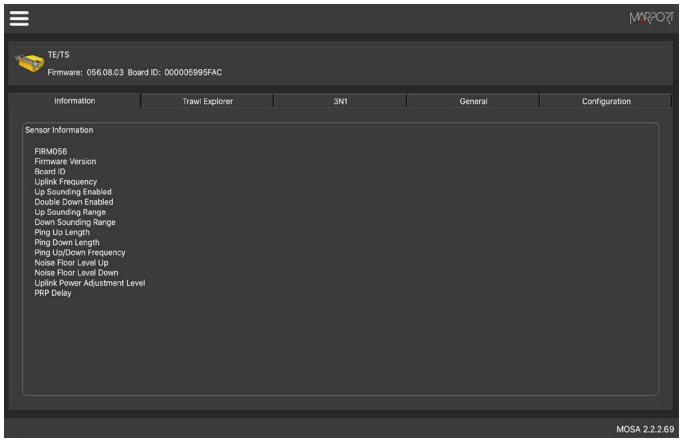
Sensors can be fully configured from the vessel or from the office with Marport Mosa2 configuring tool, using a wireless connection or the Configuration Cable product on any Mac Os device.



Wireless connection: to activate the sensor outside sea water, use a jumper to connect and disconnect the negative charge and the water switch.

With Mosa2 configuring tool, you can:

- Configure all settings for your sensor
- Export the sensor settings



Note: Only advanced users or Marport technicians should configure the sensor. For further information, refer to speed sensor user guide.

System Configuration

Firmware	Receiver version	Scala version
3N1	all	all
TE/TS V2	04.01.03 or later	all
TE/TS V3	04.02.28 or later	01.02.05 or later

Add your speed sensors to the receiver with Marport Scala2 software.

When adding the sensor to the receiver:

- Make sure that your sensor configuration (Mosa2) and receiver configuration (Scala2) are identical, especially the uplink frequency of the sensor.
- Make sure there is enough distance between the sensor frequency and other sensor frequencies.

Flow sensors are compatible with Scantrol software.

For more information, see speed sensor user guide.

Display

Sensor data such as speeds, depth, temperature, pitch and roll are displayed on Scala2 software.

You can customize their display types:

- Text
- History Plot
- Dial
- Gauge

Speed sensors have different features that enable you to better monitor the trawl. These features depend on your type of sensor and version.

Speed Explorer

- **Target strength**: (V3) Target strength of individual targets is displayed on the echogram when you hover over it with your mouse. It helps you identify fish.
- **TVG**: Pings 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.

  You can set TVG at 20 log (better target strength of bottom, schools of fish), 40 log (better target strengths of individual targets) or 30 log (compromise between the 2 others).
- **Autorange**: (V2, V3) The range of the sounding can adapt automatically to the bottom detected. This enables you to have better echogram image quality when the trawl opening is small, because the range will become smaller (the smaller the range, the better the image quality).

Trawl Speed

- Water flow along and across the trawl
- 3D view of sensor on the headline

Grid sensor

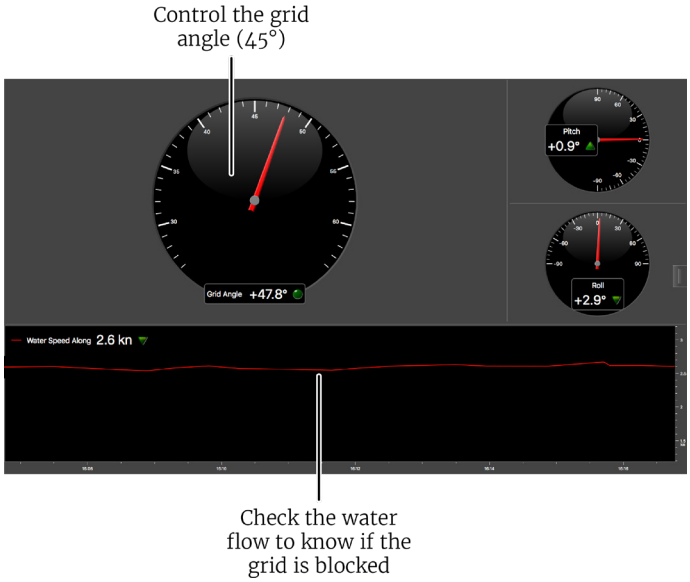
- Grid angle
- Water flow through the grid

Symmetry sensor

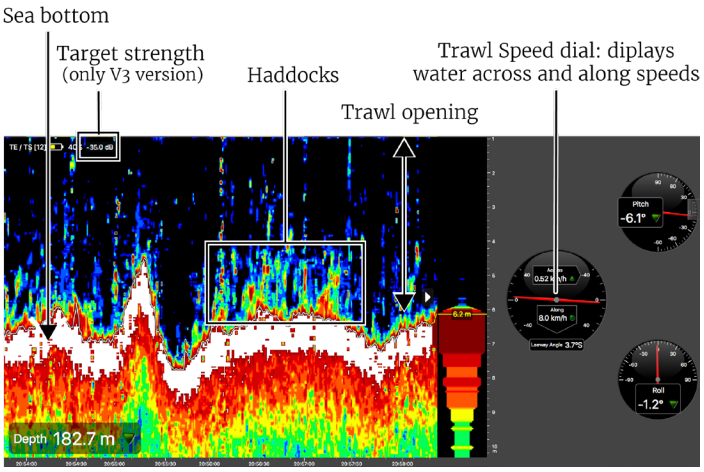
- Water flow across the trawl
- 3D view of sensor on the headline

Below are examples of data displayed by speed sensors.

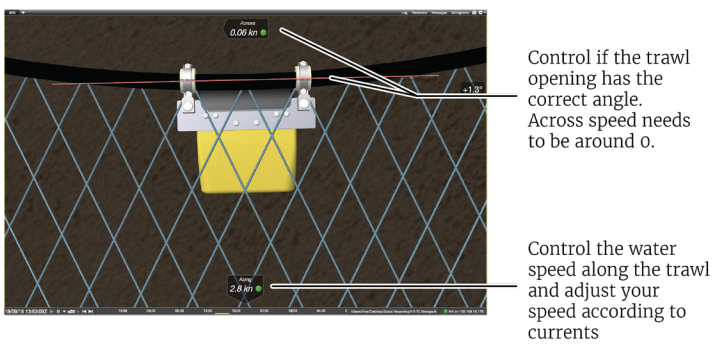
Grid sensor



Speed Explorer



Trawl Speed 3D view



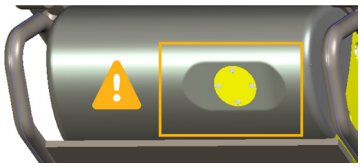
Sensor Daily Use

The sensor automatically starts when in sea water. It switches to wireless connection mode mode when out of water. When in wireless mode, the sensor turns off after 10 minutes if there is no user action.

Rinse the sensor with fresh water between uses, especially the negative, positive charges and water switch (see illustration p.1). You can do it when the sensor is in running mode out of water. Dry the charging bolt afterwards.

The operational life time can be up to 80 hours for flow sensors and 50 hours for a speed explorer, depending on the power settings.

Speed sensors have Lithium-Ion batteries. Charge them with Marport Basic Sensor Charger or Multi-Charger. Avoid full discharges and charge the battery whenever possible, at any battery level.



Handling precaution and a good maintenance of the emlog 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.

Maintenance

⚠ Warranty is only valid when using the protection cage while the sensor is in operation.

External

- Check that all attachment equipment are not worn or torn. Replace when appropriate.
- Make sure that the sensor is clean. Remove debris with a piece of wood or screwdriver. Wash away mud or debris with warm water but do not use highly abrasive materials. Clean EM log pins with Isopropyl alcohol or a Scotch-Brite scouring pad.

⚠ Be careful with the sensor. Sensors and components are sensitive to mechanical shocks and contamination.

Internal

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 sensors.

Dealers, please refer to the speed sensor service manual for more detailed maintenance instructions.

Marport recommends you to return speed sensors to an approved Marport dealer every 2 years for maintenance.

⚠ To ensure proper and safe use of this equipment, carefully read and follow the instructions in speed sensor user guide.

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