



TRAWLMASTER

The Notus Trawlmaster is a wireless net monitoring system. Its design is based on more than 25 years of experience. Notus has worked closely with customers to offer sensors that provide reliable, real time data and convenience of use. With our unique and reliable Activ-Omni Intelligence, Notus offers the only net monitoring system to boast two-way communication, offering trawl wire lengths, AND true omnidirectional capabilities, providing sensor data when it's needed most. The Notus Trawlmaster provides optimal performance, for superior results.



OPTIMAL PERFORMANCE SUPERIOR RESULTS

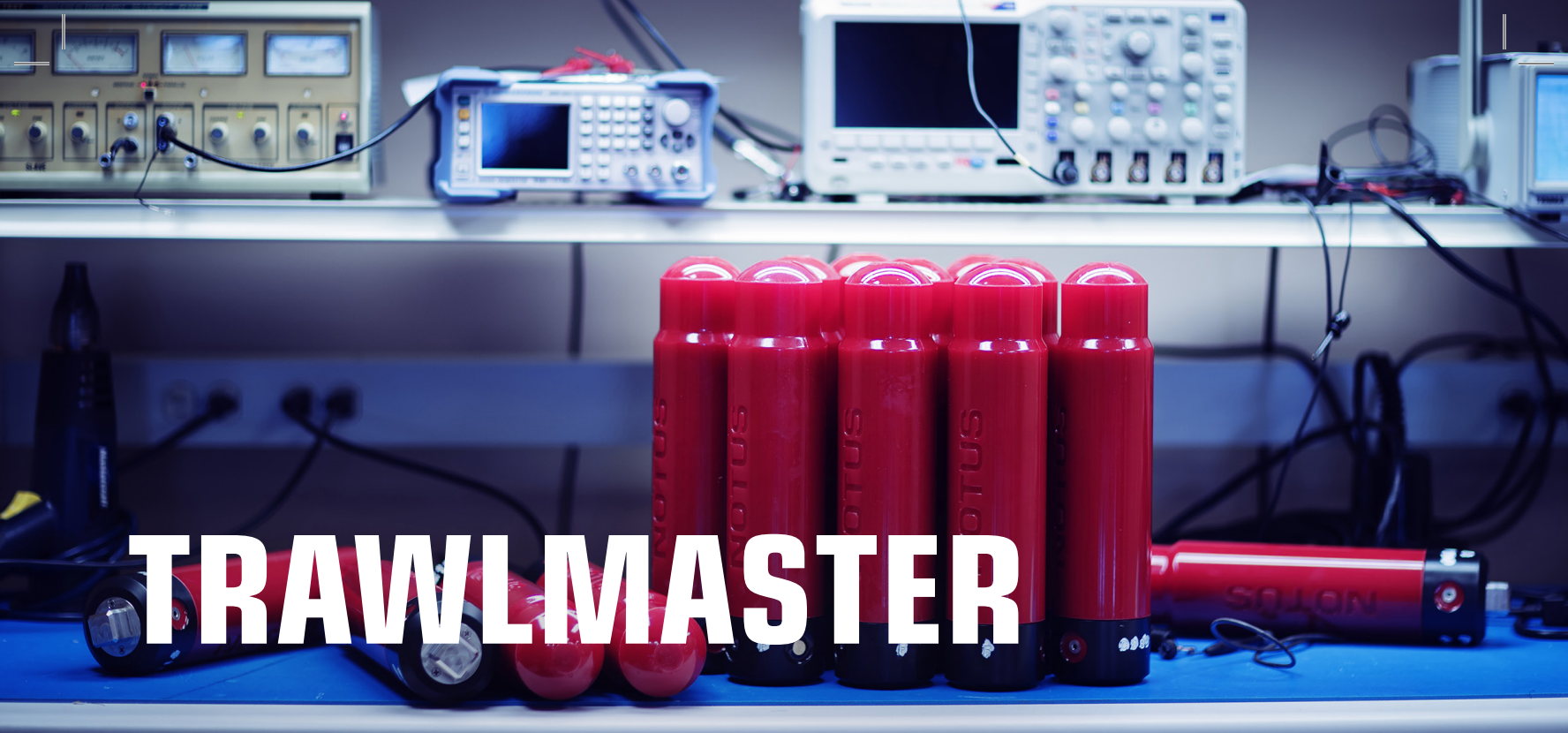
The Notus Difference

Notus sensors boast an active, **two-way communication system**, not offered by other net monitoring systems. Instead of relying on traditional one-way pingers, Notus systems 'talk' to each other via proven two-way protocols. Using this reliable technology, Notus is the **ONLY** system capable of delivering trawl wire lengths with doorpsread of EACH net, giving a true geometric view of the gear.

Variable data rates:
5, 10, 20 and 60 second intervals.

Notus is the only system to offer **true, omnidirectional pattern beams** in all of our net monitoring sensors. This is critical when turning, when a door has fallen over or when fishing gear is lost.

With Notus Activ-Omni Intelligence, achieve optimal performance, for superior results.



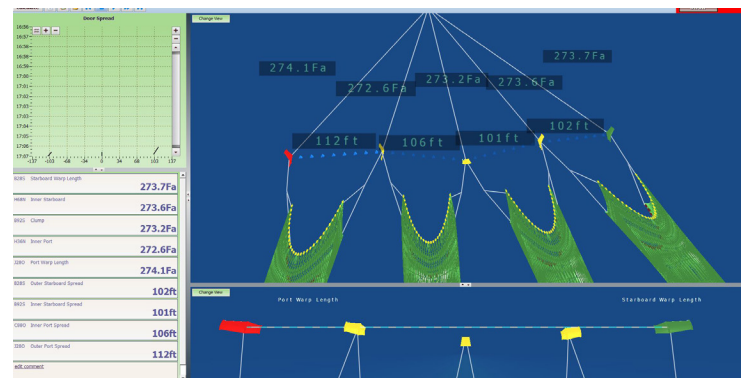
TRAWLMASTER

Trawlmaster is a wireless trawl monitoring system that provides complete trawl geometry.

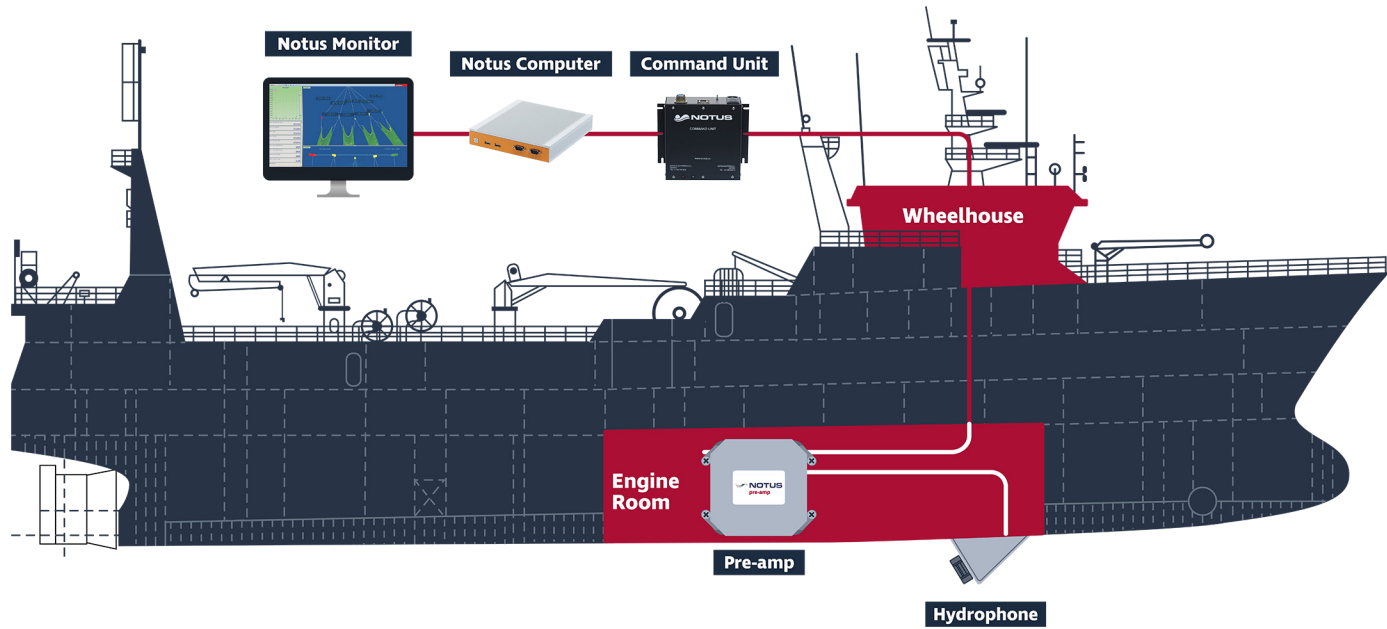
Over 6000 sensors delivered

Trawlers world over have experienced significant fuel savings coupled with increased catches. Knowing the trawl's geometry allows the user to keep the trawl optimal during every tow. Trawl wire lengths provide you with confidence that the trawl doors are in line. In cross currents, an

adjustment is provided to align the doors. Door spread sensors allow users to tow by spread, not by speed. This is a well proven method to increase catches in heavy current. Upgrades can be made to these basic door sensors, such as door angle, temperature and depth. Back on the trawl, a complete picture can be provided using headline, bottom contact, wingend and catch sensors. A system consists of shipboard equipment (command unit, computer and hydrophone) that communicates wirelessly to sensors on the trawl. A dynamic 3D graphic of your trawl is presented that instantly gives an accurate trawl picture.



SYSTEM SET UP & COMPONENTS



Command Unit

Capabilities: 1000 Code Capability
 Frequency: 24 kHz
 Serial Output to PC
 Power: 120/240 VAC



Charger

Power: 120/240 VAC
 Charge Time: 90 minutes
 Charger: 1 to 4 sensors simultaneously



Trawl Hydrophone

Beam Pattern: 70° Vertical,
 60° Horizontal
 Output: 192 db Tx
 Range: 2500+ m

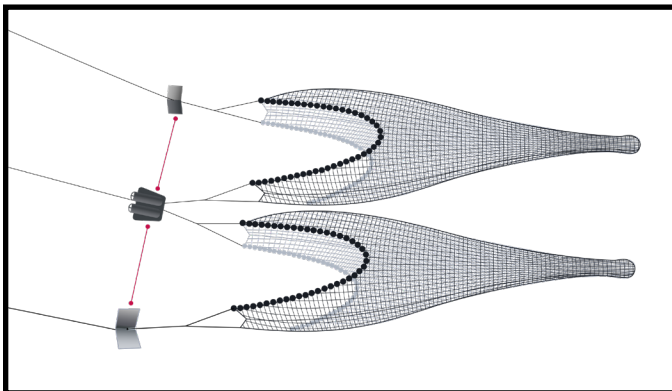


Sensors (General specifications)

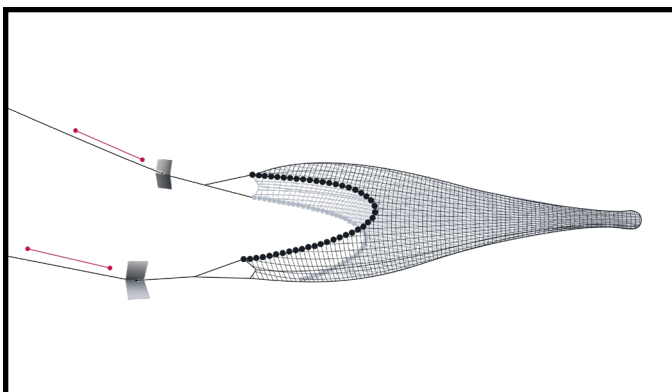
Range: Up to 2500+ m
 Weight: 1.1 kg in water
 Battery Capacity: Full Trip Capability
 Deployable Depth: 1500 m

DOORSPREAD AND TRAWL WIRE LENGTHS

Doorspread is the distance between the doors.



For twin and multi-rigging vessels, the spread on EACH net is provided. This allows for equal bulk in EACH net.



Major fuel savings are achieved with doorspread by adjusting the speed of the vessel to keep the optimal spread. For example, towing just 0.1 knots too fast into a current can overspread the gear by 10 meters.

The Notus Trawlmaster Doorspread sensor:

- Indicates when doors have crossed
- Detects when door has fallen or is stuck
- Instantly sees if a rock, pot or other debris is in the trawl
- Is the only omnidirectional sensors on the market.

Doorspread is provided on a turn with one door 100 meters behind the other

Trawl Wire Lengths – Made possible by Activ-Omni Intelligence

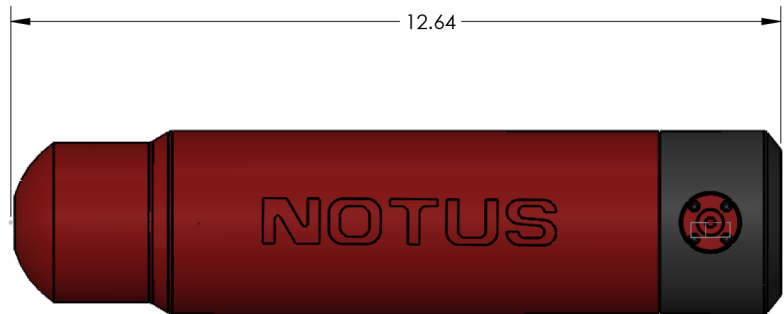
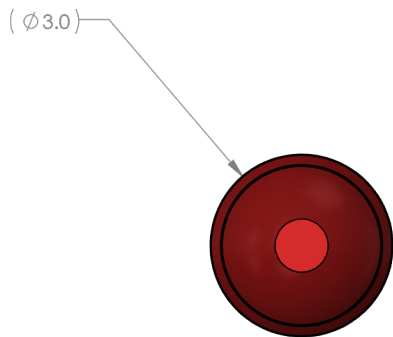
By measuring trawl wires to within 0.1 meter, the Notus Trawlmaster:

- Avoids measuring trawl wires on shore
- Indicates the adjustment in cross current to “square” the doors

SPECIFICATIONS

DOORSPREAD AND TRAWL WIRE LENGTHS

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Sensors

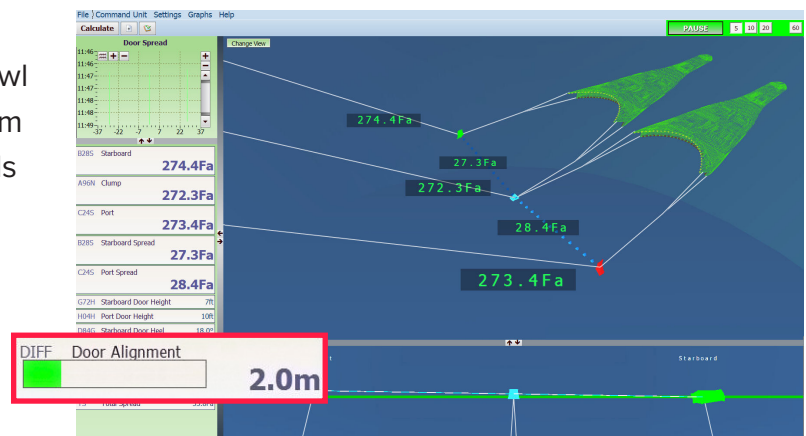
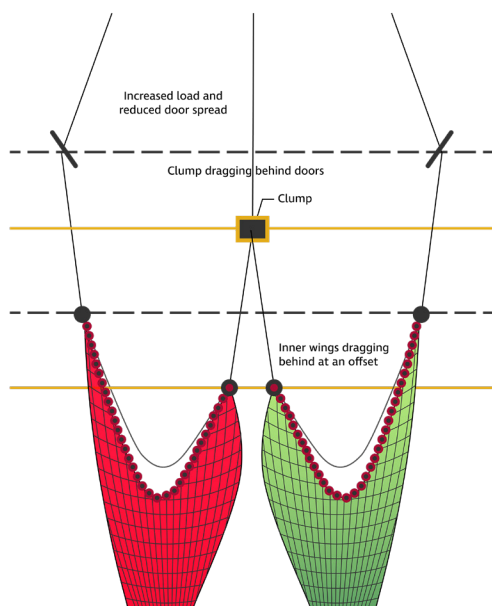
Distance Range	Up to 2500+ m
Warp Measurement Accuracy	+/- 0.5 m
Warp Measurement Resolution	+/- 0.1 m
Doorspread Accuracy	+/- 0.5 m
Doorspread Resolution	+/- 0.1 m
Doorspread Range	Up to 500 m
Weight	1.1 kg in water
Battery Capacity	Full Trip Capability
Deployable Depth	1500 m

MIDDLE WIRE ADJUSTMENT

The Middle Wire Adjustment is calculated to align the middle weight (clump) with the doors on twin rigs

Issues with a misaligned clump:

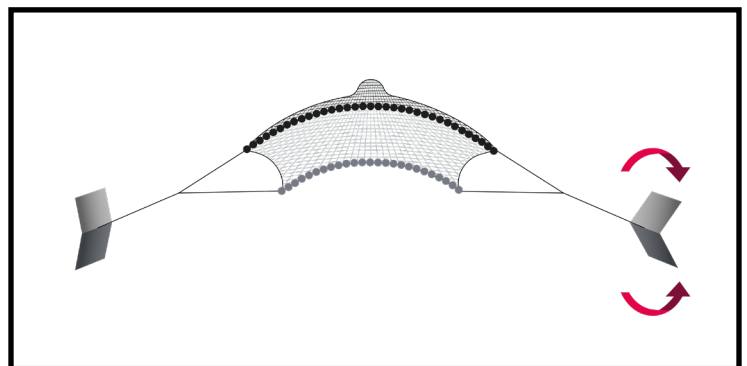
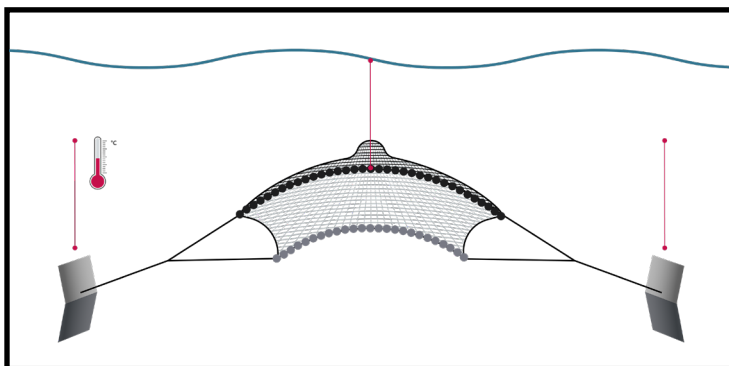
- When the clump is ahead of the doors, the trawl overspread, and the footgear comes off bottom
- When the clump is behind the doors, the trawls under-spread, which leads to gear damage



The Notus Trawlmaster Middle Wire Adjustment indicates the exact middle wire adjustment to align the clump with the doors, to ensure optimal fishing!

DOOR DEPTH, ANGLE AND TEMPERATURE SENSORS

Doorspread and Trawl Wire Lengths are standard Trawlmaster sensors. These sensors can be upgraded to include Door Depth, Door Angle and Temperature.



Depth sensors indicate the distance from the surface to the doors/trawl.

- When mid watering, trawl depth allows for placement of the trawl at depth of the fish
- When bottom trawling, depth will indicate when the gear is on bottom

Door Angle sensors provide the heel angle (inward/outward lean) and pitch angle (upward/downward pitch).

- Set the trawl doors for optimal spread and optimal fuel consumption
- Instantly indicate if too much trawl wire is shot as the door heels over
- Confirm when doors are on bottom

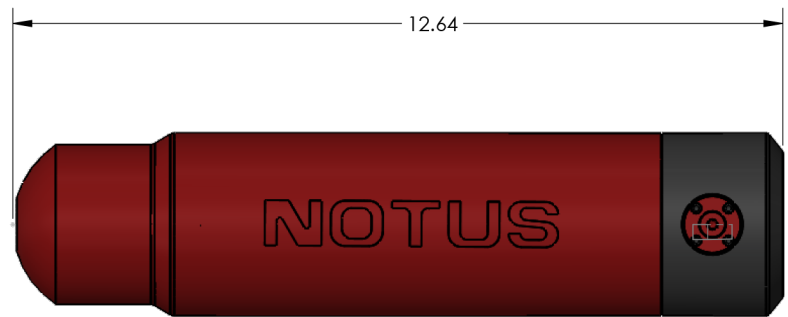
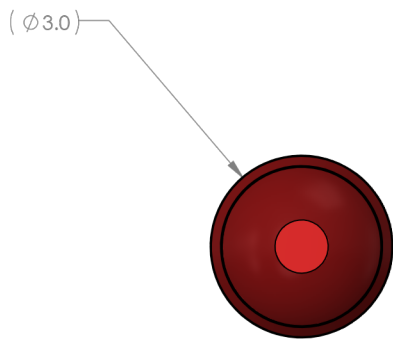
Temperature sensors indicate temperature wherever the sensor is located.

- Locate larger schools by trawling in the right temperature range
- Target specific species
- Determine where the fish are

SPECIFICATIONS

DOOR DEPTH, ANGLE AND TEMPERATURE SENSORS

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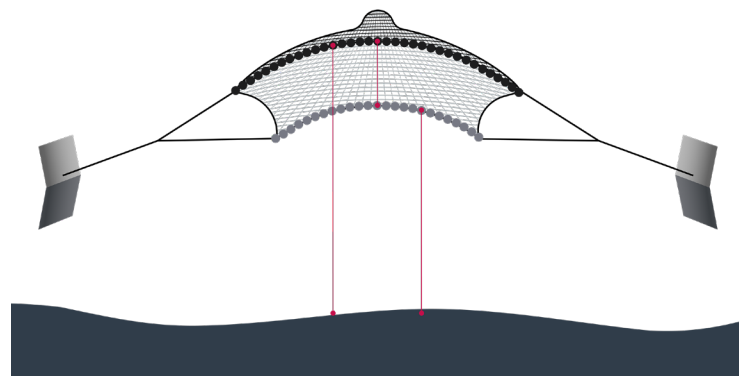


Sensors

Distance Range	Up to 2500+ m
Depth Accuracy	+/- 0.25% FS
Depth Resolution	+/- 0.1 m
Depth Range	Up to 2000 m
Door Angle Accuracy	+/- 0.5°
Door Angle Resolution	+/- 0.1°
Temperature Accuracy	+/- 0.5°C
Temperature Resolution	+/- 0.1°C
Temperature Range	-5 to 40°C
Weight	1.1 kg in water
Battery Capacity	Full Trip Capability
Deployable Depth	1500 m

HEADLINE HEIGHT SENSOR

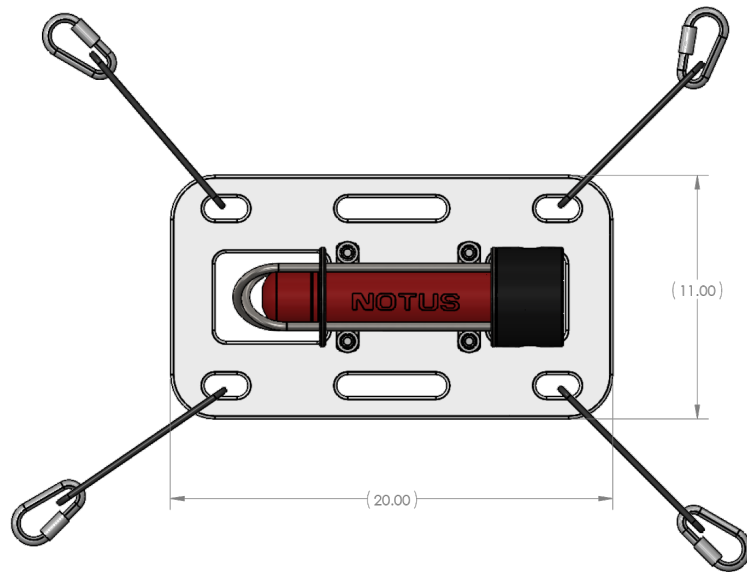
Headline Height sensors use an echo sounder to measure the distance from the headline to the seafloor. An optional footgear clearance sensor can be added to monitor the net opening and footgear clearance.



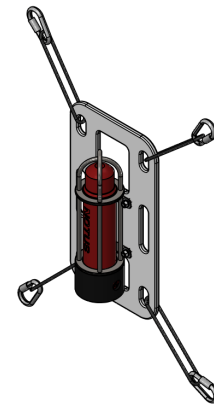
- Raise and lower headline depending on species and trawling conditions
- Indicate if the trawl is raising off the bottom due to towing too fast

SPECIFICATIONS

HEADLINE HEIGHT SENSOR



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Headline Height

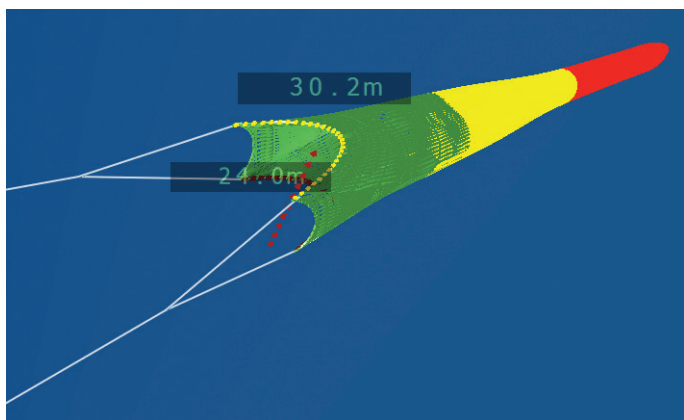
Distance Range	Up to 2500+ m
Maximum Height	100 m
Accuracy	+/- 0.5 m
Resolution	+/- 0.1 m
Weight	2.68 kg in water
Battery Capacity	Full Trip Capability
Deployable Depth	1500 m

Footline Slave Sensor

Accuracy	+/- 0.5 m
Maximum Opening	100 m
Resolution	+/- 0.1°
Battery Capacity	Full Trip Capability

CATCH SENSOR

Catch sensors indicate when the cod-end has a set amount of fish. Multiple sensors can be used to indicate different amounts of fish.



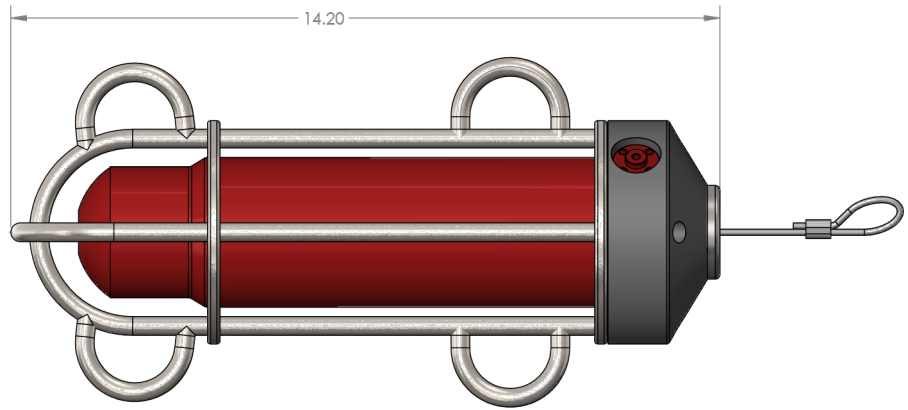
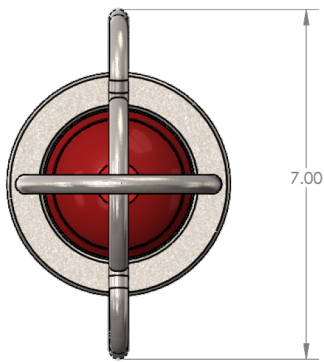
Notus Trawlmaster Catch sensors:

- Confirms that the trawl is fishing
- Only take back what you can handle onboard
- Prevents hauling back a trawl that is only half full
- Provides a better indication of exactly where the fish are in the tow
- Has a built-in gear location feature should you lose the trawl or just the cod-end
- Improves fish quality
- Prevents gear damage associated with over-filling the net

SPECIFICATIONS

CATCH SENSOR

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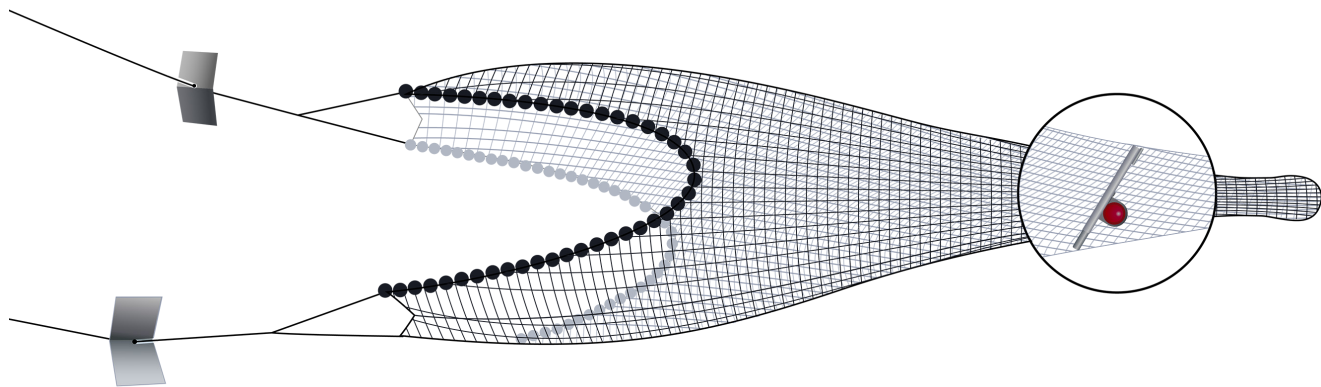


Sensors

Range	Up to 2500+ m
Range Accuracy	+/- 0.5 m
Range Resolution	+/- 0.1 m
Weight	2.0 kg in water
Battery Capacity	Full Trip Capability
Deployable Depth	1500 m

GRID/GRATE SENSOR

Grid sensors indicate angle of the sorting grid.



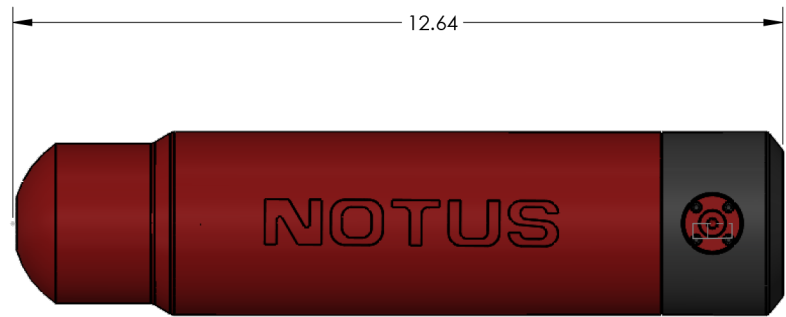
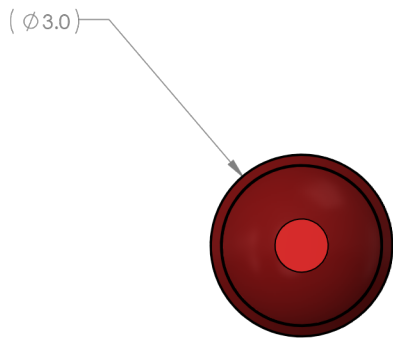
Notus Trawlmaster Grid sensors:

- Are a necessity on any grid
- Confirm that if the grid is not at the right angle, nothing goes to the cod-end
- Indicate if the grid is blocked
- Estimate catch volume by monitoring downward trend of grid angle
- Instantly indicate if the grid is incorrectly rigged

SPECIFICATIONS

GRID SENSOR

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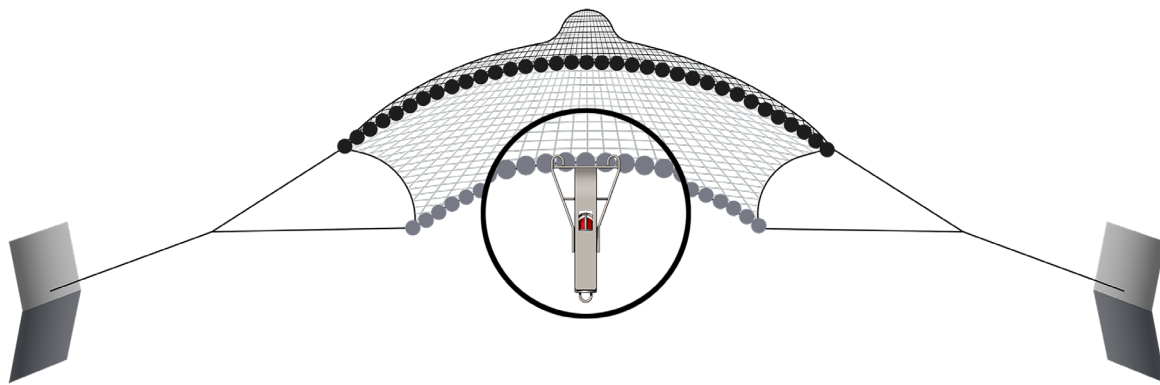


Sensors

Range	Up to 2500+ m
Accuracy	+/- 0.5°
Resolution	+/- 0.1°
Weight	1.1 kg in water
Battery Capacity	Full Trip Capability
Deployable Depth	1500 m

BOTTOM CONTACT SENSOR

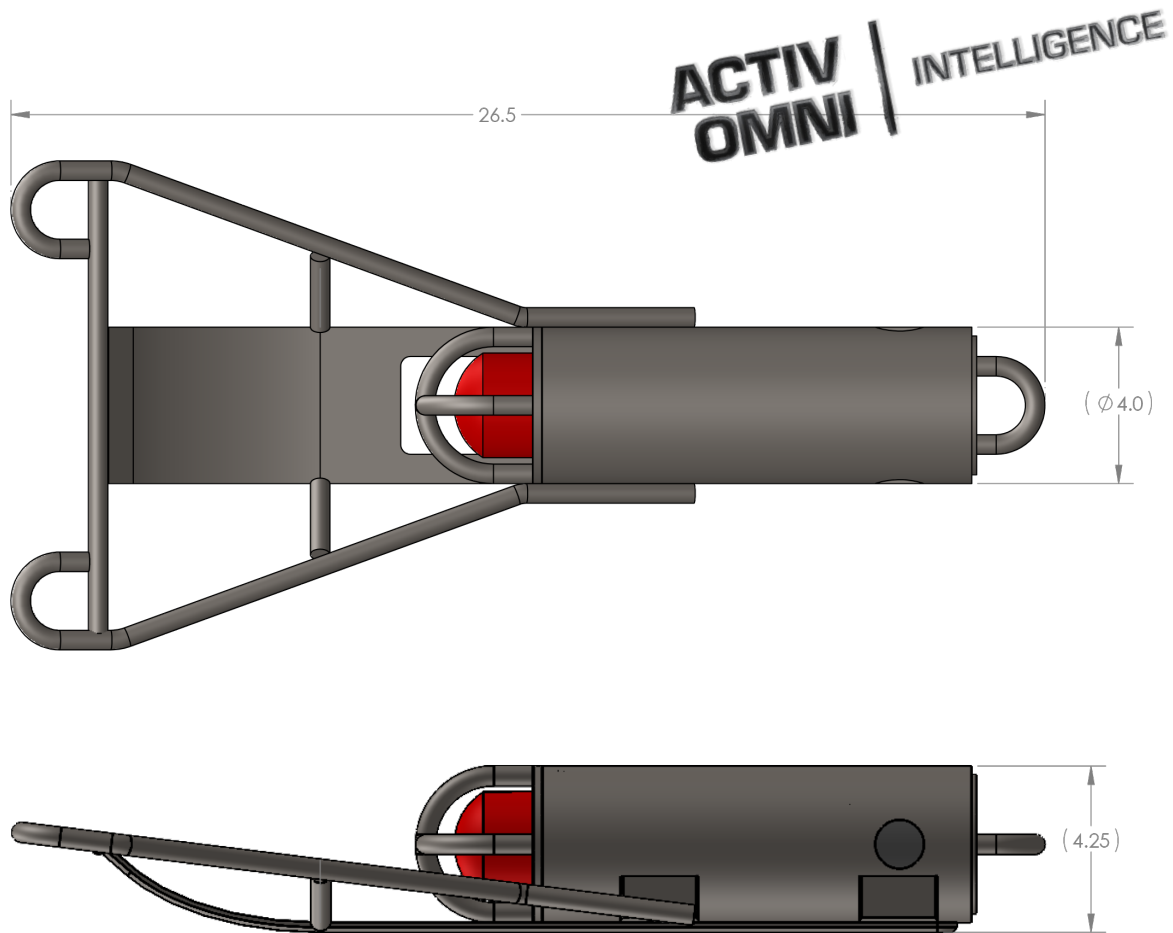
Bottom Contact sensors confirm that the trawl is on bottom using angle measurements. The sensor is attached to the fishing line and remains horizontal when the trawl is on bottom. The sensor orientates in a vertical position when the trawl comes off bottom.



- Fishing is greatly reduced once the trawl comes off bottom
- Indicates if the speed into the current is taking the trawl off bottom
- If there is not enough trawl wire shot, the trawl will not be on bottom.
- Overspreading the trawl doors can also result in the trawl coming off bottom

SPECIFICATIONS

BOTTOM CONTACT SENSOR



Sensors

Range	Up to 2500+ m
Accuracy	+/- 0.5°
Resolution	+/- 0.1°
Weight	1.1 kg in water
Battery Capacity	Full Trip Capability
Deployable Depth	1500 m

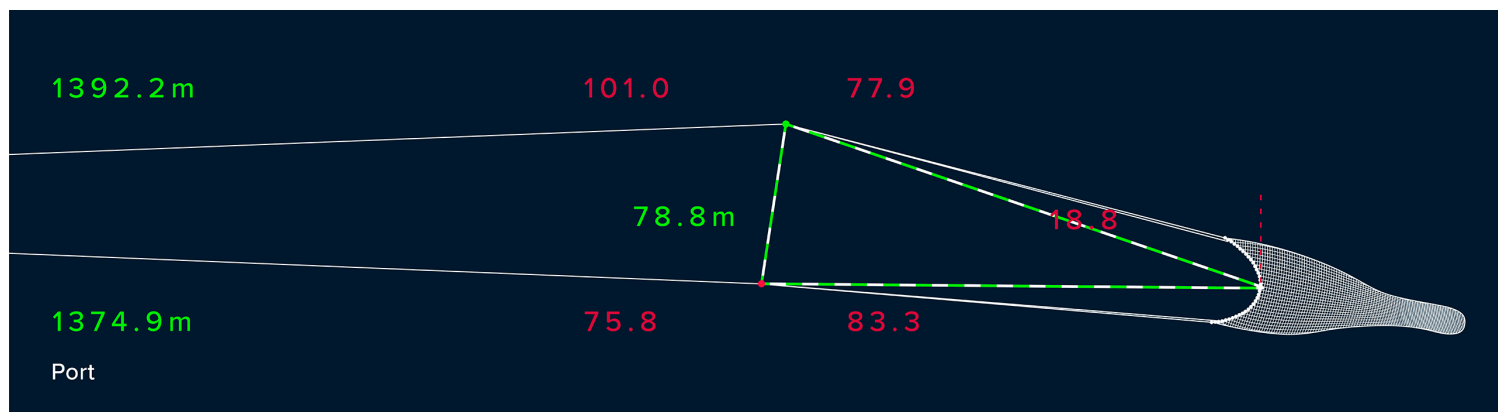
TRAWL ALIGNMENT SENSOR

The Trawl Alignment Sensor provides the alignment and adjustment behind the doors.

The following distances are calculated by the Notus Trawlmaster Trawl Alignment sensor:

- from the starboard door to the center of the headline, and
- from the port door to the center of the headline. Subtracting these two distances provides an adjustment to align the trawl.

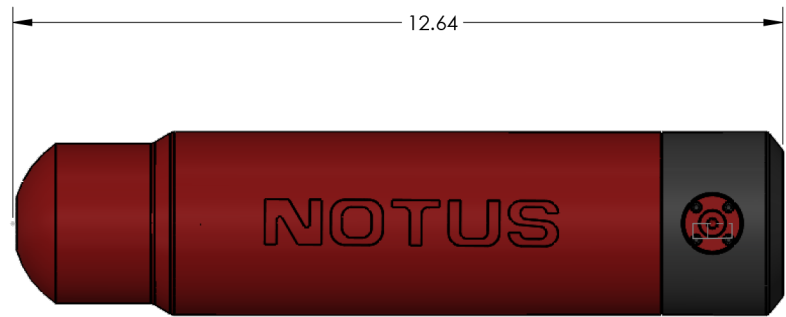
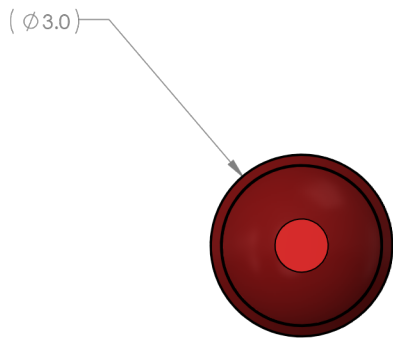
When currents push the trawl to one side, there may be an adjustment needed to align the wing ends.



SPECIFICATIONS

TRAWL ALIGNMENT SENSOR

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Sensors

Distance Range	Up to 2500+ m
Distance Accuracy	+/- 0.5 m
Distance Resolution	+/- 0.1 m
Weight	1.1 kg in water
Battery Capacity	Full Trip Capability
Deployable Depth	1500 m



NOTUS

For videos, photos, brochures, trawl tools and more,
please go to www.notus.ca

Videos
Photos
Brochures
Trawl Tools

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