

# NOTUS SENSORS

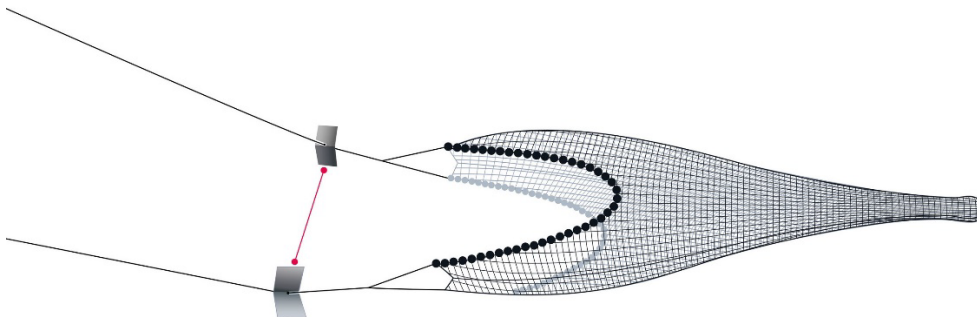
## DOORSPREAD SENSOR

**Doorspread** is the distance between the doors.

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 see if a rock, pot or other debris is in the trawl
- Notus has the only omnidirectional sensors on the market. Doorspread is provided on a turn with one door 100 meters behind the other



(Pictured) **Single Trawl: Door Spread**

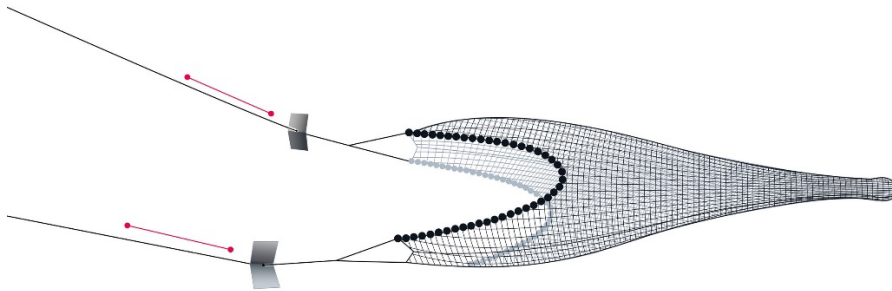
# TRAWL WARP MEASUREMENT SENSOR

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

Doorspread and trawl wire lengths are standard Trawlmaster sensors. These sensors can be upgraded to include door depth, door angle and temperature.



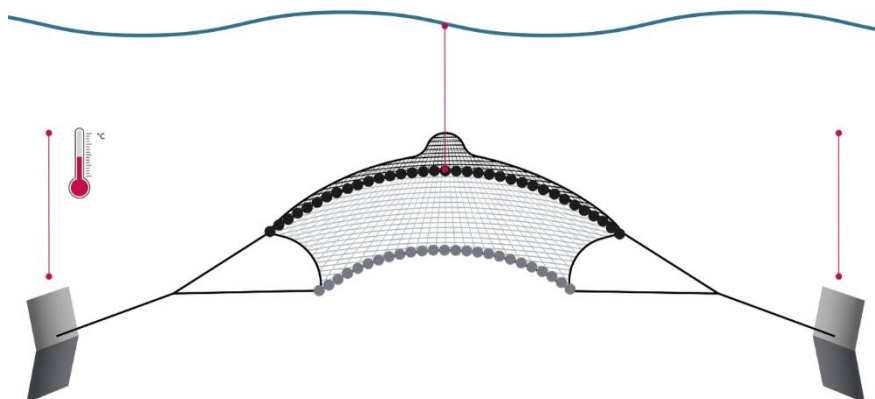
(Pictured) **Single Trawl: Trawl Warp Measurement**

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# DOOR DEPTH SENSOR

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



(Pictured) **Door Depth**

## DOOR ANGLE SENSOR

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



(Pictured) **Door Angle**

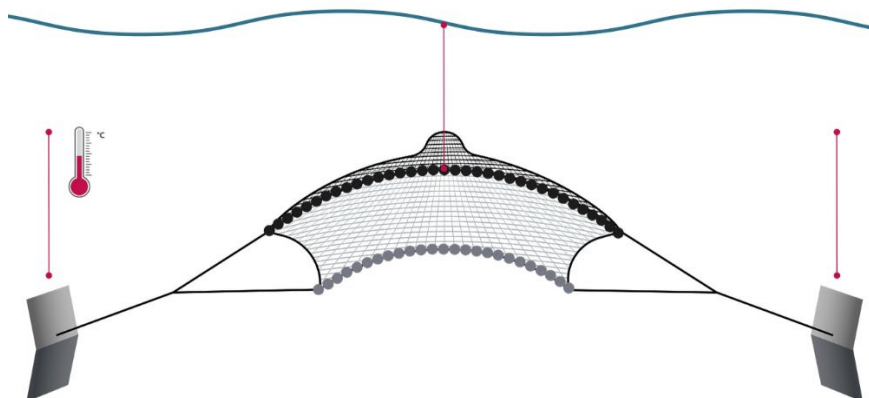
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## TEMPERATURE SENSOR

Temperature sensors indicate temperature wherever the sensor is located.

- Locate larger schools by trawling in the right temperature range
- Target specific species.

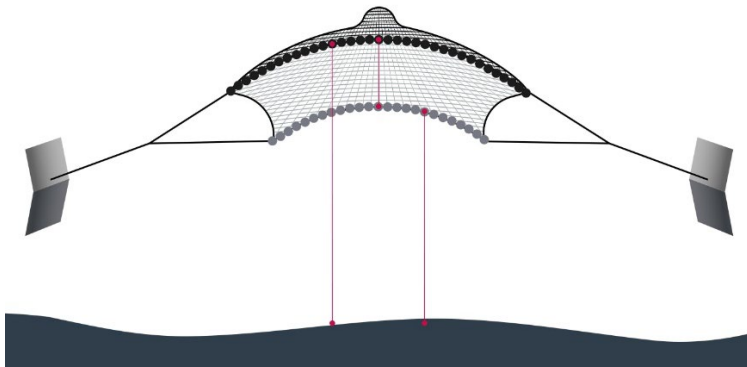
Determine where the fish are



(Pictured) **Temperature Sensor** 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



(Pictured) **Headline Height**

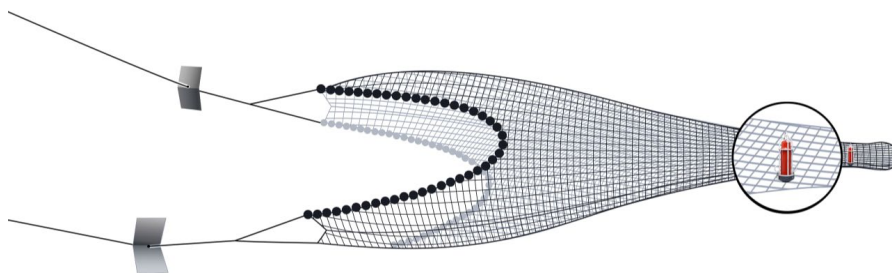
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## CATCH SENSOR

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



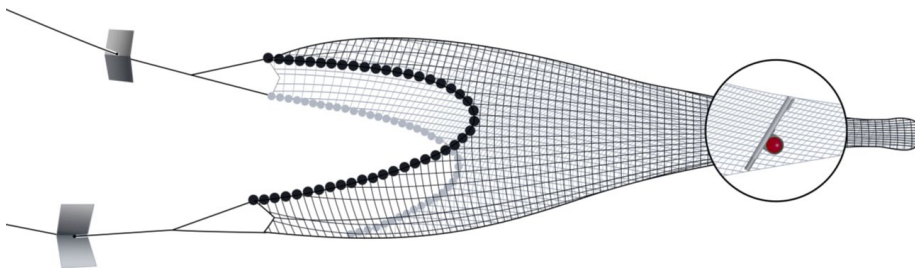
(Pictured) **Catch Sensor**

## 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 your grid is blocked
- Estimate catch volume by monitoring downward trend of grid angle
- Instantly indicate if the grid is incorrectly rigged



(Pictured) **Grid Sensor**

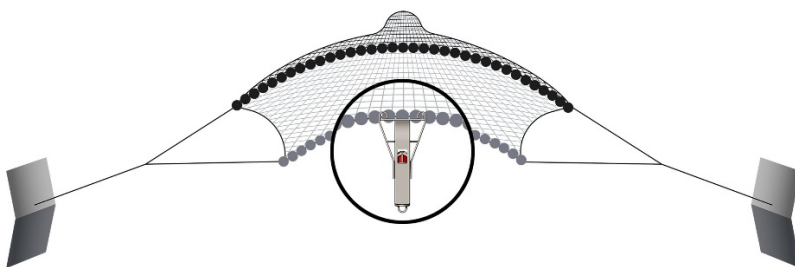
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## BOTTOM CONTACT SENSOR

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



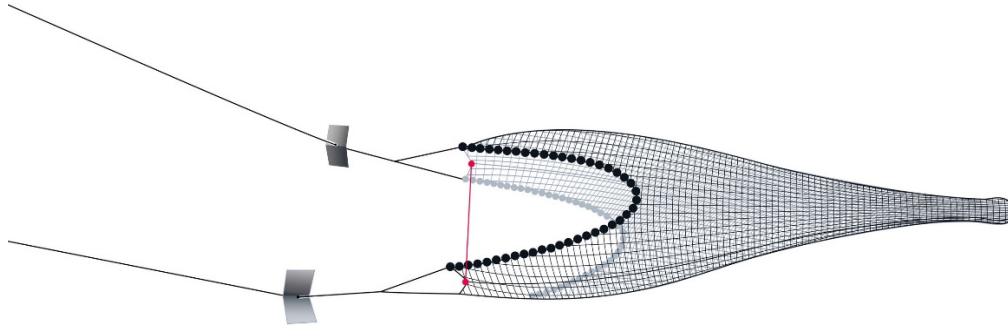
(Pictured) **Bottom Contact**

## WINGEND SPREAD SENSOR

The Wingend Spread sensor provides the distance between the two wingends.

*Notus Trawlmaster Wingend sensors confirm:*

- Keeping the optimal wing spread can be just as important as doorspread
- Wingspread is a critical piece of information for researchers in calculating swept area.
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(Pictured) **Wingend Spread**

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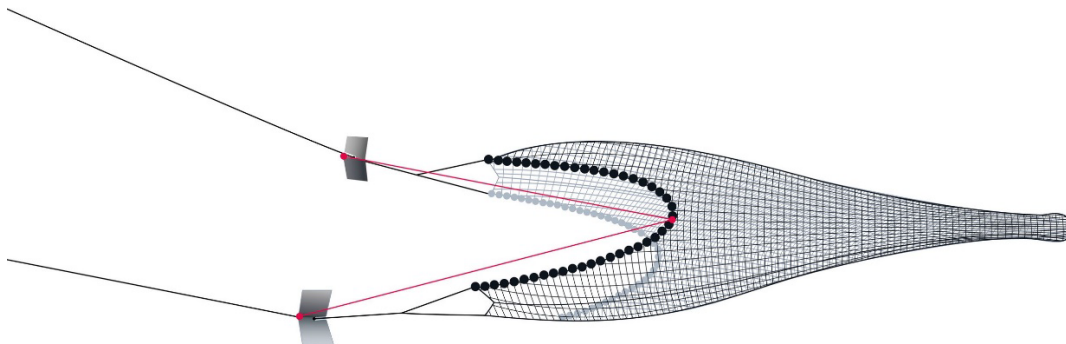
## TRAWL ALIGNMENT SENSOR

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.



(Pictured) **Trawl Alignment**