

Simrad ITI

Trawl monitoring system

Measures position of signal and twin trawls

Full range of sensors

Split beam transducer technology

Nine display modes of efficient use

Well proven technology

Locate lost gear



Simrad ITI is the ultimate wireless Trawl Positioning and Monitoring System.

Simrad ITI is a complete wireless trawl positioning and monitoring system. It is designed to improve control and efficiency in pelagic and bottom trawling. Small, robust, battery-powered sensors mounted on the trawl, transmit important information to the vessel on request.

The Simrad ITI allows you to monitor the exact position of the gear, and what is happening in and around the trawl. This provides crucial information for effective, profitable and responsible fishing.

Adaptable and easy to use

The Simrad ITI is a modular system. Starting with one sensor, the Simrad ITI system can be expanded to a complete and advanced instrument package.

Data from the trawl mounted sensors is presented on a colour monitor with emphasis on ease of use. Operation is simple and based on display menus.

Robust, serviceable and intelligent

The Simrad ITI is designed for the future, and it is based on the proven technology. The sensors are extremely robust with serviceable



Simrad was the first company to develop an entire range of trawl monitoring systems using LCD monitors.

and replaceable electronics. By only responding when interrogated, prolonged operational life between charges is achieved.

The Simrad ITI is designed for interfacing with navigational systems, sonars and echo sounders.

Position of the trawl

One of the great advantages of the Simrad ITI system is the ability to measure the range and bearing to each sensor.

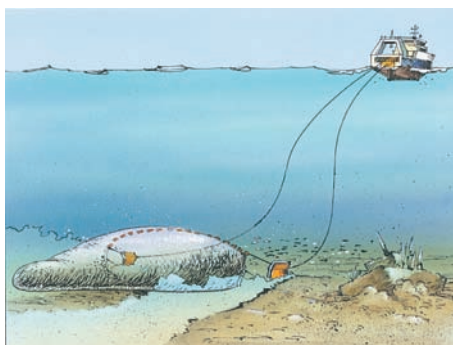
Knowing the position of the trawl allows you to avoid wrecks and obstacles on the seabed. You are able to target fishing grounds more efficient based on information from your echo sounder and sonar.

Display options

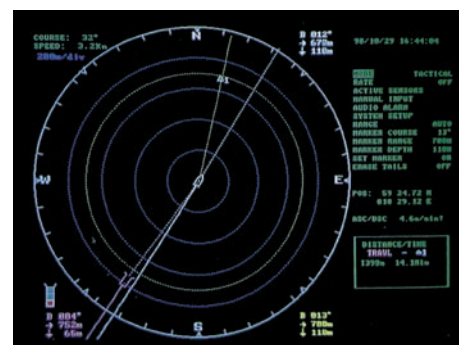
The Simrad ITI System has many display modes. Logged data from the sensors and navigational instruments, stored in real time, provides valuable information for each tow. The temperature - depth profile indicates correct positioning and the grid sensor shows the angle of the sorting grid.



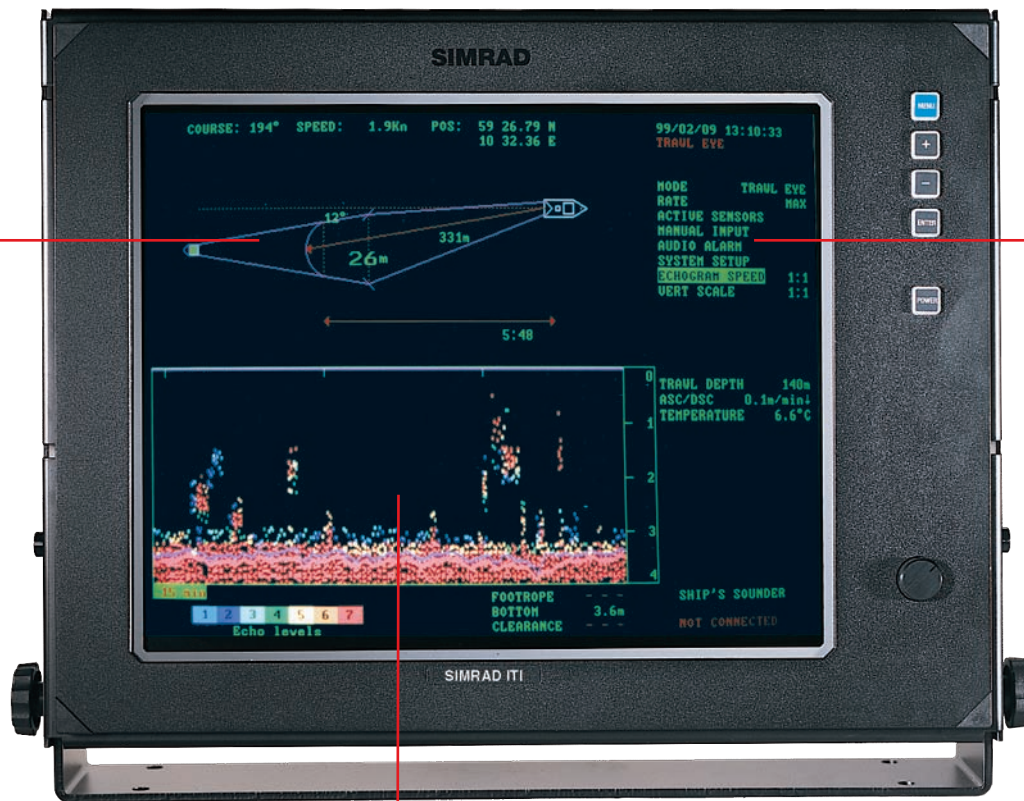
A major benefit of the ITI system is the trawl positioning feature.



By knowing the trawl's position you can avoid wrecks and obstacles on the seabed.



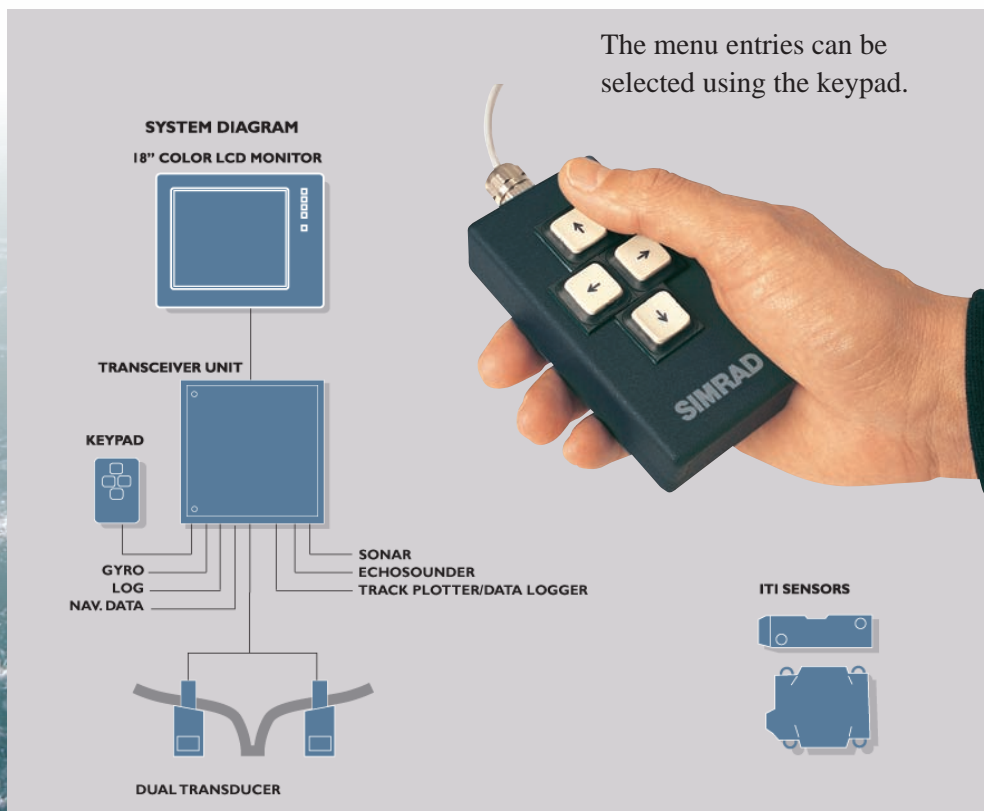
The ITI Tactical display shows all necessary information with regard to the trawl's position relative to the vessel.



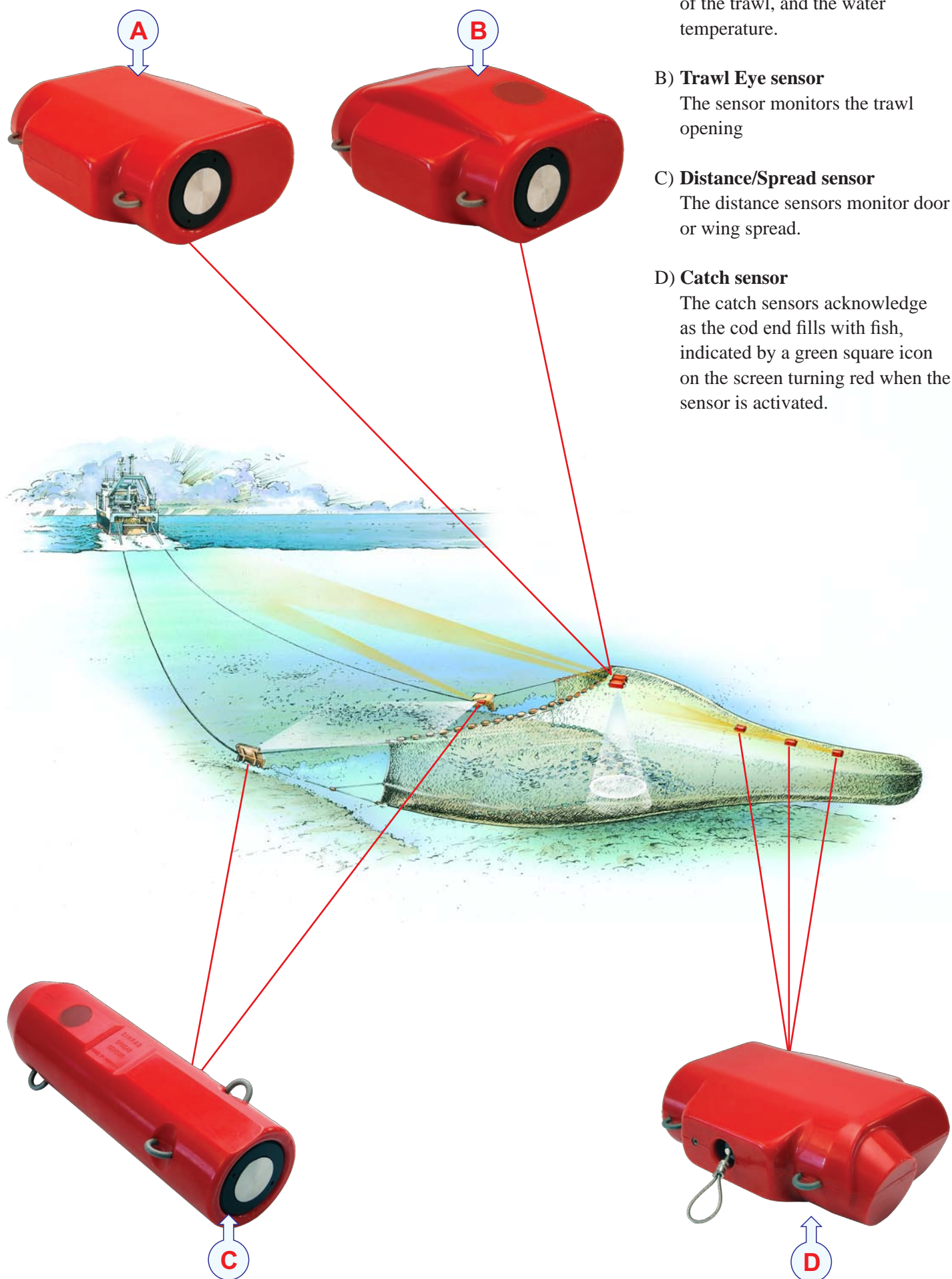
Distance and bearing, trawl geometry and catch are displayed in the horizontal projection.

The Trawl Eye echogram shows position of the trawl relative to the bottom, fish in the opening and the height of the trawl.

The Simrad ITI system is operated by self-explanatory menus. The menu is available in several languages.



Trawl monitoring with Simrad ITI

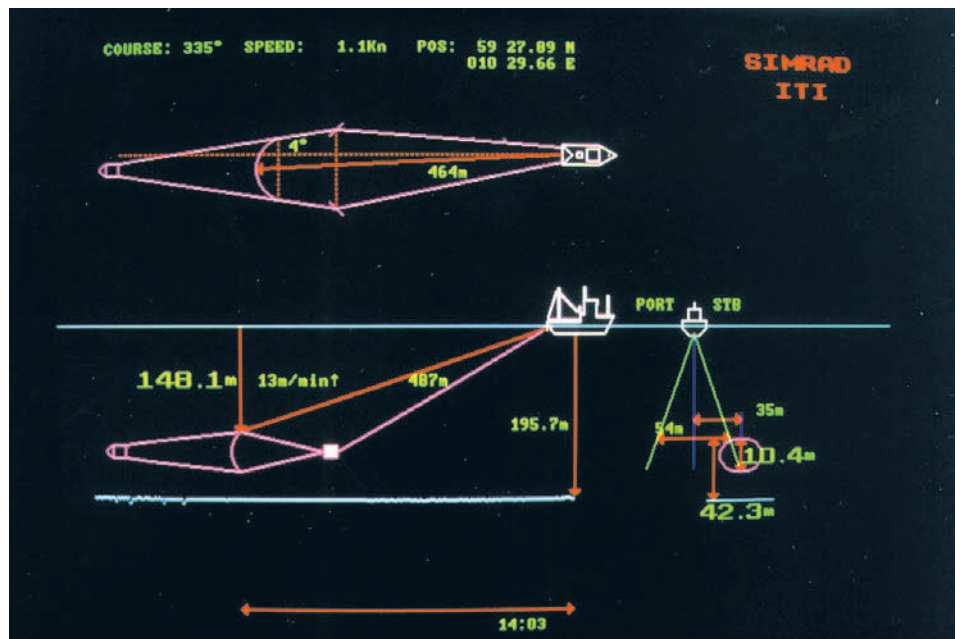


Monitoring of the trawl and catch situation

The *Normal* mode picture presents you with a complete overview of the trawl and catch situation on the screen.

The picture is divided into three sections:

- 1 Distance and bearing to the trawl, door or wing spread and the catch are displayed in the horizontal section.
- 2 The vertical section showing the depth of the trawl, the sea temperature, the catch, the bottom contours from the echo sounder and the time lag between the vessel and the trawl.
- 3 The height of the trawl, the bottom clearance and the trawl deviation from the ship's course line, is displayed in the aft view section. In addition, the ship's echo sounder coverage at the trawl depth is shown.



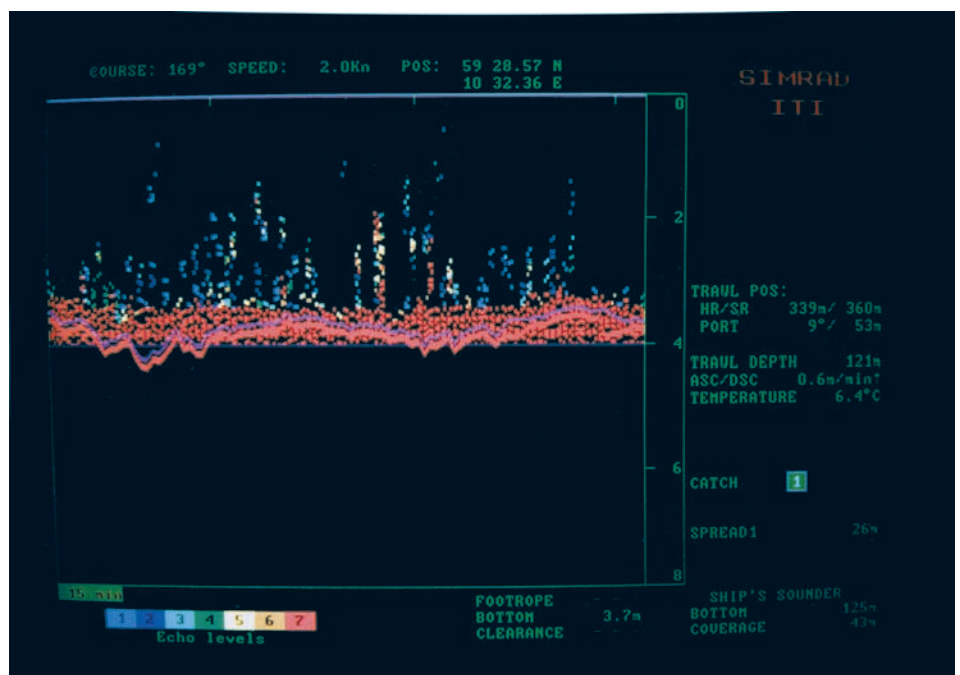
The Normal mode provides you with an overview of important catch and trawl data.

The Simrad ITI Trawl Eye - efficient wireless net sounding

The Simrad Trawl Eye monitors the trawl opening.

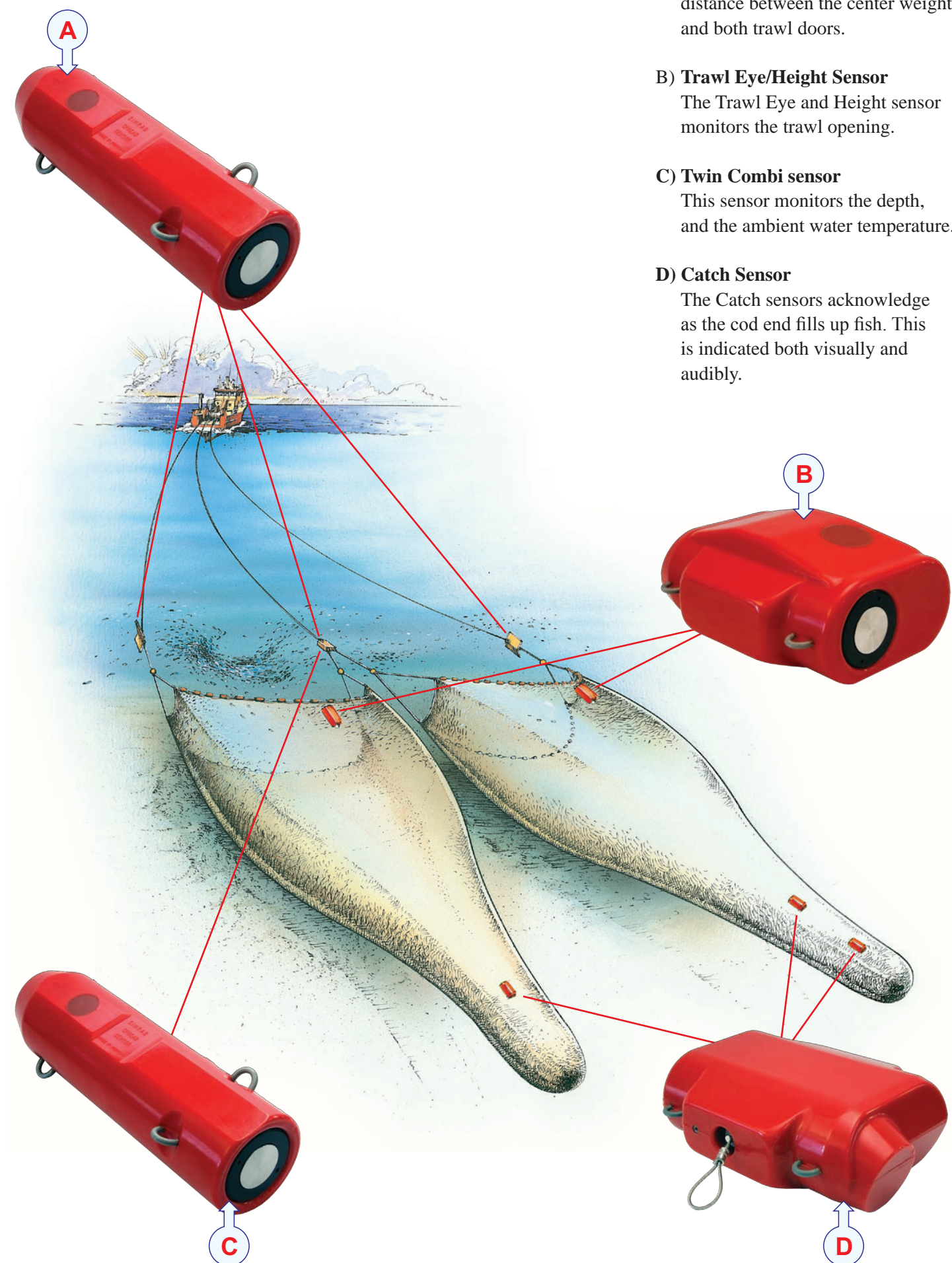
The Simrad Trawl Eye sensor has a sophisticated built-in echo sounder providing information on fish in the trawl opening, the height of the trawl and clearance to the bottom.

The amount of fish in the opening is clearly displayed and the density of fish is indicated by echo strength. The footrope and bottom sounding are constantly monitored giving information on the trawl opening and behavior of the trawl when bottom trawling. Information is displayed as an easy to understand echosounder picture. The Trawl Eye is best suited for bottom and medium size pelagic trawlers.



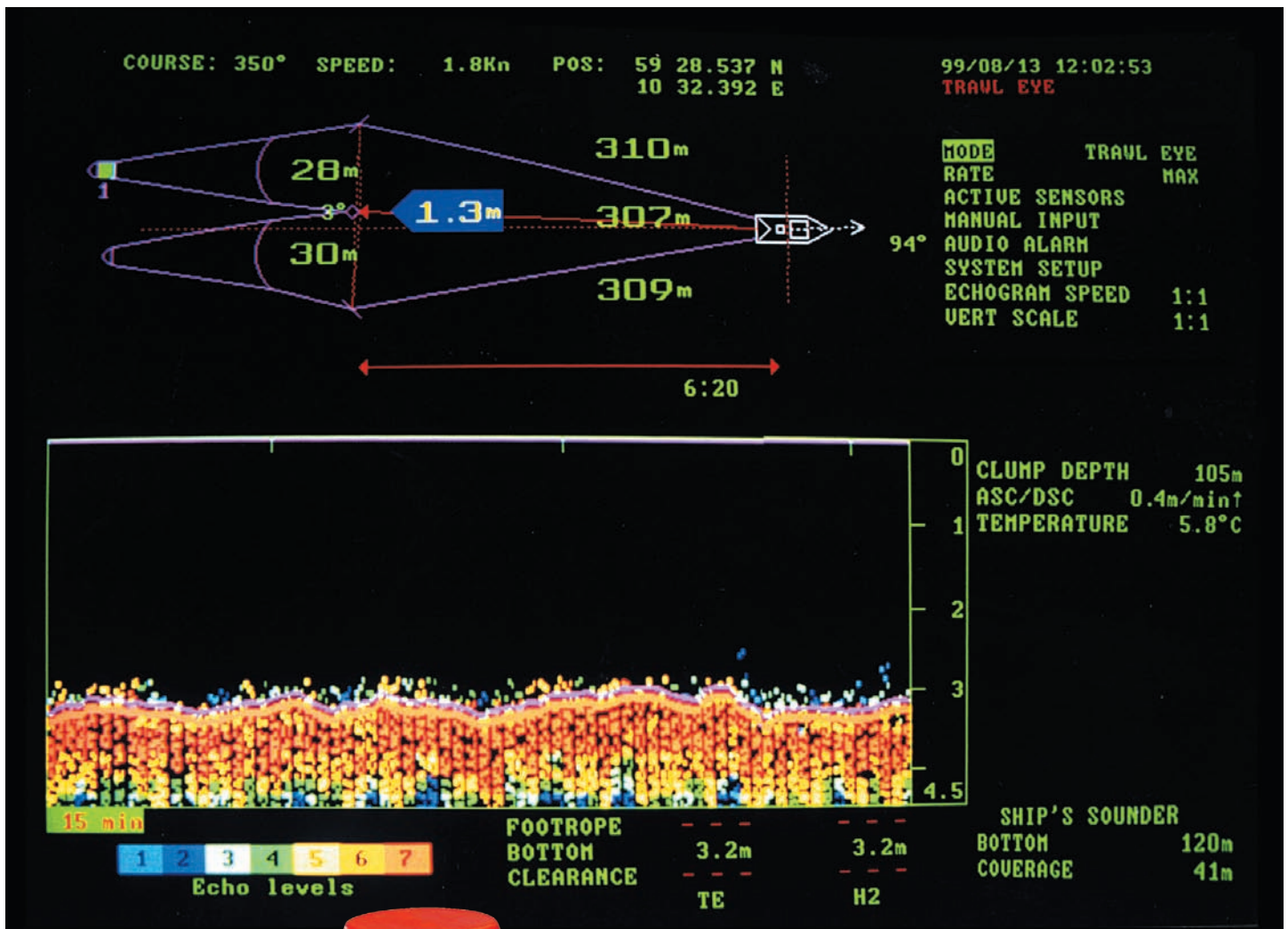
The Trawl Eye echogram gives detailed information about the trawl opening, fish entering the trawl and footrope bottom contact.

Twin trawl monitoring with Simrad ITI



Simrad ITI Trawl Geometry - full control of Twin Trawl

The wireless Simrad ITI transponder system for Twin Rigging is designed to utilize a minimum of transponders to achieve full coverage of the trawl geometry and true movement over the bottom.



With better than 1 m relative accuracy, the new Simrad ITI Geometry System provides measurements for: "Vessel to starboard and port trawl door and Vessel to the center weight."

With this accuracy, the ITI Geometry System will measure the distances between the center weight and both trawl doors.

The ITI system can be expanded to provide a wide variety of data. The Twin Combi sensor is located on the center weight to detect depth and water temperature. The Trawl Eye sensor and the Height sensor can be mounted in the trawl openings to detect trawl heights, bottom contact and fish entering the trawl. In addition, Catch sensors can be mounted on both cod ends to measure the amount of fish caught.

Technical specifications

Note that the specifications can be altered without prior warning.

System

The ITI System consists of the following main units:

- Display monitor (*)
- Transceiver Unit
- Dual or triple split beam transducer system
- Trawl mounted sensors and Trawl Eye

(*) The display is not a part of the delivery, and must be obtained locally. The display must comply to a standard VGA output. All sizes can be used, but the ITI has not been prepared for wide screens (16:9).

Display modes and operation

- Normal mode: Horizontal and vertical section, athwartships view
- Tactical display: Bird's eye view with target and trawl position
- Temp/Depth: Depth/temperature gradient curve
- Trawl Data Log: Stored trawl data
- Grid: Grid angle
- Status views: System parameter setting
- Trawl Eye echogram: Side view of trawl opening
- Trawl Eye, split screen: Side view of trawl opening, range and bearing to the trawl
- Test: Sensor communication protocol
- Operation: Keypad operated multilingual menu

Range

Selectable scales:

- Max 4000 m. Detection range depends on transducer installation, ambient noise level, temperature gradient and sensor alignment.
- Measuring accuracy:
 - Distance: Typical ± 5 m
 - Bearing: Typical $\pm 1^\circ$

Data interfaces

- Gyro: Stepper/synchro types
- Speed log: Pulse, analogue, Simrad NL Doppler Log, or GPS
- Serial lines: Four NMEA0183 serial lines
- Option: Ethernet interface

Power requirements

- Voltage: 220 Vac, $\pm 15\%$, 50/60 Hz
- Consumption: 90 W

Transducer

Ceramic, split beam transducer type, supplied with 20 m cable, diameter 12 mm in a dual or triple transducer configuration.

- Beam width: 40° (-3 dB), circular
- Horizontal coverage: 70° - 100° depending on arrangement (two single or one triple)

Sensors

Common sensor specifications:

- Moulded housing with replaceable electronics
- Rechargeable batteries
- Operational life between charging: Approximately 40 hours when interrogated every 15 seconds
- Max operating depth: 2000 m
- Frequency range: 27 - 33 kHz
- Weight: Approximately 3 kg (in water).
- Sensor types:
 - Depth sensor
 - Temperature sensor
 - Temperature/Depth combination
 - Spread sensor
 - Trawl Eye sensor
 - Catch sensor
 - Height sensor
 - Grid sensor

Simrad

Kongsberg Maritime AS
Strandpromenaden 50
P.O.Box 111
N-3191 Horten, Norway

Telephone: +47 33 03 40 00
Telefax: +47 33 04 29 87
www.simrad.com
simrad.sales@simrad.com

SIMRAD