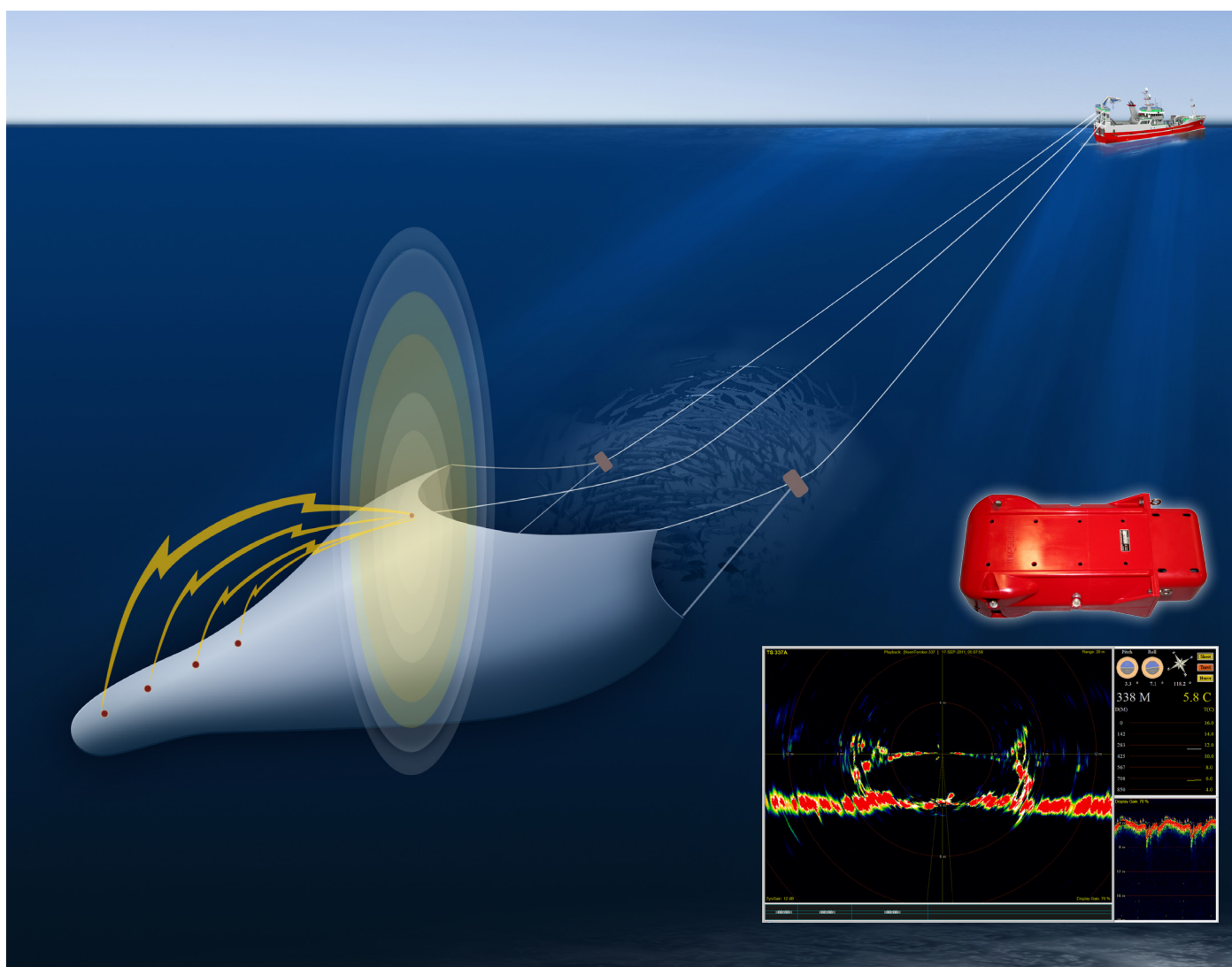


REAL TIME

360° SCANNING TRAWL SONAR

Model **TS-337A**



- ▶ Full Omni directional 360°
- ▶ Real time 360° updates every 0,8 sec.
- ▶ Pitch, Roll and heading indication
- ▶ Display presentation to user's desire
- ▶ No moving parts
- ▶ Echo sounder with 360° tilt functionality
- ▶ Receive signal from up to 4 catch sensors

Furuno Norge AS has launched a new wired trawl sonar for pelagic and bottom trawling. By using advanced ultrasonic technology, we achieve a continuous update of the 360° picture of the trawl opening.

The trawl sonar head (underwater unit) has an omnidirectional transducer, for 360° scanning functionality, with an update rate of approximately 1 sec. for each 360°. This means that the skipper gets real time information about the whole opening and the behavior of the trawl and the catch going into the trawl. It has a pressure sensor to detect the distance to the surface, temperature sensor to detect water temperature, heading compass to indicate the direction of the underwater unit, and roll and pitch sensor which tells you how the sonar head is positioned. This data gives you valuable information about the behavior and shape of the trawl in addition to the relation between the trawl and the seabed.

The built in echo sounder can be tilted in any direction instantly. The sonar head has no moving parts and has a robust construction. The display presentation can easily be set up according to the user's desire.

The display modes include vertical scanning, down sounding and temp/depth. The vertical scanning image offers shape of the net mouth and the relation between the net and the seabed. Additionally the TS-337A indicates if the net opening is stable.

Up to four catch sensors can be installed on the cod end. The catch signals are transmitted to the sonar head through an ultrasonic link. These signals are activated when the net mesh is expanding; meaning it fills up with fish. A separate timer on each catch sensor tells the timing of hauling, which is a useful function to avoid trawl damages.

SPECIFICATIONS OF TS-337A

GENERAL

Display	1280 x 1024
Display Mode	Beam Test or 360° image
Presentation Color of echogram	Full color (2 types of contrast selectable for day or night time operation), Green, Grey (normal/reverse)

UNDERWATER UNIT

Operating Depth	2,000 m
Vertical Scanning Sonar	
Display mode	360°. Full picture scanning every 0,8 sec.
Echo Sounder	
Frequency	120 kHz
Ranges	10, 20, 30, 40, 50, 60, 80, 100, 150, 200, 250 m.
Temperature Sensor	
Measurement Range	- 5°C to +35°C
Dept Sensor	
Measurement Range	0 to 2,000 m
Pitch/Roll Sensor	+/-60°

CATCH SENSOR CS-400

Operating Depth	2,000 m
Frequency	channel 1: 69.75/70.25 kHz, channel 2: 72.25/72.75 kHz channel 3: 74.75/75.25 kHz channel 4: 77.25/77.75 kHz
Power Supply	3 Alkaline batteries
Operating Time	1,500 h

POWER SUPPLY

115/230 VAC

EQUIPMENT LIST

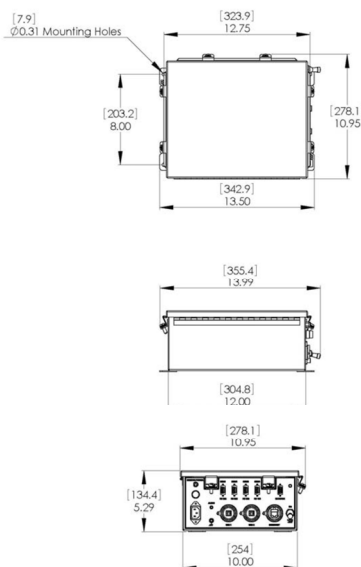
Standard: 1 pcs underwater unit, 1 pcs processor unit, 1 pcs power/interface unit. Installation Material and Standard Spare Parts

Option: Catch Sensor CS-400

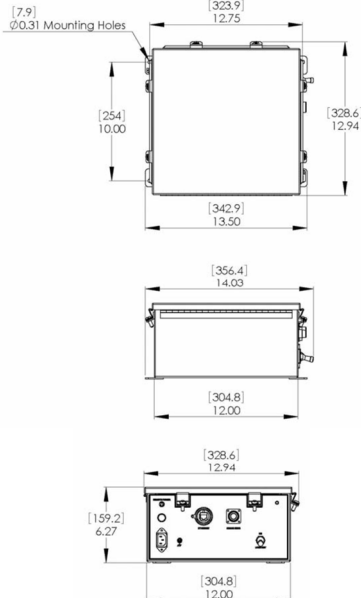
Third Wire System

Winch system	Shipyards supply
Cable	Armored coax cable
Loop Resistance	100 ohm
Attenuation	20 dB, 100 kHz
Length	3,000 m

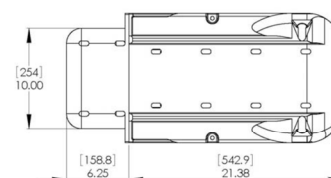
Processor Unit



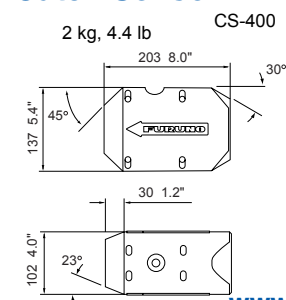
Power/interface Unit



Underwater Unit



Catch Sensor



Specifications subject to change without notice.

www.furuno.no