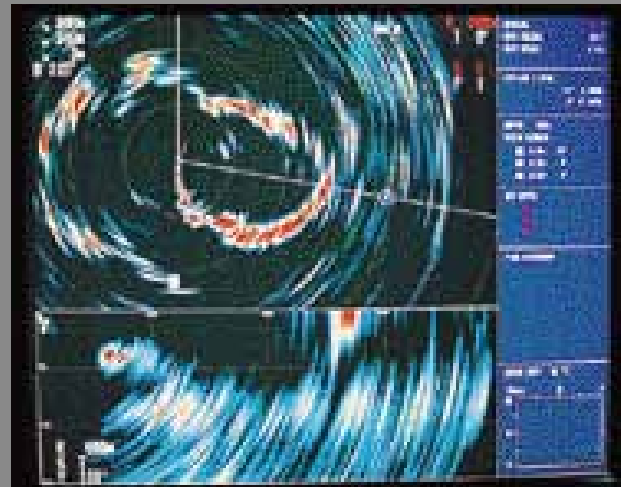


# For Purse seiners



## For Purse seiners

The left screen shows Full circle + Vertical scan and the lower, Full circle. The vertical scanning picture is suitable for monitoring the concentration of the targeted fish school during the net shooting. The Full circle picture can be used to monitor the position and movement of the fish school.



Combination of Full-circle and Vertical scan



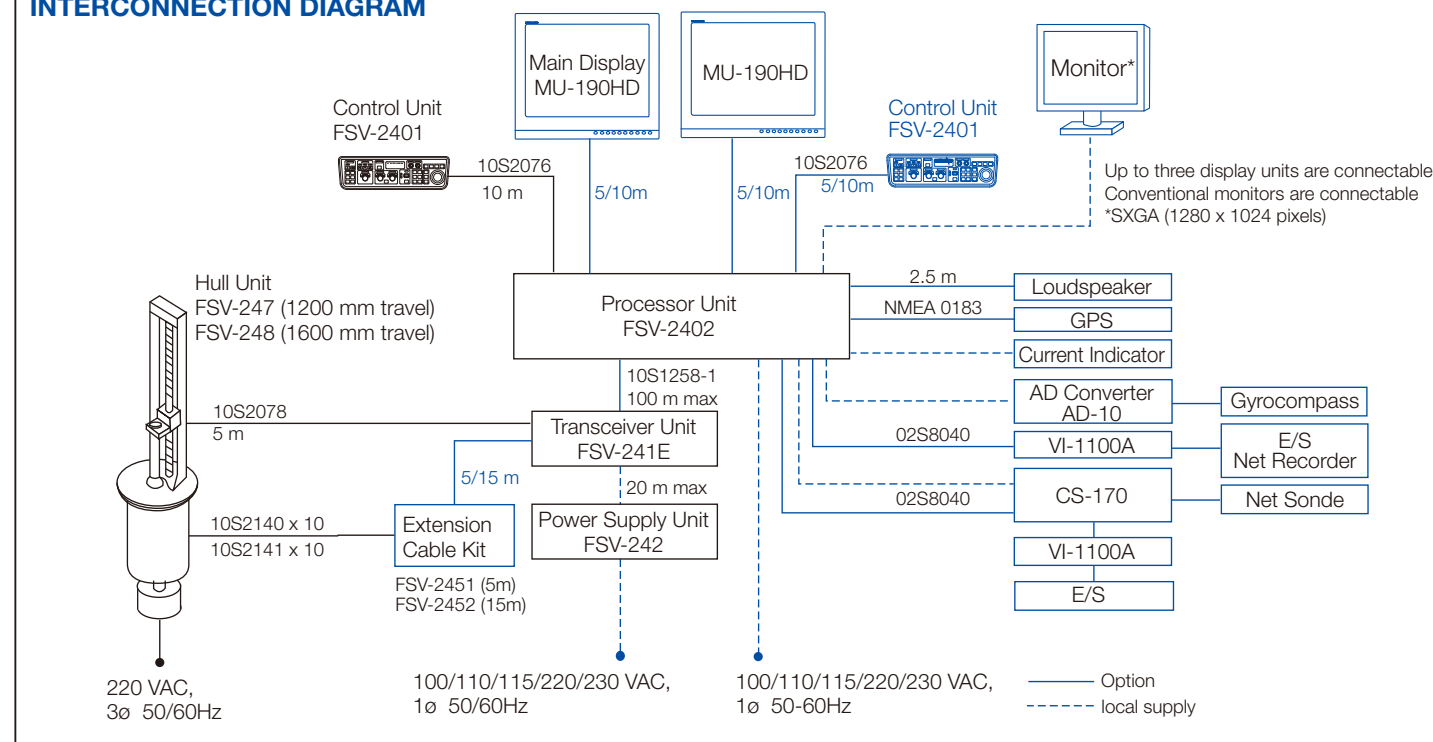
Full-circle display showing net formation in relation to the target fish schools

## SPECIFICATIONS OF FSV-24

- Presentation Color**  
Echoes in 32 colors, Marks in 4 colors
  - Frequency**  
24 kHz
  - Presentation Modes**  
Horizontal scan, Combination of Horizontal scan and Vertical-scan 1 or 2, Combination of Horizontal scan and Echo sounder 1 or 2, Combination of Horizontal scan and Vertical-scan + Echo sounder, Combination of Horizontal scan and History presentation
  - Orientation**  
Head-up, Course-up\*, North-up\* and True Motion\*  
\*Appropriate sensors required
  - Range Scales** 60 - 5.000 m
  - Pulse length** 0.5 to 100 ms (depending on range scales)
  - Beamwidth (at -3 dB)**  
TX: 360° (hor) x 10° (ver)  
RX: 18° (hor) x 12° (ver)
  - Tilt** -5° to 60° (downward) continuous
  - Hull Unit**

	FSV-247	FSV-248
Travel:	800/1200 mm	1200/1600 mm
Raising Time:	22	29
Lowering Time:	21	28
Ship Speed:	18 knots	15 knots
(Raise/Lower):	(15 knots)	(12 knots)
  - Audio Search**  
30°, 60°, 90°, 180°, 330°  
Audio Output: 2 W, Frequency: 1 kHz
  - Interface (NMEA 0183)**  
Input: CUR, DBS, DBT, DPT, GGA, GLL, HCC, HCD, HDG, HDM, HDT, MTW, MWV, RMA, RMC, VBW, VDR, VTG, VHW, ZDA  
Output: TLL
- POWER SUPPLY**  
Hull unit: 220 VAC, 3ø, 60 Hz(4.5kVA max)
- EQUIPMENT LIST**
- Standard**
- Control Unit FSV-2401
  - Processor Unit FSV-2402
  - Transceiver Unit FSV-241E
  - Hull Unit (specify when ordering) FSV-247 (1200 mm travel) FSV-248 (1600 mm travel)
  - Power Supply Unit FSV-242
  - Installation materials and spare parts
- Optional**
- Control Unit FSV-2401 (for remote display)
  - NMEA cable MJ-A6SPF0012-050/100 (5/10 m)
  - Viewing Hood FP03-06503
  - Echo Sounder Interface VI-1100A
  - Cable for VI-1100A 02S8040 (6 m)
  - Loudspeaker SEM-21Q
  - Net Sonde Interface CS-170
  - Extension Cable Kit FSV-2451(5m) /2452(15m)
  - Power Supply Unit FS-2403 for CS-120A
  - Attachment Frange OP10-22/23 (1200m/1600m travel)

## INTERCONNECTION DIAGRAM



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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# FURUNO

## FULL-CIRCLE COLOR SCANNING SONAR Model FSV-24

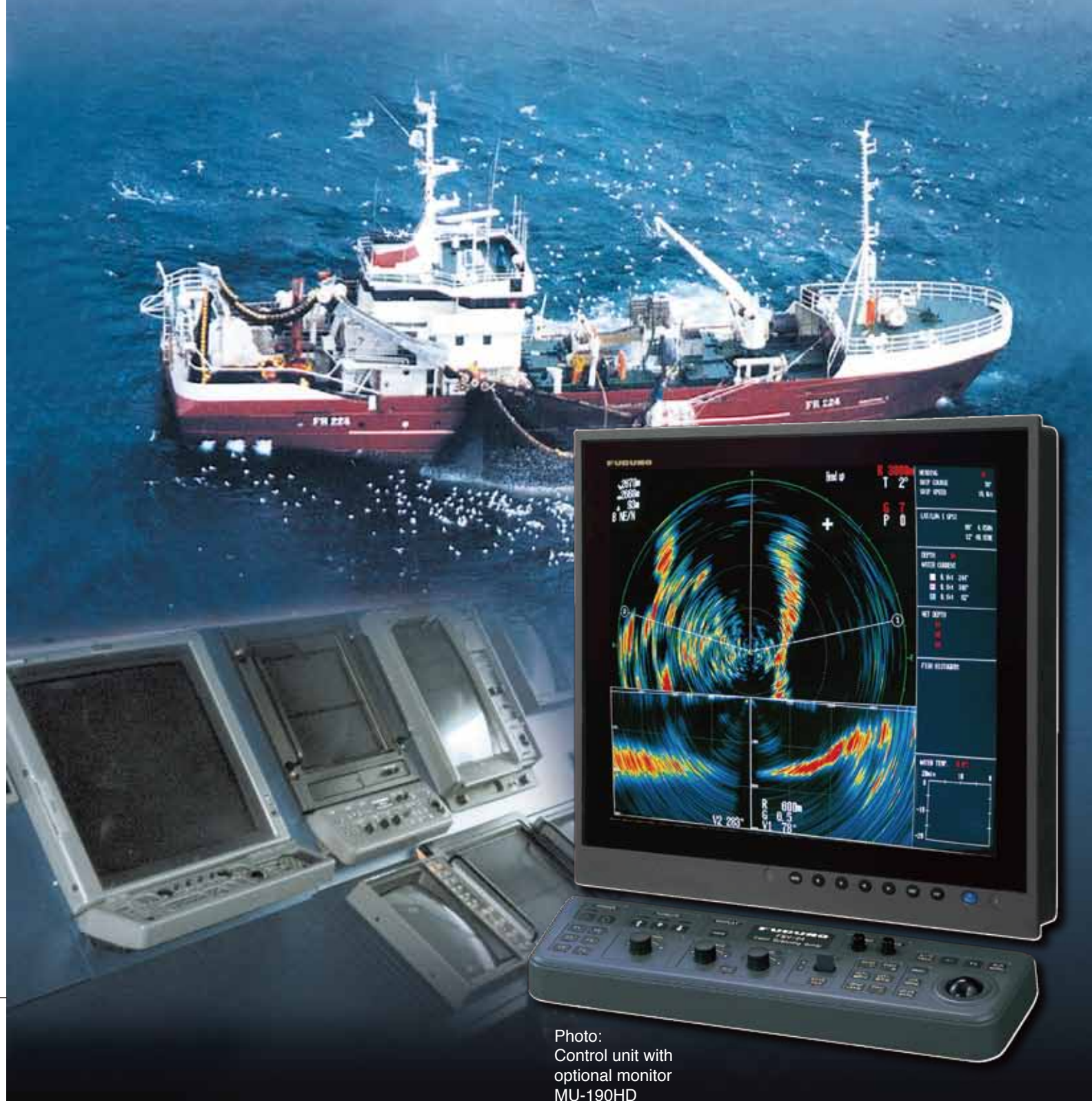
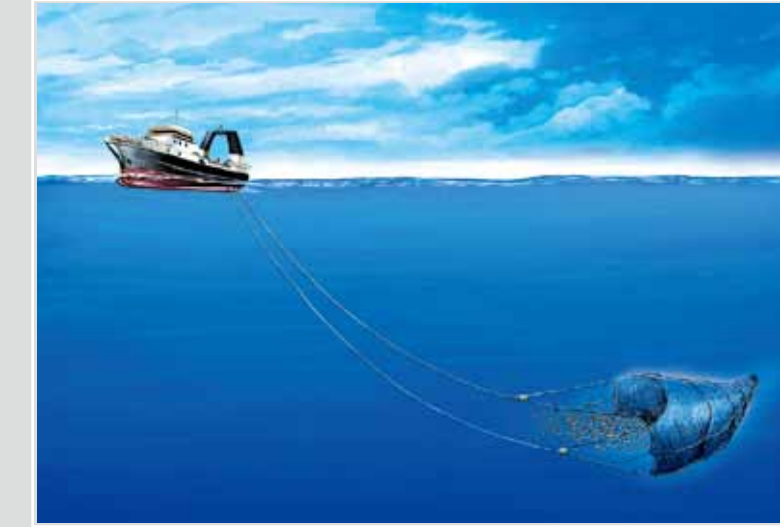


Photo: Control unit with optional monitor MU-190HD

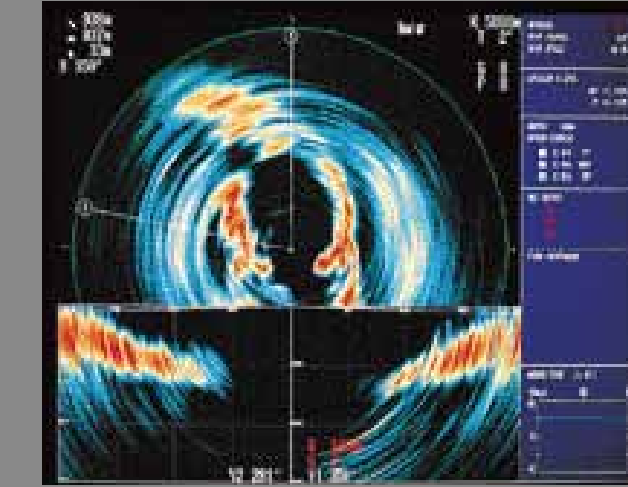
www.furuno.com

# For Trawlers

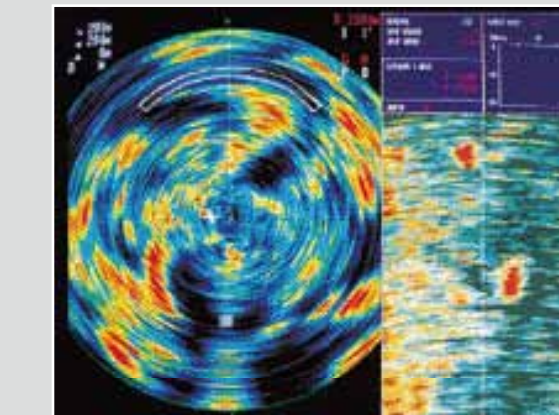


## For Trawlers

These two pictures are from Full circle + Dual-Bearing Vertical Slice and Full circle + Historical modes. The historical display shows the echoes within the marker and the plotted echoes scrolls down, synchronized with ship's speed or transmission rate. This picture can be used to monitor and predict the movement of the targeted fish school. With the Dual-Bearing Vertical Slice, you can place two markers onto different fish schools to monitor the concentration of fish schools for prediction of their movement.



Combination of Full-circle and Dual-Bearing Vertical Slice



Combination of Full-circle and Historical presentation

# FURUNO's highly advanced 360-degree Scanning Sonar technology supports a modern, efficient fishing operation.

The FSV-24 is a revolutionary scanning sonar developed for use by both trawlers and purse seiners. Furuno's advanced 360-degree, multibeam sonar technology provides effective and reliable detection of fish on both short and long search ranges.

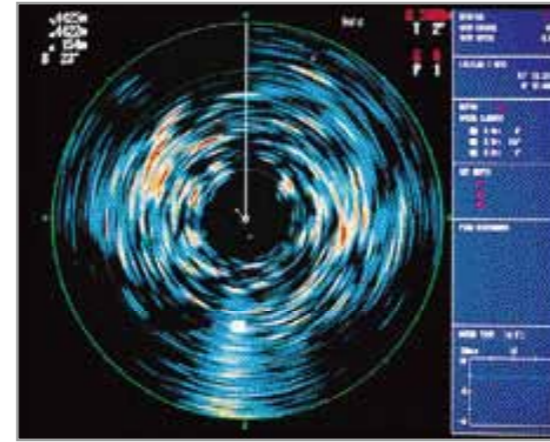
One of the FSV-24's major features is the new Dual-Bearing Vertical Slice mode. Up to two areas of particular interest may be specified by the bearing lines. Vertically scanned views along these bearing lines are shown in two display windows positioned side by side, directly beneath the full-circle, 360-degree view. The vertical distribution of the targeted fish schools can be clearly seen.

- Long range detection with powerful transmitter and high-sensitivity receiver and transducer
- Short range, shallow depth detection by clutter suppressing signal processing techniques

- Various operation modes
- User defined function key and menu
- Easy evaluation of fish school concentration and distribution
- Catch prediction by estimate mark

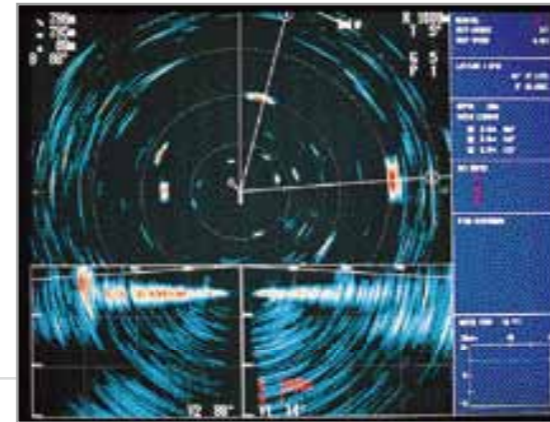




Photo: Control unit with optional monitor MU-190HD  Vertical scanning marker



## Stabilization system

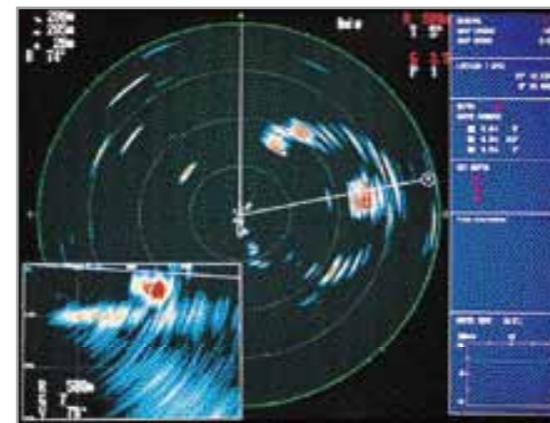
New transducer stabilization system ensures detection of fish schools with unblurred display in rough seas. It maintains the sonar beams at required bearing and tilting compensating for ship's pitching/rolling.



 Vertical scanning marker 1  Vertical scanning marker 2

## Dual-Bearing Vertical Slice

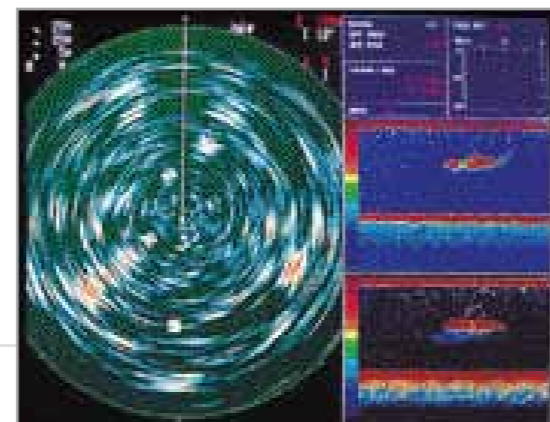
Set by using the track ball, vertically scanned views in two cursor lines can be added to the Full-Circle Scan picture. Combination of Full circle and Vertical Scan pictures offers the horizontal and vertical distribution of fish schools or concentration of particular fish schools.



 Target lock mark

## Target lock

The FSV-24 provides two different target lock modes: target echo mode and position tracking mode. In the target echo mode, fish school is manually acquired and automatically tracked, the target lock mark following the the selected fish school, and can be shown in the full-circle picture as well as the vertical scan. In the position tracking mode, the FSV-24 automatically locks to the specified position.

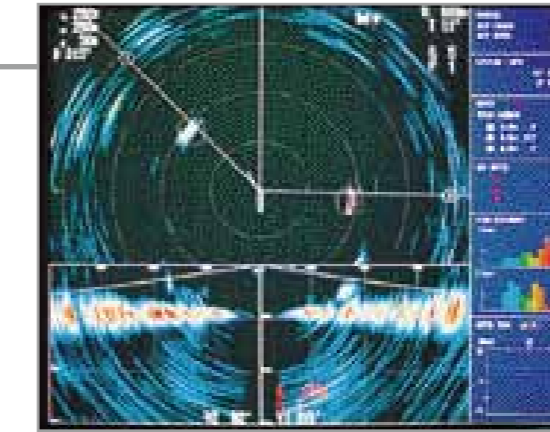


## Combination of Full circle and two echo sounders

Up to two echo sounders can be connected with the FSV-24 and pictures from the echo sounder can be displayed together with the Full circle scanning pictures.

## Event and estimate mark

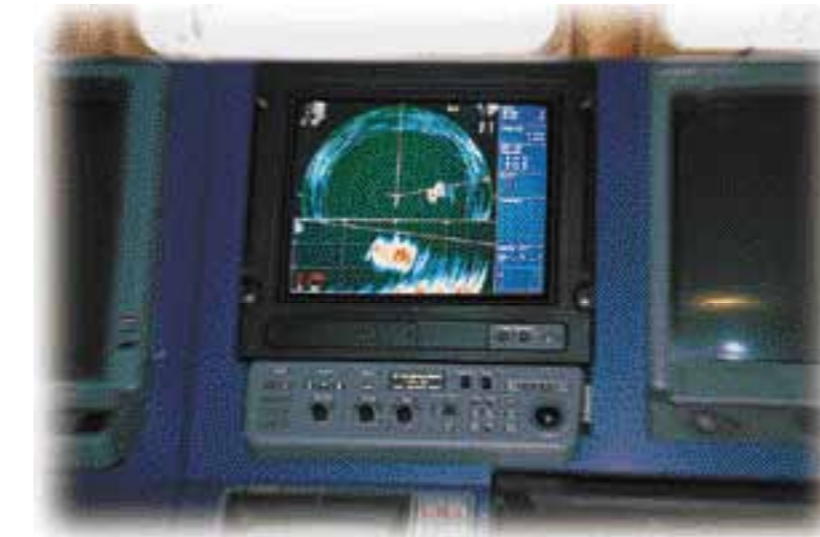
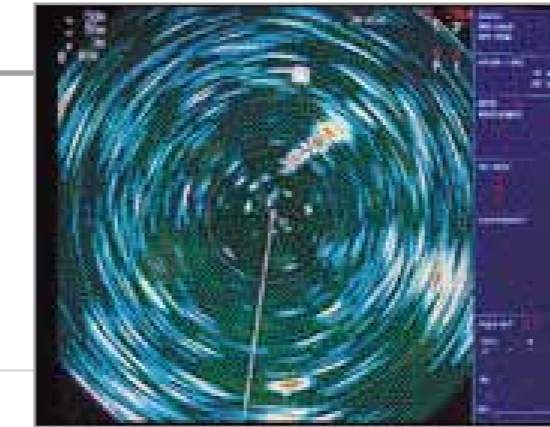
Up to ten event marks can be entered. Range/bearing and water depth at the mark are read at the lower left corner of the screen. Two estimate marks are available on the full-circle picture. Echoes within an Estimate Mark are presented with a histogram showing the echo strengths. This graphically helps to assess the density of the targeted fish school.



 Estimate mark 1  Estimate mark 2

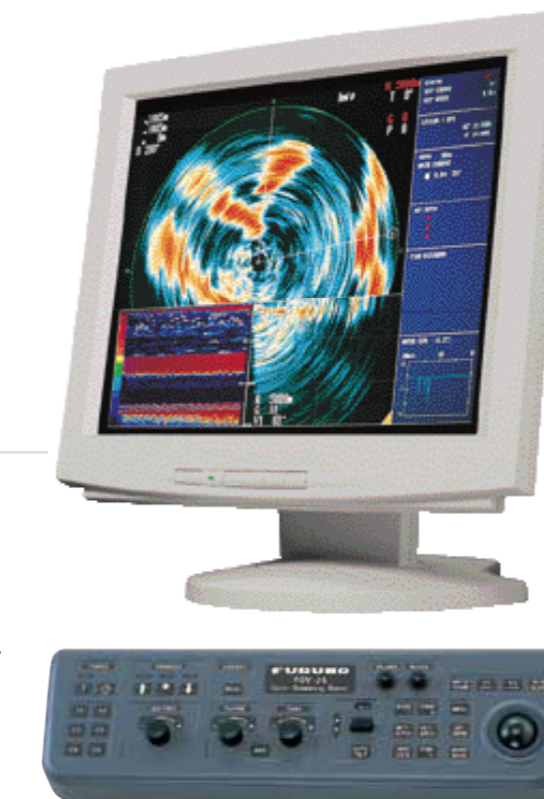
## Four orientations

The FSV-24 displays sonar pictures in four orientations; Head-up, North-up, Course-up and True Motion. In the course-up mode, own ship always stays at the screen center. The intended course locks to the screen top to avoid smearing during course changes.



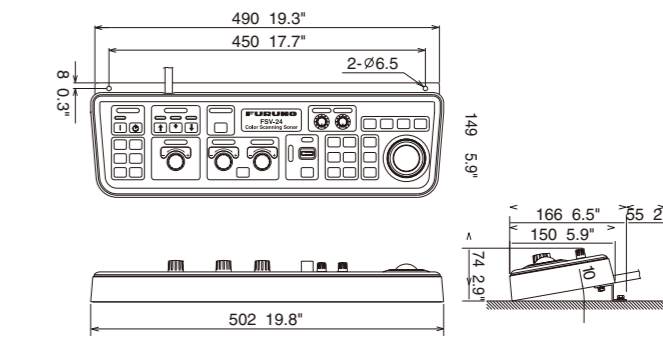
## BlackBox configuration

The sonar user may select a favorite display without spoiling the standard functions of the FURUNO sonar system.



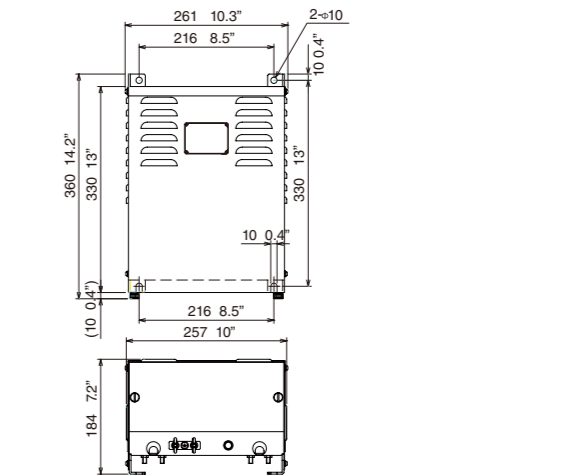
## CONTROL UNIT FSV-2401

Weight: 4.2 kg, 9.3 lb



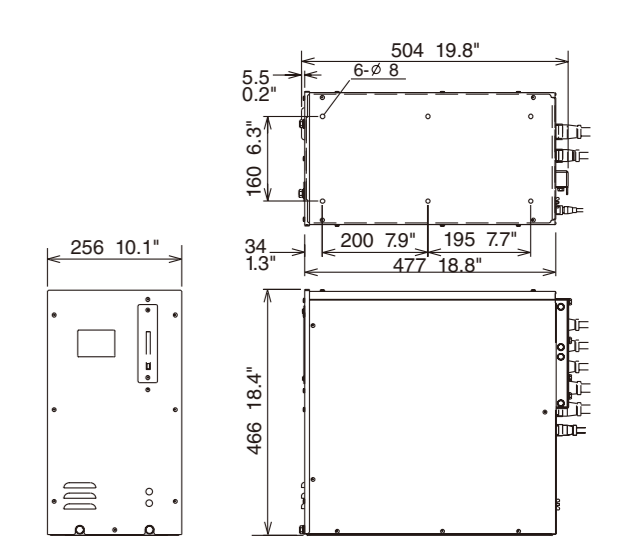
## POWER SUPPLY UNIT FSV-242

Weight: 25 kg, 55 lb



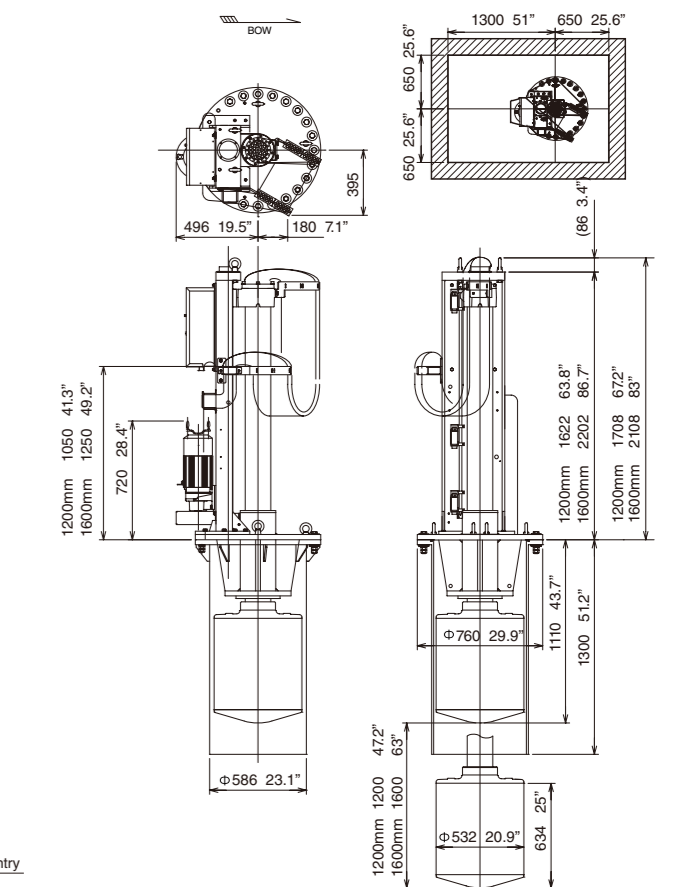
## PROCESSOR UNIT FSV-2402

Weight: 29 kg, 63 lb



## 247 (for 1200mm travel) HULL UNIT FSV-248 (for 1600mm travel)

Weight: 1,240 kg, 2,733 lb (1200 mm)  
1,290 kg, 2,843 lb (1600 mm)



## TRANSCIEVER UNIT FSV-241E

Weight: 180 kg, 396 lb

