FURUNO

360-DEGREE OMNI SCANNING SONAR

Model FSV-85 MARK-2

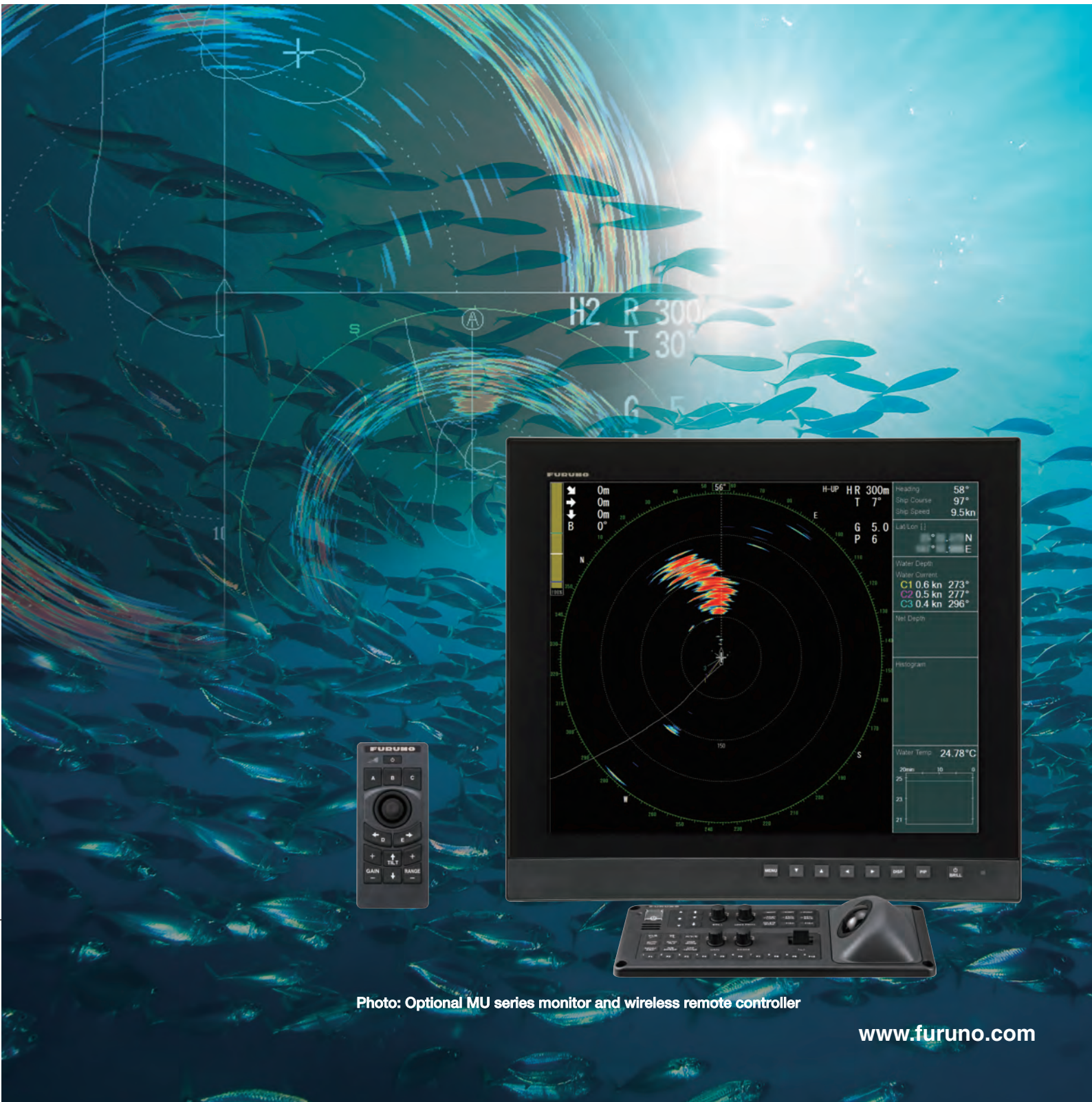


Photo: Optional MU series monitor and wireless remote controller

www.furuno.com

User-Friendly, Programmable, Intelligent Controls

The User Program Control (up to 10 programs) provides for instant setup of the equipment according to fishing ground or target fish. Ten programs may be set up, and vertical and horizontal display settings may be programmed together or individually. In addition, 10 function keys provide one-touch display of desired menu or frequently used menu settings such as: Recording still images, recalling still images, erasing marks, activitate or deactivate the stabilization etc.

Customizable Menu

Sub Control Unit and Remote Controllers optionally available

Sub control unit

Remote Controller (wired)

Remote Controller (Bluetooth)

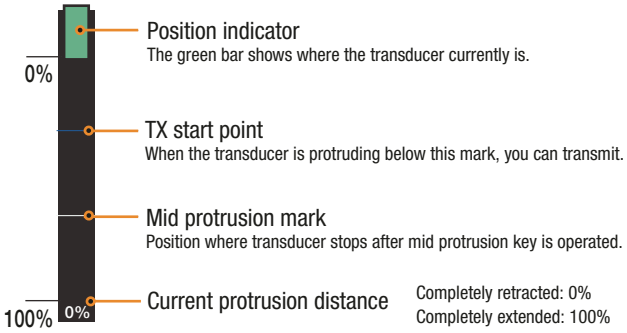
Small Switch Box

Short raise/lower time of the transducer & intuitive position indicator

The greatly reduced raise/lower time of the transducer allows for quick adjustment to prevent damage to the transducer.

Travel	Time (seconds)
800 mm	8
1100 mm	11

The position indicator (On the right) lets you know the position of the transducer at a glance.

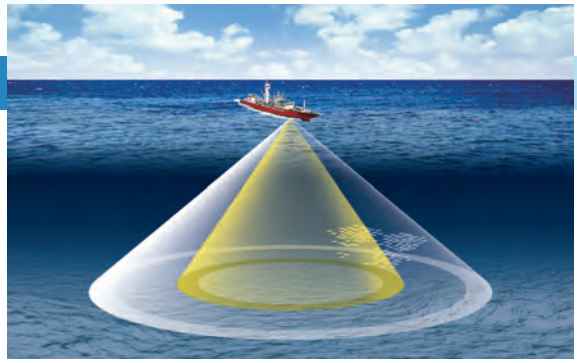


Marine grade monitors MU series displays

With its bright colors, excellent contrast and wide viewing angles, Furuno MU series displays are perfect for any tropical sunlight or low light conditions.
A dual display configuration allows the user to display information on two monitors simultaneously. This is very useful for viewing information quickly on each of the two monitors and for comparing them. The display brightness can be changed simply by rotating the knob on FSV-85 MK2 control unit.

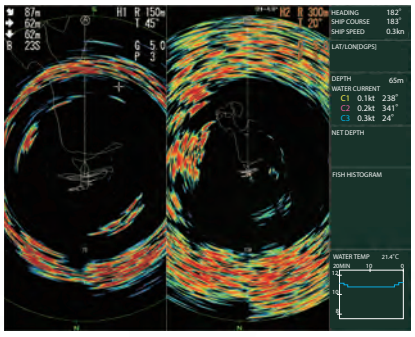
Fishing ground analysis from every pos

Horizontal modes



The horizontal display mode provides a 360 degree picture around the vessel. The H2 mode shows one of four kinds of horizontal display combinations: PORTRAIT, LANDSCAPE, RIGHT INSET and LEFT INSET. The range, tilt, gain and user program are set independently, for each display.

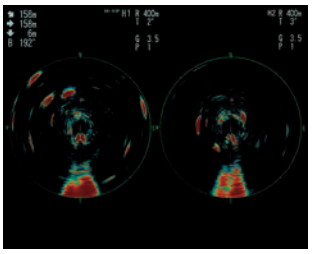
Portrait



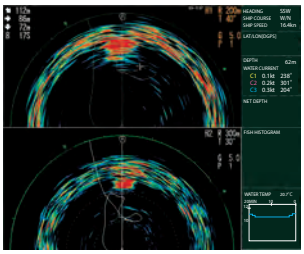
Horizontal1 | Horizontal2

Horizontal1	Horizontal2
Range: 150m	Range: 300m
Tilt: 45°	Tilt: 20°
Gain: 5.0	Gain: 5.0

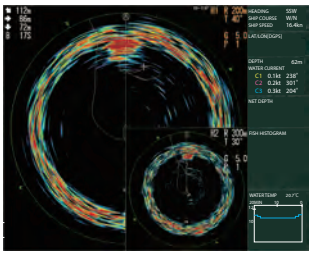
Portrait



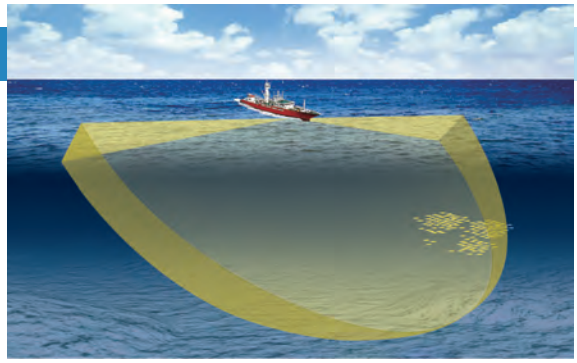
Landscape



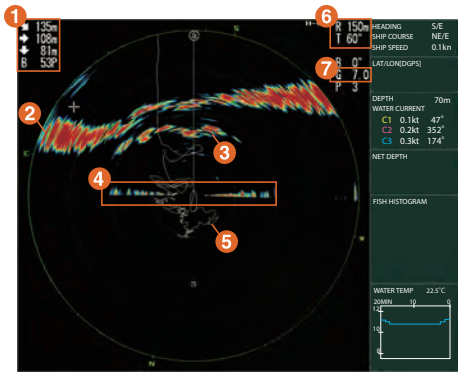
Right Inset



Slant mode

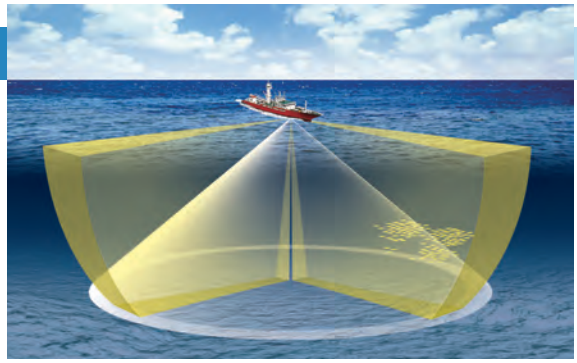


The slant mode provides a half-circle (180 degrees) picture like half-circle sonar.

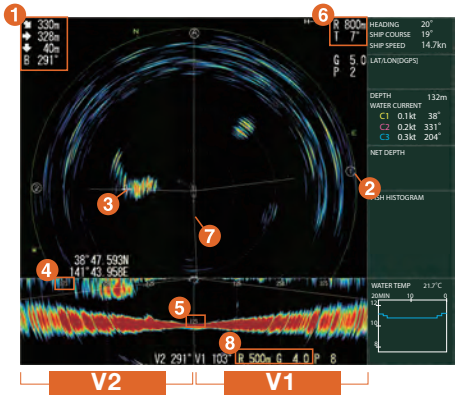


1 Direct distance, horizontal distance, water depth and bearing to the cursor
2 Seabed
3 School of fish
4 Sea surface reflection
5 Ship's track
6 Range, tilt, and display mode of Slant Mode
7 Gain

Horizontal and Vertical Display Combinations



The world's first sonar in its class to combine two vertical sections. The sonar is capable of recording a vertical cross-section (0-90°) in any direction, either in one direction or in two directions. This allows the user to compare two schools of fish at the same time.



1 Direct distance, horizontal distance, water depth and bearing to the cursor
2 Bearing mark for vertical mode 1 (V1)
3 Cursor
4 Range distance of vertical mode
5 Water depth under the boat
6 Range, tilt, and display mode of Horizontal mode
7 Ship's track
8 Range and gain of Vertical mode

ssible angle

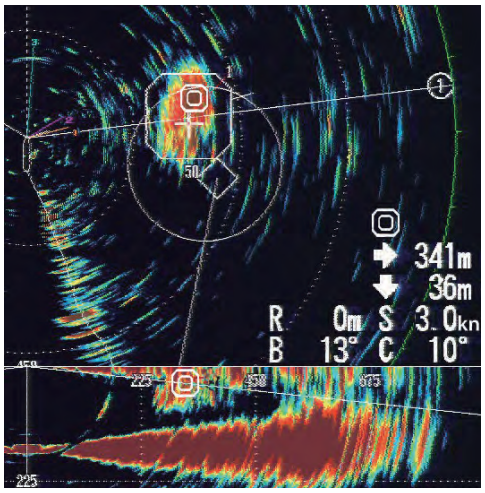
High resolution for long range detection

The combination of highly sensitive sensors and Furuno's new processing technology allows for longer range detection than ever before while maintaining high resolution targets.

Target lock function for fish tracking

*requires vessel speed and heading data

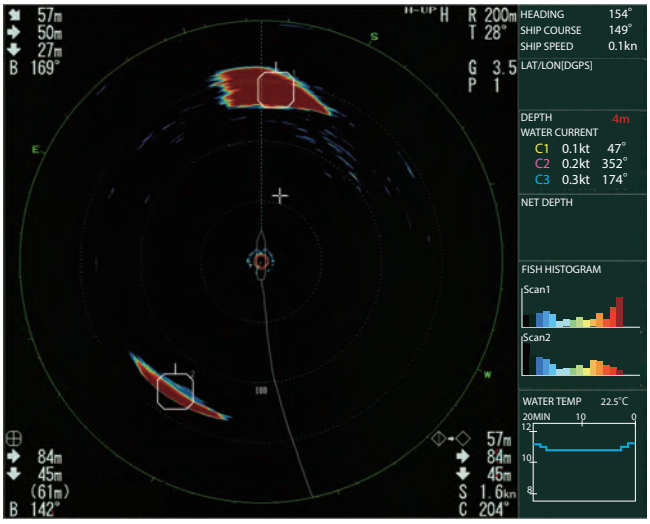
Automatically track schools of fish while calculating their speed and direction. Also display the distance and depth from the vessel to the school. It is also possible to track a fixed position such as a sea current.



By hitting the target lock mark on a fish school echo, the distance and depth to that school of fish, as well as the direction and speed of movement are displayed numerically.

Fish concentration and histogram display to help you decide when to cast your net.

In conjunction with the target lock function, the sonar can display the relative volume of fish in the estimate mark.
This helps you to make the right decision when casting your net.



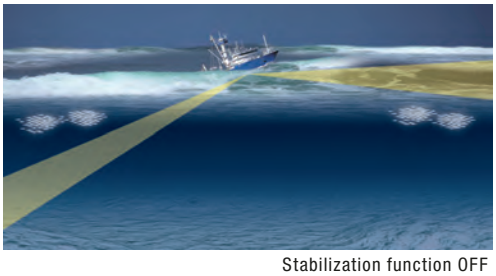
Up to two fish quantity marks can be typed on one screen, and the response of each is displayed as a histogram. This is useful for determining the amount of fish.

Auto filter for clearer images

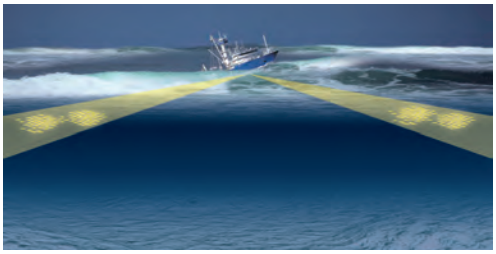
The FSV-85-MARK-2 incorporates a digital filter that regulates noise interference, providing a clear view of the display at high speed without affecting the Sonar.

Stabilization function

The stabilization function compensates for the effects of pitch and roll. This allows stable detection of sea currents and schools of fish, even in poor weather conditions.



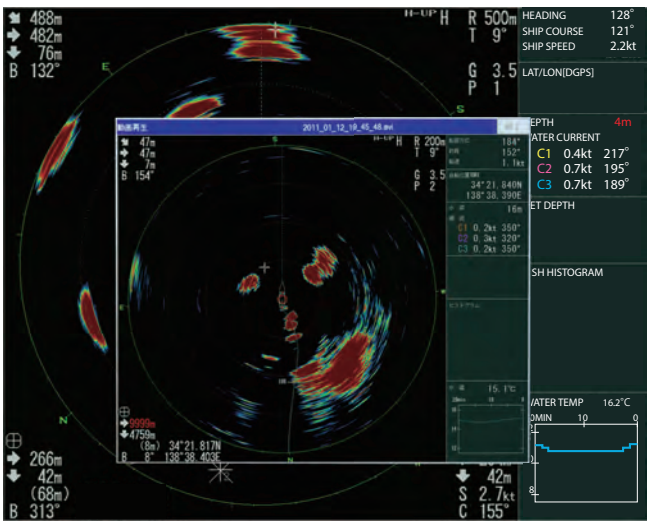
Stabilization function OFF



Stabilization function ON

Storage and playback of Sonar images

The FSV-85-MARK-2 allows you to take a screenshot and playback Sonar images.



The recording will be played on a pop-up screen.

Specifications

1. General

Scanning method: Full digital beam forming
Frequency: 80 kHz
Range: 60, 100, 150, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1400, 1600, 2000 m
Audio search: 30° ; 60° , 90° ; 180° , 330° (selectable)
Audio input: Audio terminal

2. Monitor Unit (Option)

Resolution: SXGA (1280×1024), UXGA (1600×1200), WUXGA (1920×1200)
Color: 32 colors (sonar picture), 6 colors (marks)
Orientation: Head-up, North-up*, Course-up* and True-motion* (*: sensor required)
Modes: Horizontal, S-scan, Horizonal combination, S-scan combination, Vertical 1 combination, Vertical 2 combination
Features: Custom mode, Interference rejecter, Echo Average, Noise limiter, Signal level, Auto-tilt, Automatic target tracking (target lock), Fish alarm, Over-voltage warning, Unretracted transducer warning

3. Transceiver Unit

Transmitter: PDM half-bridge
Receiving method: Straight amplifier, full digital beam forming
H-mode beam-width: TX: 360° x 10.7° RX: 12.6° x 10.1 (-6 dB full width)
V-mode beam-width: TX: 12.7° x 118.2 ° RX: 12.6° x 12.1 (-6 dB full width)
S-mode beam-width: TX: 206.7° x 12.1° RX: 12.6° x 12.0 (-6 dB full width)
Tilt angle: -5° to 90° (downward)
Vertical search range: 0 to 90° (downward)

4. Hull Unit

Travel (mm)	Type (Less dome)	Raise/Lower time (sec)	Ship's speed allowance (at R/L operation)
800	FSV-8472-MK2	8	18 kn (15 kn)
1100	FSV-8482-MK2	11	18 kn (15 kn)

5. Interface

Number of ports
Serial 5 ports, NMEA0183 (Ver1.5/2.0/3.0/4.0/4.1)
LAN 2 ports, Ethernet, 10/100/1000Base-T
USB 4 ports (USB2.0: 2, USB3.0: 2)
External KP 2 ports (in: 1, out: 1), current loop or voltage signal
Gyrocompass 1 port, AD-10 format

Data sentences
Input: CUR, DBS, DBT, DPT, GGA, GLL, GNS, HDG, HDM, HDT, MDA, RMA, MTW, MWV, RMC, VBW*, VDR, VHW, VTG, VWR, VWT, ZDA *Fore-aft/port-stbd speed data required
Output: TLL

6. Power Supply

Processor Unit: 12-24 VDC: 4.0-2.0A, 48 W max
Transceiver Unit: AC100/110/115/220/230 V: 15A,1Ø, 50/60Hz
Hull Unit: 200-220VAC: 4 A, 3Ø, 50/60Hz
Rectifier(Option): PR-241, 100-230 VAC single phase, 50/60Hz

7. Environmental Condition

Ambient Temperature:
Processor Unit, Control Unit, Remote Controller, Small Switch Box: -15°C to +55°C
Transducer -5°C to +35°C
Other 0°C to +50°C
Relative humidity: 93% max (+40°C)
Protection: Control Unit IP22 (Panel), IP20 (Chassis)
Processor Unit IP22
Transducer IPX8
Remote Controller SCU-001 IP56, FSV-854-MK2 IPX4
Transceiver, Other IPX2
Vibration: IEC60945 Ed.4

Equipment list

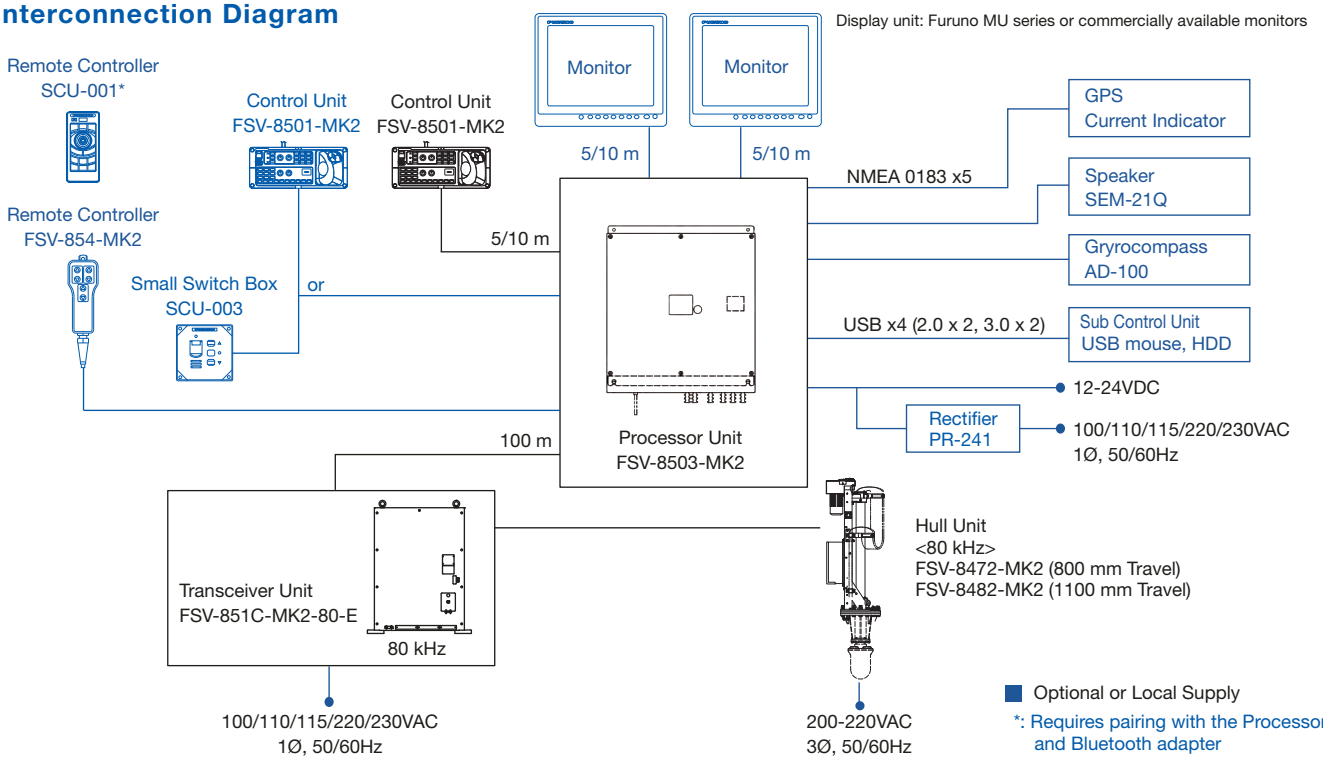
Standard configuration

1.Control Unit (Cable 10m) FSV-8501-MK2
2.Processor Unit FSV-8503-MK2
3.Transceiver Unit FSV-851C-MK2-80-E
4.Hull Unit FSV-8472/8482-MK2
5.Installation Materials
6.Spare Parts

Option

1.Rectifier
2.Control Unit (Cable 5m/10m) FSV-8501-MK2
3.Remote Box/Cable (5P, 100m)
4.Installation Kit (LAN Cable 20,30,40m)
5.Retraction Tank
6.Attachment Kit
7.Sub Control Unit FSV-853
8.Wired Remote Controller FSV-854-MK2 (Cable 5/10m)
9.Wireless Remote Controller SCU-001
10.Small Switch Box SCU-003

Interconnection Diagram



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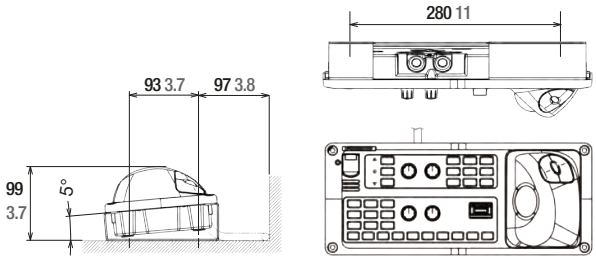
360-DEGREE OMNI SCANNING SONAR

Model **FSV-85 MARK-2**

■ mm
■ inch

Control Unit FSV-8501-MK2

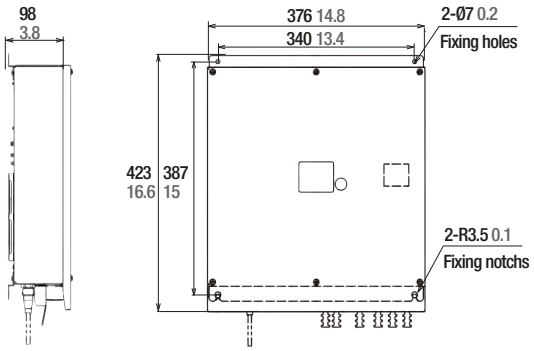
3.8 kg 8.3 lb



*When using the standard mounting bracket
*For recessed installations, the mounting hole dimensions are different.

Processor Unit FSV-8503-MK2

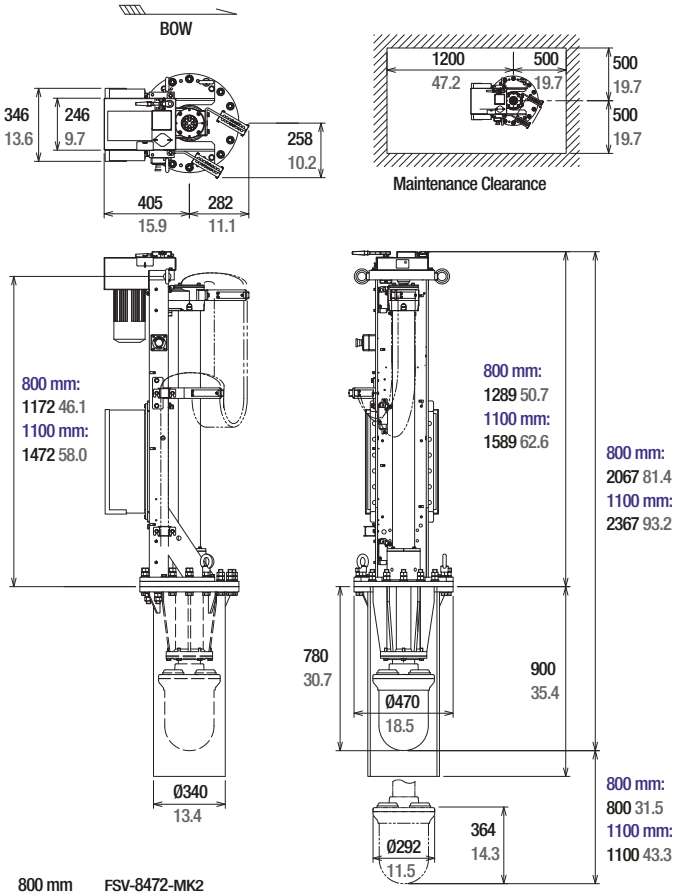
15 kg 33 lb



Hull Unit FSV-8472/8482-MK2

800 mm: 370 kg 816 lb
1100 mm: 390 kg 860 lb
(includes tank)

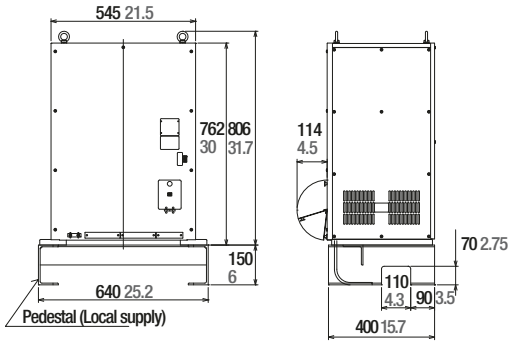
FSV-8400 Series: 80 kHz



800 mm FSV-8472-MK2
1100 mm FSV-8482-MK2

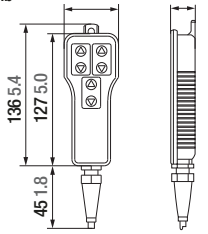
Transceiver Unit FSV-851C-MK2

95 kg 209 lb



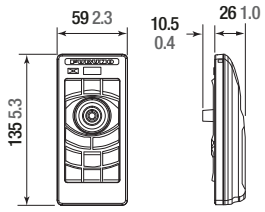
Remote Controller (wired) FSV-854-MK2 (option)

0.76 kg 1.7 lb



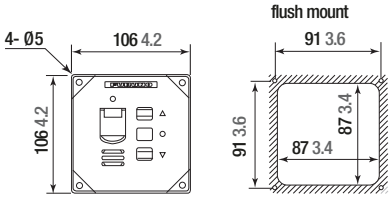
Remote Controller (wireless) SCU-001 (option)

0.14 kg 0.3 lb



Small Switch Box SCU-003 (option)

0.2 kg 0.4 lb



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