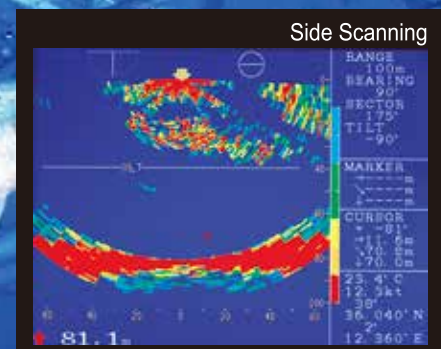
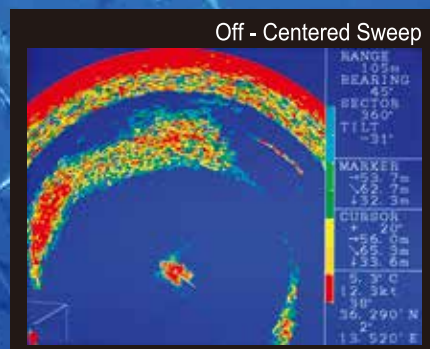
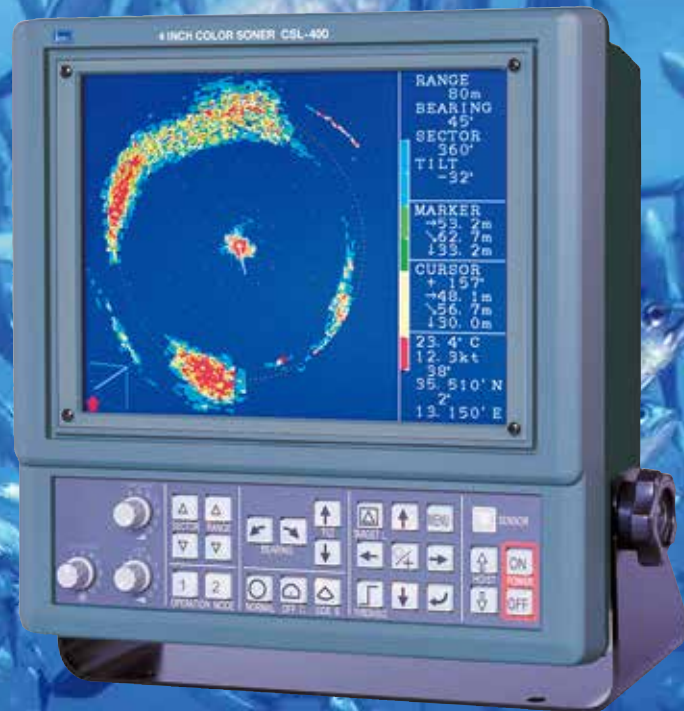




Model CSL-400-220



CSL-400-220
Hull Unit



Featuring:

A compact, affordable 220 kHz sonar system consisting of a low-profile hull unit equipped with a 4-inch soundome and a display console housing a 10-inch daylight-viewing high-resolution TFT LCD screen

A drastically reduced hull unit size permits easy, flexible installation in small vessels where it was previously impossible to install a full-function sonar system. Despite its size, the hull unit is equipped with a transducer stabilizer as standard, making it possible to compensate for the vessel's pitching or rolling under rough sea conditions.

A total of 20 ranges are selectable, covering up to 300 meters in 10-meter/20-meter steps. Similar ranges in fathoms, braccia and feet are also selectable via an easy-to-use menu system.

An optimum transmit pulse length is automatically selected for the range in use. Manual override, however, is possible, enabling the user to employ shorter pulses for high range discrimination or longer pulses to enhance long range detection capability. Two levels of transmit power are manually selectable for more accurate assessment of fish echo density/size in short range operations or for increased sensitivity in long range search applications.

Transmit trigger is available for synchronized transmission with onboard vertical echo sounding equipment, thereby minimizing mutual interference.

Modes of operation include a full circle (360-degree) scan in the horizontal plane with the energy beam tilt angle selectable from +5 to -90 degrees in 1-degree steps, and a 180-degree side-to-side scan in the vertical plane.

Off-centered sweep enables echoes of interest in the heading direction to be

displayed across a wider screen area - a feature indispensable for tracking targeted objects when cruising at high speeds. The target lock function steers the beam energy horizontally and/or vertically to lock onto a target of special interest automatically within a predetermined search zone.

Four sets of factory-preset color arrangement are selectable to indicate target echoes and screen background for ease of screen observation in all ambient lighting conditions. In addition, a color palette function allows a total of 4096 shades of colors to be chosen, thereby making it possible to define any desired color combination to suit the user's personal preference or local operating conditions.

Up to 4 sets of often-used operating parameters, including color arrangement, gain compression curve, echo dynamic range, pulse width, scan step and target lock mode, can be stored in memory. A single keypress on the control panel then enables you to instantly bring your sonar into the desired mode of operation with the most suitable set of parameters automatically selected for the fishing method in use, fishing ground, fishing season, etc.

The screen shows the ship's coordinates, heading and speed with an optional GPS sensor plugged into, or appropriate data sentences fed to, an NMEA-0183 interface port. With speed data input, the soundome can be automatically retracted when the ship's speed exceeds a user-preset limit.

Two types of powerful interference-fighting function are available and can be independently activated to reduce annoying interference from nearby sonars/echo sounders and/or to reduce screen-cluttering random noise.

Model CSL-400-220

Specifications:

Display Screen: 10.4 inch TFT LCD, VGA (640X480 pixel) resolution, daylight viewing

Transducer: 220 kHz, approx. 12°@ 6 dB down

Minimum Seachest Size: 101 mm (ID) X 430 mm (L) max. length: 1180 mm

Soundome Travel: 120 - 200 mm

Transmit Power: approx. 800W rms (6.4 kW peak-peak), adjustable in 2 steps

Transmit Pulse: 0.1 to 3.6 millisecond, selectable automatically or manually in 0.1-unit steps

Scanning Modes: full circle horizontal plane scanning and side (vertical plane) scanning

Scanning Modes: full circle horizontal plane scanning and side (vertical plane) scanning

Range Scales: 20 ranges selectable in meters, fathoms, braccia or feet

• **Meters:**

10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300

• **Fathoms:**

10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200

• **Braccia:**

10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200

• **Feet:**

50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000

Scanning Sector Angles:

• **Horizontal Plane (Full Circle Scan Mode):**

5°, 25°, 45°, 85°, 125°, 165°, 205°, 360° in 5° steps
10°, 30°, 50°, 90°, 130°, 170°, 210°, 360° in 10° steps

• **Vertical Plane (Side Scan Mode):**

3°, 27°, 45°, 63°, 93°, 117°, 147°, 177° in 3° steps
5°, 25°, 45°, 65°, 95°, 115°, 145°, 175° in 5° steps

Training Speeds

(in seconds, depending on range and training sector in use):

• **5° step scan:**

4.2 (10m), 7.1 (40m), 10.9 (80m), 12.8 (100m), 18.6 (160m), 22.4 (200m), 32 (300m)

• **10° step scan:**

3.7 (10m), 5.1 (40m), 7.0 (80m), 8.0 (100m), 10.9 (160m), 12.8 (200m), 17.6 (300m)

Tilt Control: +5° to -90° in 1° steps

Stabilizer Compensation Range: Up to 16° of pitching/rolling

Target Lock Search Zone: horizontal search within 60°, vertical search within 5°

Maximum Cruising Speed: 15 knots for soundome hoisting

Display Colors: Selectable from 4 sets of factory-defined color arrangement or 8 colors user-definable from 4096 colors via palette function

Echo Dynamic Ranges: 1, 2, 3 dB

Gain Compression Characteristics: 10 logR, 20 logR, 30 logR, 40 logR and STC

Interference Rejection: 3 levels (off, 1, 2, 3)

Noise Reduction: on/off

Input Interface: NMEA-0183 Version 2.0 or greater

Inputs: GPGGA (Lat/Lon), GPVTG (heading & speed), SDMTW (temperature)

Output: transmit trigger (negative-going) via opto-isolator

Power Requirements: 24 VDC (nominal), approx. 50W/80W operating/hoisting

Weight: Approx. 6 kg (display unit with bracket), 17 kg (hull unit, without seachest)

Display Unit Dimensions: 322/296(H)X305/288(W)X130(D) mm with/without bracket

Environment: Display Unit (0 - 50°C/operating, -10 - 70°C/storage), 95% RH

NOTE: Specifications are subject to change without notice or obligation.

