

EA 400P

Portable dual channel hydrographic echo sounder

Introduction

The Kongsberg Simrad EA 400P is the new portable hydrographic echo sounder. It is designed for applications where high performance, small size and low power consumption is essential. Extensive microprocessor technology is used throughout the design. The receiver simultaneously measures any input signal amplitude ranging from weak background noise to a strong bottom return without degradation. The instantaneous dynamic range is 160 dB.

General description

The Kongsberg Simrad EA 400P is a dual frequency portable hydrographic echo sounder; a laptop computer and GPT (general purpose transceiver) housed in a suitcase. The sounder can be configured with one or two of the following frequencies: 38, 50, 120 or 200 kHz. A low cost side-looking transducer is available for 120 kHz.

The system uses a laptop computer with Microsoft NT operative system. The computer handles operator communication and data storage. Data communication between the transceiver and the computer is via a short ethernet jumper cable. The transceiver operates from 115 Vac, 239 Vac or 12 Vdc. With a 12 Vdc battery connected to the DC input while powered from AC mains, the battery will be charged. This works as if the system is powered from a UPS.

Main features

- Laptop computer for operation and data storage (Pentium with minimum 32 MB RAM, Windows NT, 16,7 million colours, ethernet connection and serial line(s) for interfaces)



- Interface to any positioning systems with NMEA 0183 serial line.
- Interface to MRU with analogue or serial line.
- Interface to external post-processing tools
- Compensates for sound velocity
- Compensates for heave and transducer depth.
- Advanced built-in bottom digitizer
- Built in storage of data to file: digitised depth, position, heave and annotations all have reference to time.



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- Built in storage of sample data (for replay) and all input signal
- Replay of sample data
- Printing of echograms shown on display
- Depth units: Metres, (Feet and Fathoms)
- On-line help

Options

- Hydrographic chart with gridline or map with navigation's information, includes vessel track, depth colour coded on grid window, survey planning and helmsman display.
- Bottom classifications separates up to 4 classes simultaneous, defines new classes on-line, and displays bottom classes colour coded on grid window.

Operating specifications

Range presentation:

- 1-10.000 m in steps of 1 m

Phasing:

- 0- 2.500 m in step of 1 m

Display capacity:

- 1 or 2 echograms shown simultaneously on the display

Settings:

- Individual echogram settings for each channel

Colour scale:

- Related to true bottom surface scattering coefficient

Ping rate:

- Adjustable with maximum 15 ping per second

DGPS (GPS) input:

- GLL, GGA

Motion sensor input format:

- TSS, Simrad EM and analogue.

Measurement resolution:

- Display presentation 0,01 m
- Output data file floating-point number

Measurement accuracy when average sound velocity is correct:

- 38 kHz: 5 cm
- 50 kHz: 4 cm
- 120 kHz: 2 cm
- 200 kHz: 1cm

Transmitting power:

- 30 to 300 W adjustable

Physical specifications

Supply voltage:

- 95 to 265 Vac, 50-60 Hz
- 11 to 15 Vdc

Power consumption:

- 25 - 40 W

Operating temperature:

- 0 to 40 degrees Celsius

Transceiver dimensions:

- Width 284mm
- Height: 112 mm
- Depth: 252 mm
- Depth with plugs: approximately 330 mm

Suitcase dimensions:

- Width: 460 mm
- Height: 220 mm
- Depth: 390mm (includes grip and boom)

Weight:

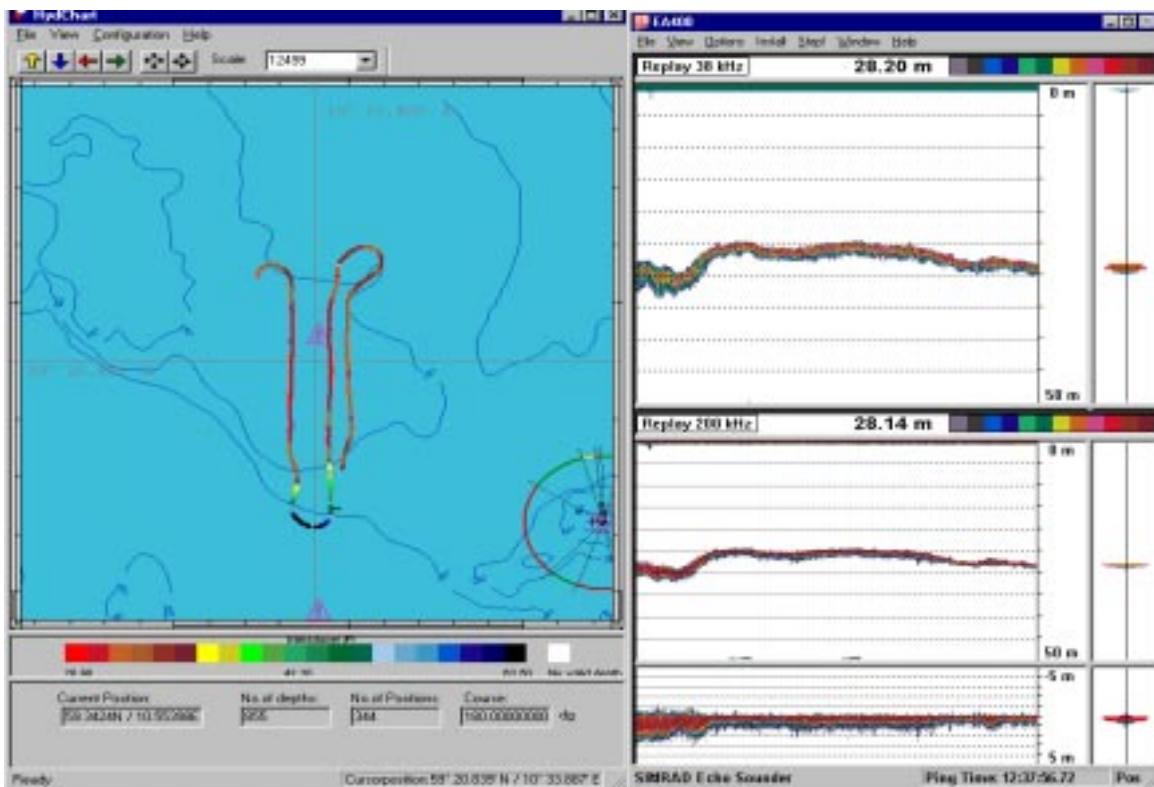
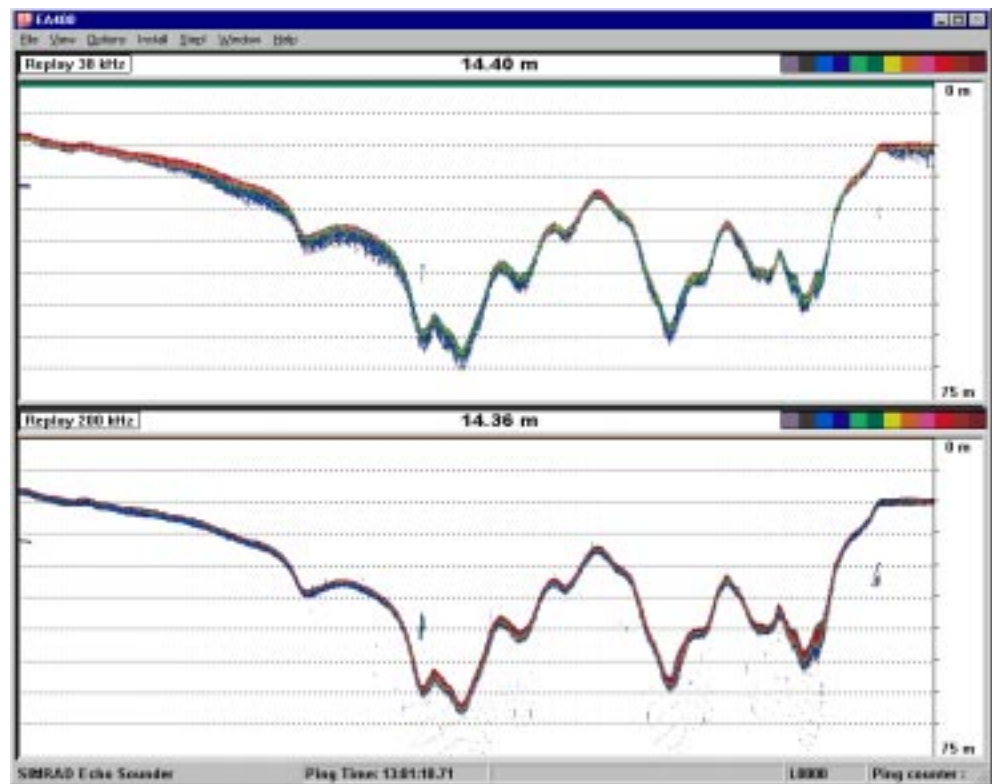
- Transceiver, 1 channel: 2.7 kg
- Transceiver; 2 channels: 3,3 kg
- Suitcase: Approximately 10 kg

Display presentations

Echogram examples from EA 400P 38 kHz and 200 kHz.

The menu system is based on menu bar pull down menus and pop up menus, point on different parts of the echogram use the right button and the pop up menu will be presented. For example: Point with the mouse on the scale and use the right button to adjust the range scale.

The screen below is split between the hydrographic chart and two echograms. On the hydrographic chart the vessels track and colour coded depth are presented into the grid. The map also displays the depth lines.

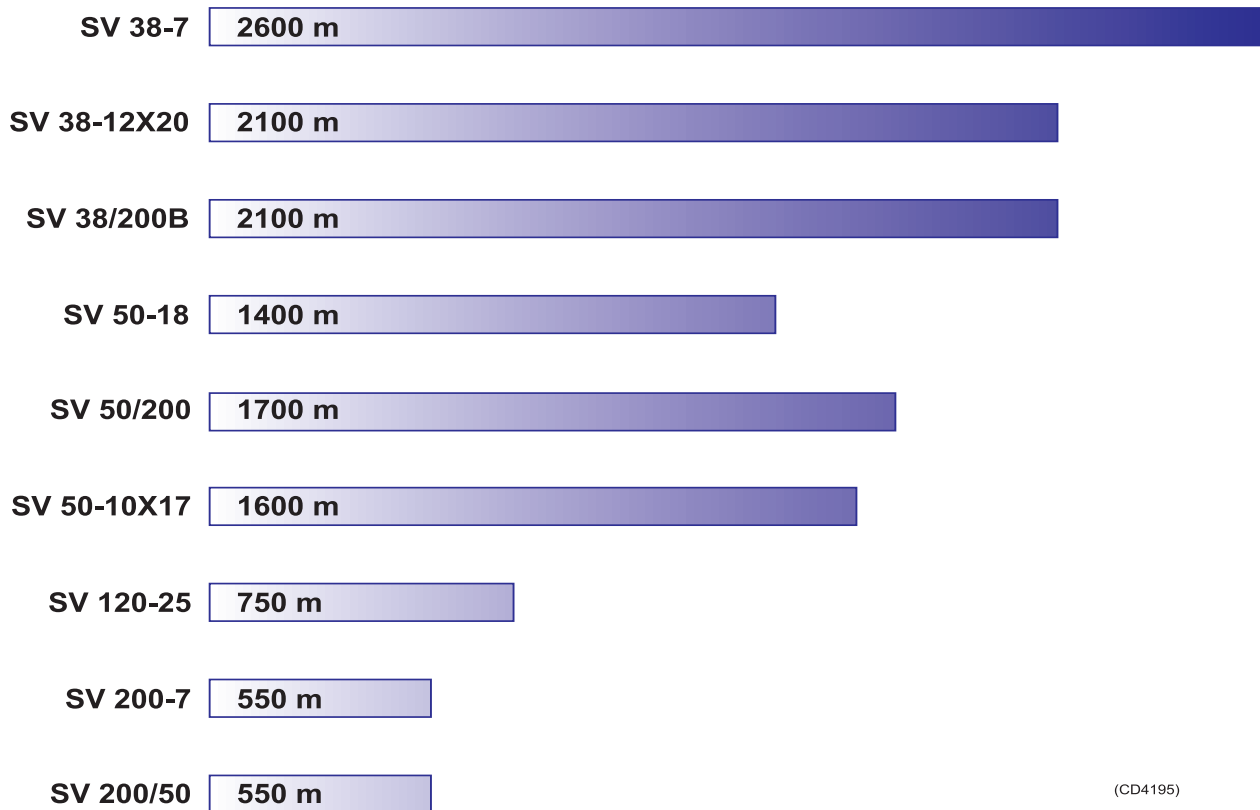


Transducer types

The range calculation are valid for:

- Sea water salinity: 3.5%.
- Sea water temperature: 10 degrees
- Bottom back scattering strength: -20 dB.
- Acoustic noise typical value for a large vessel.
- Detection threshold: 10 dB
- Narrow bandwidth: 1% of centre frequency.
- Long transmitting pulse.

Transducer type *Maximum detection depth at 300 W*



(CD4195)