

## SWEEP SURVEY SYSTEMS

- Three to twenty four channel data collection.
- Shallow water operation (1.0ft to 250 ft.)
- Lightweight portable boom system or permanent mount hydraulically operated system available.
- 200 kHz – 10° transducers.
- Signal strength bar for any selected channel.
- 12v DC or 120VAC operation, serial depth output.



You can run sweep surveys with up to 24 channels in waters too shallow for practical multi beam survey with a Sweep System from Ross Labs LLC! When connected to your PC running survey software, along with DGPS and heading & roll sensor, you are ready to go!

Ross Labs can supply systems for retro fit on an existing vessel, or as a turnkey system with a boat configured to your area of operation. Contact us for more information on a turnkey system designed for you. Significantly reduces bathymetric survey time for habitat or resource studies in shallow areas while collecting multiple channel data.

## Ross Sweep Transceivers

### 4810

**GENERAL:** The Ross Model 4810 is a five to twenty four (5 to 24) channel hydrographic survey depth system in a desk top mounted case. The Model 4810 is connected via a serial port to a standard PC running hydrographic survey software (HyPack™) and GPS. Hysweep™ software is then used in the office for post-survey data editing.

**POWER REQUIREMENTS:** The entire system operates from a 12 VDC @ 5amps or 120VAC @ 2 amps.

**INTERFACING:** A standard RS 232 serial port is used to connect the transceiver to a PC.

**DISPLAY:** A standard computer display provides the operator with a display of all individual depth channels. An external USB mouse provides operator control for menu selections and control of the system parameters.

**CONTROLS:**



### 875-X

**GENERAL:** The Ross Model 875-X is a five to twenty four (5 to 24) channel hydrographic survey depth system in a rugged, portable case. The Model 875-X is connected via a serial port to a standard PC running hydrographic survey software (HyPack™) and GPS. Hysweep™ software is then used in the office for post-survey data editing.

**POWER REQUIREMENTS:** The entire system operates from a 12 VDC @ 5amps or 120VAC @ 2 amps.

**INTERFACING:** A standard RS 232 serial port is used to connect the transceiver to a PC.

**DISPLAY:** A standard computer display provides the operator with a display of all individual depth channels. An external USB mouse provides operator control for menu selections and control of the system parameters.

**CONTROLS:**



## Depth Sounder

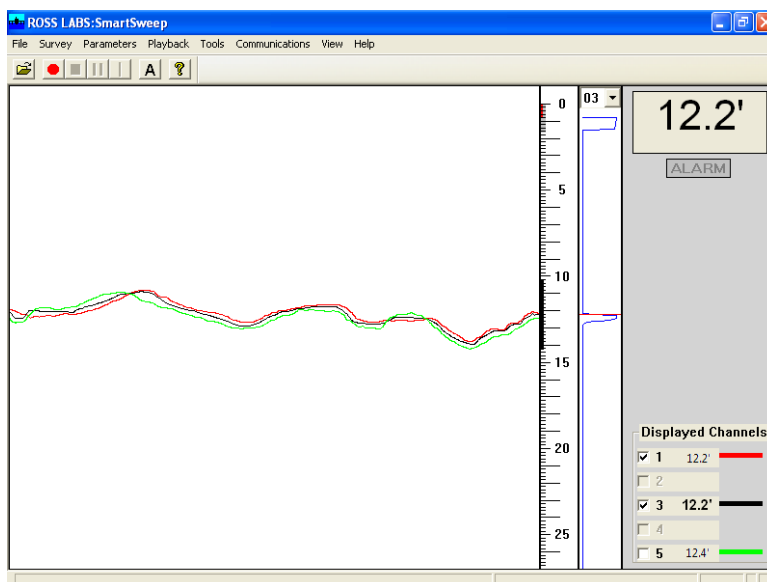
**TRANSDUCER REQUIREMENTS:** The depth sounder operates at a frequency of 200kHz, using 10° @ -3db with a six (6) foot nominal spacing.

**INTERFACING:** The depth sounder system outputs a custom NMEA 0183 string to HyPack hydrographic survey software that is installed on your data logging computer. It is also capable of accepting annotation information from the software package.

**DATA STORAGE AND DISPLAY:** The depths are stored on the internal solid state hard drive for future playback and printing. This data is downloaded and transferred to an office PC running Ross Multi-Channel Playback software (an optional item) using a USB Memory stick (card not provided).

**TIMING ACCURACY:** The depth sounder subsystem is based on a crystal-controlled clock that is stable and accurate. The overall system depth accuracy is better than 1% of a depth range +/- 0.1. Absolute accuracy is a function of bottom type, bottom slope, and transducer beam angle.

**SOUNDER SOFTWARE:** The main task of the Smart Sweep software is to sample the multiple channels of analog information at a rate of 50,000 samples per second for each channel. It then calculates the depth for each channel using a "Smart" echo detection algorithm. This algorithm is used to first determine that an echo has adequate echo strength to be digitized, and then calculates the digitized depth from the leading edge of that same echo signal. This algorithm reduces the type of errors which are related to echo signal rise time. The SmartSweep software is also responsible for recording the raw sounding data to the internal hard drive, displaying the data to the screen and responding to user commands.



The sounding data screen is a scrolling window that displays each of the depth channels in a different color, similar to a paper chart. The current digitized depth of each channel is displayed in an information window to the right of the main data window. It also has adjustable tracking gates for each depth channel that can continuously track a changing seabed without user input.

The following is a list of controls or features of the software:

- Controls to allow the user to play back recorded data
- Controls to allow the user to manually record data files
- Dialog boxes to enter or change the following parameters: Tide or gauge, draft, speed of sound, blanking and sounder units
- Controls to change the sounder's depth range
- Dialog box to enter different drafts or offsets for each depth channel
- A bottom following gates and controls to change its parameters
- A dialog box that aids in a bar check
- Signal strength bar graph for any selected channel

**ANNOTATION:** The depth sounder subsystem is capable of processing events and annotation generated by the data collection software.

## Physical

Display: 4810 uses a standard off the shelf computer monitor. The 875-X has a built-in sunlight readable display

Operating Temperature: 32°F to 140°F (0°C to 60°C)

Storage Temperature: -13°F to 167°F (-25°C to 75°C)

Humidity: 0% to 95% RH

## Transceiver

Transmitter output power: 100 watts (RMS) low power, 750 watts high power

Resolution: 0.06' (1.8cm) - Auto ranging on hardcopy output

Pulse length: 0.1msec or .5ms, switch selectable

Minimum Depth: 200kHz - 1.0' (30cm) below draft.

Maximum Depth: 250 feet

## Interfacing and Annotation

Serial Ports: Two, 110 to 19,200 baud.

USB Port: At least two ports

Digital Depth output: Continuous, user selected interval or requested output using a custom NMEA-0183 sentence

Compatibility: HYPACK

Annotation: Internally generated event marks at 1 minute to 10-minute intervals  
Externally generated marks and 8 different annotation fields can be recorded and printed

Data logging: Logs digitized depth to text file

## Controls

Sound Velocity: 4800 ft/sec  $\pm 25\%$  (1463 m/sec  $\pm 25\%$ )

Draft: 1' (0.30m) to 100' (30m)

Gauge, Tide:  $\pm 100'$  ( $\pm 30m$ )

Auto range: Bottom following 25' (8m) range window

Additional Features: Blanking and Bottom Following Gate  
AGC and TVG functions

For additional information, email contact [info@ROSSlabsLLC.com](mailto:info@ROSSlabsLLC.com) or phone (425) 771-0665.

Ross Laboratories Inc. of Seattle Washington joined with Teknologic Engineering Services of Edmonds Washington in July 2014 becoming Ross Labs LLC. Ross products continue to be supported by Jim Ross and his engineering team. For more information on Teknologic, visit us at [www.teknologic.net](http://www.teknologic.net)