Ross Model 4810
"Sweep Survey System"

- Five 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.

- Desk top shock mounted enclosure.

- 60GB SSHD Internal storage capacity

- 200kHz narrow beam transducers

- Uses readily available display

- Signal strength bar for any selected channel

- 12v DC or 120VAC operation, serial depth output

Now you can run sweep surveys with up to 24 channels in waters too shallow for practical multi beam survey with the Model 4810 Sweep System from Ross Laboratories! When connected to your PC running survey software, along with DGPS and heading sensor, you are ready to go!

Ross Laboratories can supply the 4810 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 4810 Mini-Sweep Transceiver Specifications

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. Following are specifications for the Model 4810 Transceiver:

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

OPERATING CONDITIONS: The unit is capable of operating in temperature extremes from 0° to 60°C (32°F to 140°F) and non-condensing humidity from 5% to 95%.

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

MANUALS: Operation and Technical manuals are supplied with the unit in paper and digital format.

DISPLAY: A standard SVGA display provides the operator with a display of all individual depth channels and MS Windows™ formatted control menus. An external USB mouse provides operator control for menu selections and control of the system parameters.

Depth Sounder

GENERAL: The internal depth sounder system runs on a PC compatible computer with the following minimum specifications:

1. A 1.6GHz Intel™ processor or better
2. 2GB Synchronous DRAM
3. 4 to 24 channel (500 Ksamples/second) Analog to Digital converter(s)
4. A 60.0 GB Hard drive or larger
5. SVGA monitor sized for the vessel
6. USB port, Ethernet, and 2 external serial ports
7. External keyboard connection
8. Windows 7 operating system

The multi channel depth sounder system is able to display all channels on the display with each channel being represented by its own unique color.   It also has adjustable tracking gates for each depth channel that can continuously track a changing seabed without user input.

TRANSDUCER REQUIREMENTS: The depth sounder operates at a frequency of 200kHz, using 10° @ -3db or 12° @ -6db transducers with a six (6) foot nominal spacing.

INTERFACING: The depth sounder system outputs a custom NMEA 0183 string to Coastal Oceanographics "Hypack" 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.

A "Smart" echo detection 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 should reduce the type of errors which are related to echo signal rise time.

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 the same algorithm used by the Ross Smart Sounder, 875 and Ross Surveyor. 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.

Because the Ross SmartSweep Software is a Windows program the user interacts with it by using pull down menus, dialog boxes and a toolbar. 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
- Controls to display the toolbar and status bar
- Signal strength bar graph for any selected channel
- On line help

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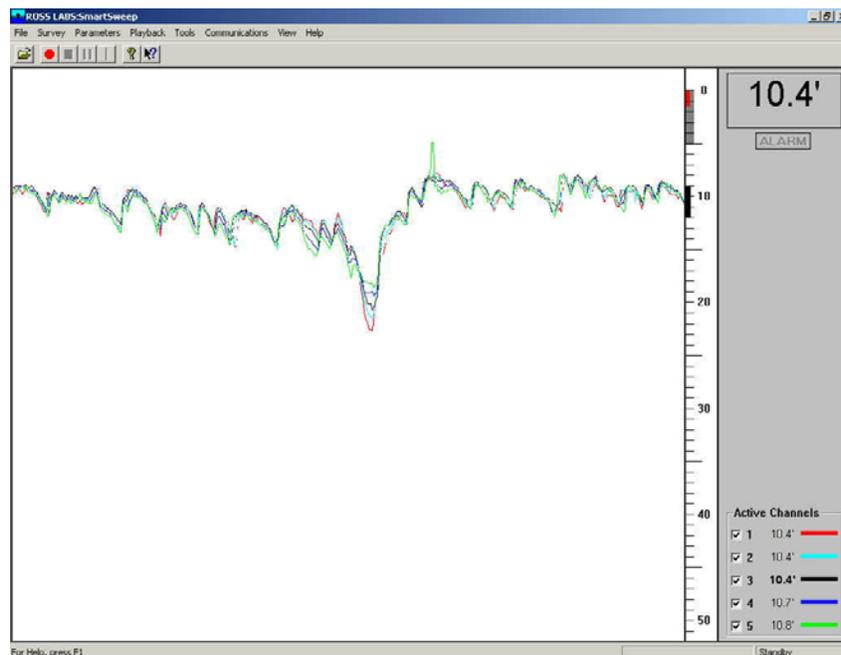
Physical

Display: Standard off the shelf SVGA monitor
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: Two
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 ±25% (1463 m/sec ±25%)
Draft: 1' (0.30m) to 100' (30m)
Gauge, Tide: ±100' (±30m)
Auto range: Bottom following 25' (8m) range window
Additional Features: Blanking and Bottom Following Gate
                            AGC and TVG functions

For additional information, email contract info@rosslaboratories.com or phone (206) 324-3950.