**Knudsen CHIRP Systems**

Knudsen CHIRP Systems are the next benchmark in scientific sub-bottom profiling echosounders. The CHIRP portable system, a blackbox system which interfaces to your computer via a USB connection, incorporates the latest in digital signal processing technology and includes Knudsen SounderSuite Windows application software and chirp and correlation processing algorithms to enhance sub-bottom capability. The unit, housed in a rugged, light weight splashproof case is ideal for easy transport to changing project locations, and installation on open survey launch platforms.

Available in a 2 or 4 channel configuration, the versatile system is particularly well suited to multiple survey roles and includes a wide range of both bathymetry and sidescan frequencies for both shallow and deeper depths.

**Technical Specifications:** *(subject to change without notice):*

- **Available Channels**
  - Chirp 3210: 1 channel
  - Chirp 3212: 2 channels
  - Chirp 3214: up to 4 channels

- **Frequency**
  - All channels: 3.5kHz - 21kHz

- **Output Power**
  - Up to 2kW on Channels 1 and 2
  - Up to 1kW on Channels 3 and 4

- **Input Power**
  - 18 - 30 VDC

- **Pulse Length**
  - Up to 64ms

- **Gain**
  - Manual, automatic (AGC), and time varied (TVG)
  - 96dB range of programmable analog gain

- **Ranges**
  - 5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000

- **Phasing**
  - Manual and automatic (up to 50% overlaps)

- **Units**
  - Meters, Feet, or Fathoms

- **Resolution**
  - 1cm (0.999), 1dm (100-999.9), 1m (>1000)
  - 1/100th (0.9999), 1/10th (100-999.9), 1ft (>1000)
  - 1/1000th (0.9999), 1/10th (100-999.9), 1f (fathom) (>1000)

- **Sound Velocity**
  - 1300 - 1800 m/s Resolution 1m/s
  - 4295 - 6906 ft/s Resolution 1 ft/s
  - 710 - 984 ft/m Resolution 1 ft/m

- **Draft**
  - 0-100m Resolution 1cm
  - 0-320ft Resolution 0.01ft
  - 0-547m Resolution 0.01m

- **Interface**
  - USB 2.0 Full Speed (12Mbps)

- **Output Data**
  - Full resolution envelope data in KEB binary format and XTF (for sidescan only)
  - Industry standard SEG-Y in 16-bit fixed point in user selected raw, filtered, or envelope detected form
  - User configurable ASCII digital depth strings

- **Dimensions**
  - 488 mm (19.2") x 386mm (15.2") x 185mm (7.3")

- **Weight**
  - Chirp 3210: 11kg (24lbs)
  - Chirp 3212: 12kg (26lbs)
  - Chirp 3214: 14kg (30lbs)

- **Installation**
  - Splashproof case

- **Operating Temperature**
  - 0 - 50 °C

- **Additional Features**
  - Frequency agility on all channels
  - Chirp and correlation processing
  - Transmit signal generation control
  - Advanced digital filter control
  - Built-in drivers for all popular GPS
  - Built-in test signal generator
  - Compatible with industry standard dataloggers and processing software (HyPack, QINSy, SonarWiz)
  - Have compensated echogram

- **Options**
  - Sidescan option
  - Network option for multiple PC operation
  - Remote Display Indicators
  - EchoSim Sonar Signal Simulator

- **SounderSuite Software (included)**
  - Compatible with Windows Vista or higher
  - Easy to use Graphical User Interface (GUI)
  - Postsurvey Display and Printing Software
  - Large Digitized Depth Display
  - Print to standard Windows printers and select thermal printers

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