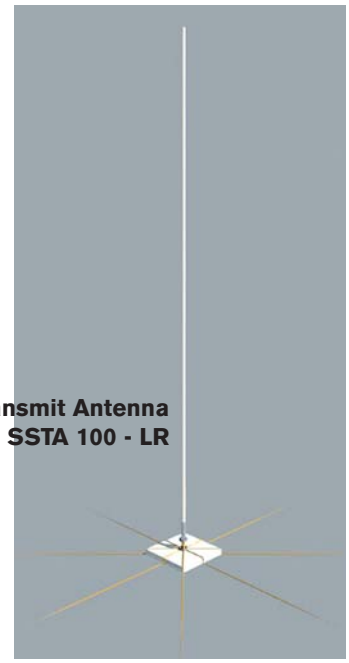
CODAR OCEAN SENSORS

Long Range SeaSonde® System Specifications

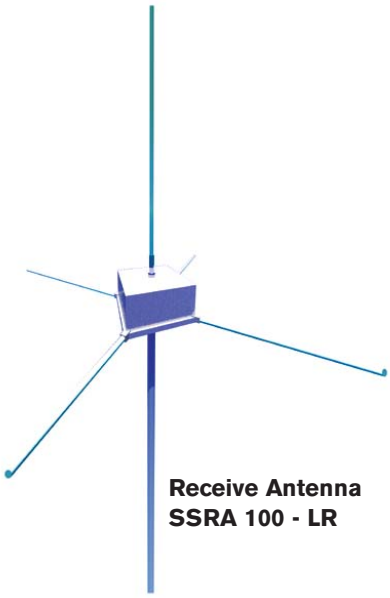
Radiated Signal Specifications

Operators must adhere to local radio communications regulations regarding radiated signal specifications, and receive proper authorizations prior to operation. Consult company.

Output Radiated Power: 80 watts peak, 40 watts average
Operating Frequency Range: 4.3 - 5.4 MHz
Modulation Format: Pulsed Swept Frequency CW
Pulse Repetition Frequency: 256 -512 Hz
Duty Factor: 50%
Sweep Width: 12 - 25 kHz (typical)
Sweep Repetition Frequency: 1 Hz
Total Radiated Signal Bandwidth (at - 20 dB level): 27 - 40 kHz
Polarization: vertical



Transmit Antenna SSTA 100 - LR



Receive Antenna SSRA 100 - LR

Transmit Antenna: SSTA 100-LR

RF Connection: (to Transmitter) Low-loss Co-Ax; Type N connectors
Height: approx. 13.4 m
Weight: 59 kg
- New 12-meter "flag-pole" version also available. Consult factory prior to ordering

Transmitter: SSTX 100

Input RF Drive Level: 0 dBm
Output RF Power Level: 100 watts peak, 50 watts average
Required Power: one of either 120 VAC or 220 VAC; 50-60 Hz, 300 watts (specify when ordering)
[New 24-volt DC version is available. Consult factory prior to ordering.]
Design (gated FET): modular; all solid state
Operation: Class AB
Dimensions (single chassis): 13H x 49W x 53D cm
Weight: 15 kg

Radial-Site Data Acquisition System: SSDA 100

Computer: Desktop, Power Macintosh G5 (Power PC 1.8 GHz) 256 MB RAM; 80 GB H.D. Laptop computer available; specify when ordering.
Internal Modem (for dial-up only, not leased-line operation): up to 28,800 BPS
Monitor: color TFT
Keyboard: USB, extended
Software: One Radial Site Suite license

SSTX 100TR

SSRX 100TR

SSDA 100

Receive Antenna: SSRA 100-LR

Design: (three element DF): passive vertical monopole, two crossed loops into preamplifiers
RF Connections: (to Receiver): Lightweight Co-Ax; N and TNC end connectors
Dimensions: 13H x 25W x 25D cm
Weight: 7.5 kg
Whip Height/Radial Element Lengths: 2.4 m / 2.4 m
SSRA 100 Receive Antenna designed for mounting on: **Antenna Support Post;** Height 4m, diameter ~6.5 cm

Receiver: SSRX 100A

Maximum In-band Input Level: 0 dBm
Impedance: 50 ohm
Sensitivity (noise level): -160 dBm in 1 Hz BW
Required Power: 120 v AC or 220 VAC, 50-60 Hz, 100 watts (specify when ordering) [New 24-volt DC version is available. Consult factory prior to ordering.]
Design: modular, all solid state, three-channel
Operation: I/Q homodyne
Output: digital data at 4096 16-bit words/second per channel
Dimensions (single chassis): 13H x 49W x 53D cm
Weight: 14 kg
GPS synchronization Feature: GPS Assisted Stability: >.0001 ppm and 50 nsec on PPS

Combine Station Data Processing System: SSDP 100

Computer: Desktop, Power Macintosh G5 (Power PC 1.8 GHz) 256 MB RAM; 80 GB H.D. Laptop computer available; specify when ordering.
Internal Modem(for dial-up only, not leased-line operation) up to 28,800 BPS
Monitor: 17" color TFT
Keyboard: USB, extended
Software: One central station software license

SSDP 100

Complete 2-Site SeaSonde Monitoring System Consists of*:

2 - SSTX 100 Transmitters
2 - SSRX 100A Receivers
2 - SSTA 100-LR Transmit Antennas
2 - SSRA 100-LR Receive Antennas
2 - SSDA 100 Data Acquisition Systems
1 - SSDP 100 Data Processing System
Software & Licenses All SeaSonde Software Listed Below

Software Specifications†

Output Data Product Specifications:

Surface Currents: Maps of surface current vectors created from data taken at two radar sites spaced 80 - 150 km apart
Map Displays: color monitor screen, archived ASCII vector files
Map Spatial Resolution (vectors on square grid): 6 x 6 km typical spacing
Map Area Coverage: Typically 100-250 km alongshore x 140-220 km offshore. Coverage varies. Depends on radar siting; external noise/interference; sea state.
Map Temporal Interval: hourly; currents averaged over one hour
Map Vector Accuracies: (rms; typical for normal environmental speed: < 7 cm/s conditions, i.e., noise/interference, siting, sea state), direction: < 10 degrees

Data Communication: Automatic modem transfer of current and wave data products supported for software for dial-up lines and ethernet connections. Please refer to the >> **Communications.PDF** << available on our web site for more information.

Radial Site Software Suite:

Program Name… Function… Output
Sentinel… orchestrates control of all operations… logs data events
SeaSonde Acquisition… radar data acquisition/processing… unaveraged cross spectra
CSRAvnn… averages data over one hour… averaged cross spectra
WaitForCSA… detects arrival of averages… triggers hourly processing
Currents… calculates radial surface current map… writes file radial.dat
ForFive … calculates wave inversion file at site setup … writes for5.sav
Waves… inverts echo to get wave information… wave spectral parameters
Archivist… archives data according to user selections… archived data
MacController... housekeeping functions, data transfers upon request

Combine Station Software Suite*

Program Name… Function… Output
MacCentral… retrieves hourly files from remote sites… radial current/wave data
WaitForRadials… detects arrival of radial files… triggers total vector processing
Combine… calculates total currents… total current vectors at map grid
SeaDisplay… prepare current map… current map for monitor or printer
WaveDisplay… prepare wave data displays… wave data plots

*These specifications are for the basic software for typical real-time operational use.
Many more applications are included with the SeaSonde® for offline use.
† Specification and component details are subject to change.
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For additional information contact company -
TEL +1-408-773-8240 www.codaros.com

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