



- The SuperSting Marine is an 8-channel automatic resistivity imaging system
- Since the SuperSting Marine is an 8-channel multi-electrode instrument, it will take 8 readings for each current injection, representing 8 depth levels.
- The SuperSting Marine uses a special marine resistivity cable with patent pending graphite electrodes, a kevlar strength member and water block.
- The cable is towed behind a boat at low speed.
- The instrument records GPS data in its internal memory,
- The Marine Log Manager software calculates the position of each electrode along the cable.
- Some of the applications for this system are: Harbor construction, site survey prior to dredging, bottom investigation for sub bottom cable deployment, underwater archaeology, offshore studies, salt/fresh water interaction, bottom study for fresh water intake.

SuperSting™ Marine

EIGHT CHANNEL MEMORY RESISTIVITY & IP METER

PRELIMINARY TECHNICAL SPECIFICATION

This instrument can be used in marine as well as land applications depending on firmware loaded

Measurement modes	Apparent resistivity, resistance, induced polarization (IP), battery voltage
Measurement range	+/- 10V _{p-p}
Measuring resolution	Max 30 nV, depends on voltage level
Screen resolution	4 digits in engineering notation
Output current	1mA – 2 A continuous (marine), 1mA-1.25 A continuous (land)
Output voltage	800 V _{p-p} , actual electrode voltage depends on transmitted current and ground resistivity.
Output power	200 W
Input channels	Eight channels
Input gain ranging	Automatic, always uses full dynamic range of receiver.
Input impedance	>20 MΩ
SP compensation	Automatic cancellation of SP voltages during resistivity measurement. Constant and linearly varying SP cancels completely.
Type of IP measurement	Time domain chargeability (M), six time slots measured and stored in memory
IP current transmission	ON+, OFF, ON-, OFF
IP time cycles	1 s, 2 s, 4 s and 8 s (land)
Measure cycles	Running average of measurement displayed after each cycle. Automatic cycle stop when reading errors fall below user set limit or user set max cycles are done.
Resistivity time cycles	Basic measure time is 0.8, 3.6, 7.2 or 14.4 s (marine), 1.2, 3.6, 7.2 or 14.4 s (land) as selected by user via keyboard. Auto-ranging and commutation adds about 1.4 s.
Signal processing	Continuous averaging after each complete cycle. Noise errors calculated and displayed as percentage of reading. Reading displayed as resistance ($\Delta V/I$) and apparent resistivity (Ωm). Resistivity is calculated using user entered electrode array coordinates.
Noise suppression	Better than 100 dB at $f > 20$ Hz
Total accuracy	Better than 120 dB at power line frequencies (16 2/3, 20, 50 and 60 Hz). Better than 1% of reading in most cases (lab measurements). Field measurement accuracy depends on ground noise and resistivity. Instrument will calculate and display running estimate of measuring accuracy.
System calibration	Calibration is done digitally by the microprocessor based on correction values stored in memory.
Supported configurations	Resistance, Schlumberger, Wenner, dipole-dipole, pole-dipole, pole-pole.
Operating system	Stored in re-programmable flash memory. New version can be downloaded from our web site and stored in the flash memory. Use marine firmware for marine applications and land firmware for land applications.
Data storage	Full resolution reading average and error are stored along with user entered coordinates and time of day for each measurement. Storage is effected automatically.
GPS	The marine instrument stores global positioning data in its internal memory during the survey.
Memory capacity	More than 30000 measuring points can be stored in internal memory.
Data transmission	RS-232C channel available to dump data from the instrument to a Windows type computer on user command.
Automatic multi-electr.	The SuperSting is designed to run dipole-dipole, pole-dipole, pole-pole, Wenner and Schlumberger surveys including roll-along surveys completely automatic with the Swift Dual Mode Automatic Multi-electrode system (patent pending). The SuperSting can run any other array by using user programmed command files. These files are ASCII files and can be created using a regular text editor. The command files are downloaded to the SuperSting RAM memory and can at any time be recalled and run. Therefore there is no need for a fragile computer in the field.
Marine electrode cable	The SuperSting Marine uses an optional marine electrode cable with 11 patent pending graphite electrodes, a Kevlar strength member and water block.
User controls	20 key tactile, weather proof keyboard with numeric entry keys and function keys. On/off switch Measure button, integrated within main keyboard. LCD night light switch (push to light).
Display	Graphics LCD display (16 lines x 30 characters) with night light.
Utility software	Utility software, Marine Log Manager, included, for downloading resistivity and GPS data, importing map file, plotting survey track and formatting data for inversion software.
Power supply, field	12V or 2x12V DC external power, connector on front panel.
Power supply, office	DC power supply
Operating time	Depends on conditions, internal circuitry in auto mode adjusts current to save energy. At 20 mA output current and 10 kΩ electrode resistance more than 2000 cycles are available from a fully charged battery pack.
Weight	10.2 kg (22.5 lb.)
Dimensions	Width 184 mm (7.25"), length 406 mm (16") and height 273 mm (10.75").

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