

# SuperSting R1 IP

## single channel Memory Earth Resistivity and IP Meter



The **SuperSting R1 IP** is a state-of-the-art single-channel portable memory earth resistivity meter with memory storage of readings and user defined measure cycles. It provides the highest accuracy and lowest noise levels in the industry.

This new instrument is based on technology developed for the famous SuperSting R8/IP multi-channel instrument. It pushes the performance levels of single channel systems forward by a large step.

With the high power transmitter good data can be recorded in difficult locations where time-consuming stacking was the only alternative before.

**SuperSting R1/IP** uses the patented Swift Dual Mode Automatic Multi-electrode cable. For users of the existing Sting/Swift system wanting to upgrade the instruments their cable investment can be reused with this new instrument since the old cables can be used also with SuperSting R1/IP. The controller for the cable is now completely built into the **SuperSting R1/IP** main instrument so there are no extra boxes to carry and connect in the field.

### Key Benefits

- High power transmitter.
- Field adapted rugged construction. Built to last in real conditions.
- Easy to use menu driven system.
- The best accuracy and noise performance in the industry!
- Large capacity internal memory for storage of measurement results.
- User programmed measure cycles can be loaded into memory from a PC and later executed in the field.
- Directly controls the Swift Dual Mode Automatic Multi-electrode system (patent 6,404,203)!
- Induced Polarization mode records 6 individual IP chargeability windows.
- Manual measurements are available via four banana pole screws on the top of the instrument

for connecting current and potential electrodes. Manual measurement array types include: Resistance, Schlumberger, Wenner, Dipole-dipole, Pole-dipole, Pole-pole, SP-Absolute, and SP-Gradient.

## TECHNICAL SPECIFICATION:

Measurement modes	Apparent resistivity, resistance, self potential (SP), induced polarization (IP), battery voltage.
Measurement range	+/- 10V.
Measuring resolution	Max 30 nV, depends on voltage level.
Screen resolution	4 digits in engineering notation.
Output current intensity	1mA - 2000 mA continuous, measured to high accuracy.
Output voltage	800 Vp-p, actual electrode voltage depends on transmitted current and ground resistivity.
Output power	200W.
Input gain ranging	Automatic, always uses full dynamic range of receiver.
Input impedance	>20 Mohms.
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 cycle times	0.5, 1, 2, 4 and 8 s.
Measure cycles	Running average of measurement displayed after each cycle. Automatic cycle stops when reading errors fall below user set limit or user set max cycles are done.
Resistivity cycle times	Basic measure time is 0.2, 0.4, 0.8, 1.2, 3.6, 7.2 or 14.4 s as selected by user via keyboard. Autoranging 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 voltage, current and apparent resistivity (Ohmm or Ohmft). Resistivity is calculated using user entered electrode array co-ordinates.
Noise suppression	Better than 100 dB at $f > 20$ Hz
Powerline noise suppression	Better than 120 dB at power line frequencies (16 2/3, 20, 50 & 60 Hz) for measure cycles of 1.2 s and above.
Total accuracy	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 manual configurations	Resistance, Schlumberger, Wenner, dipole-dipole, pole-dipole, pole-pole, SP-absolute and SP-gradient.
Operating system	Stored in re-programmable flash memory. New versions can be downloaded from our web site and stored in the flash memory.
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 in a job oriented file system.
Data display	Apparent resistivity (Ohmmeter), current intensity (mAmp) and measured voltage (mVolt) are displayed and stored in memory for each measurement.
Memory capacity	The memory can store more than 24,468 measurements (resistivity mode) and 14,966 measurements in combined resistivity/IP mode.
Data transmission	RS-232C channel available to dump data from instrument to a Windows type computer on user command.
Automatic multi-electrodes	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 6,404,203). 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 uploaded 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.
Manual measurements	The instrument has four banana pole screws for connecting current and potential electrodes during manual resistivity measurements.
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 illuminate).
Display	Graphics LCD display (16 lines x 30 characters) with night light.
Power supply, field	12V or 2x12V DC external power (one or two 12 V batteries), connector on front panel.
Power supply, office	Mains operated DC power supply.
Operating time	Depends on survey conditions and size of battery used. Internal circuitry in auto mode adjusts current to save energy.
Operating temperature	-5 to +50°C.
Weight	10.9 kg (24 lb), instrument only.
Dimensions	Width 184 mm (7.25"), length 406 mm (16") and height 273 mm (10.75").