

SYSCAL TERRA



RESISTIVITY & IP
SURVEYING SYSTEM OF
NEW GENERATION

The combination of recent electronics with 30 years of know-how

- **Rugged system made for the field:** This new generation resistivity & IP surveying system mixes recent electronics advances with the standards of resistivitymeters designed by IRIS Instruments for more than 30 years such as robustness, compactness, light weight and large temperature range (-20°C to 70°C).

- **Exceptional data quality:** The Syscal Terra features 20 channels measured with a 24 bits converter giving 31 bits of dynamic range (at 100 Hz). This new generation of resistivity & IP meter allows to measure accurately resistivity and IP signal with few mV of reception.

- **Color touch screen:** The graphic color screen allow the user to clearly visualize the 20 IP decay curves at the same time and the pseudo-section of resistivity and chargeability during and after the measurement. For a better experience of navigation in the menus and of text writing, the screen can be set as touchable.

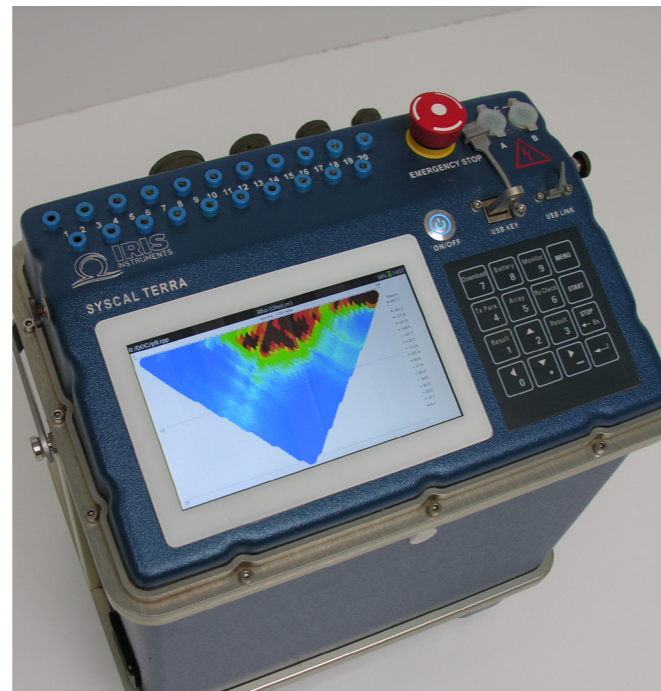
- **Automatic recording of full waveform data:** The Syscal Terra automatically records the 20 channel voltage timeseries in background . It allows if necessary to visualize and to reprocess your dataset a posteriori on a laptop with a free dedicated software (FullWave Viewer 2).

- **Scalability:** The Syscal Terra exists both in standard or switch mode (48 to 120 electrodes in a unique box). A Syscal Terra standard can also be connected to one or several Switch Terra unit(s) (48 to 240 electrodes in a unique box) to be used in switch configuration. Connect two Syscal Terra Switch in master-slave mode to increase your total number of electrodes (2 Syscal Terra Switch 48 become 1 Syscal Terra Switch 96)

- **Update and test the Syscal by yourself :** Realize self-test by yourself (calibration, switch board and external battery capacity testing) using specific tools provided with the system. Update the Syscal firmware by yourself for free during the entire lifetime of the system to benefit from new developments.

- **A multitude of interesting features:** such as removable Li-ion batteries for easy shipping and replacement, external battery powering possibility, removable/adaptable signal filters, decay curves stored with one sample every 10 ms (full decay curve), datafiles download on a USB key or by WiFi from laptop and any smartphone or tablet, internal GPS included and automatic handle of local and global coordinates to visualize your profiles on Google Earth, and a lot of other options to discover

- **On-time IP acquisition mode :** Reduce by two the total measurement time of your survey and multiply by two the IP signal strength.



General specifications	
GPS	Internal GPS for a simplified management of the global (UTM) coordinates
Memory	2 Gb + USB ports for external memory (1 Tb)
Temperature range	-20°C - +70°C
Sequence	Can be imported from a PC (Electre Pro) or created directly in the Syscal
Screen	7 inches 480 x 800 color touch screen (touch screen can be deactivated)
Fullwave mode recording	Possibility to record 100 Hz fullwave form timeseries of voltage in background while measuring. Possibility to record full waveform only up to 1 kHz
Monitoring	Possibility to use the system in monitoring mode. System is controlled by scripts written by the user. The scripts can be changed remotely. Data can be sent to a FTP server automatically. An additional module integrated to the Syscal Terra box, dedicated to the management of battery charge in between measurement, can be added to the Syscal Terra.
Receiver Only	Possibility to use the system in receiver mode only (to be used with external transmitter)
Dynamic acquisition (terrestrial or water)	Possibility to measure continuously resistivity and IP from an adapted cable towed on the ground or in the water. This functioning does not require additional PC or tablet
Mode Master-Slave	Connected to another Syscal Terra Switch, the Syscal Terra Switch behaves like a Switch Terra to make a system with 192 electrode from two 96 electrode systems
Mode Multi-Syscal	Combines several Syscal Terra for complex surveys without connection between them. Two Syscal Terra can work synchronously on the same sequence, based on their GPS clock. For example : two systems working on either side of a river.
Mode diagnostic	The Syscal Terra is provided with different accessories and internal software that allow to test the receiver board, the transmitter board, the switches and the external battery capacity.
Rx Firmware update	Update the Syscal Terra firmware by yourself when a new version is available
Batteries	Removable internal Li-ion batteries (4 x 96 Wh). Possibility to connect external battery for the Tx and Rx. Automatic recognition of external battery.
Data downloading	From USB key or via WiFi connection from a web browser.
Weight	14.7 Kg
Dimensions	45 cm x 37 cm x 24 cm
Quality control	Computation of the quality factor on resistivity and chargeability and storage of a stacked semi-period with 1 sample every 10ms (even when not recording the timeseries).
Full waveform processing	Possibility to perform advanced processing of full waveform data on Fullwave Viewer II to increase the data processing accuracy.
Compatibility	Compatible with the Switch Pro (10 channels only)
Pseudo-section display	Real time display of pseudo-section on demand.

Transmitter specifications	
Maximum voltage	800 V in switch mode / 1000 V in standard mode
Maximum power	250 W / 1200 W with external AC/DC generator
Maximum Current	2.5 Amp
Regulation	Current regulation or voltage regulation
Type of injection	Constant Vab Constant Iab Iab adapted to reception voltage Vab adapted to reception voltage
Receiver specifications	
Number of measurement channels :	20 channels galvanically isolated
AD Converter / Dynamic range	24 bits / 31 bits
Input impedance :	100 MOhm
Max voltage :	15 V on Channel 1 & 15 V on the sum of channel 2 to 20
Input protection :	1000 V
Filter :	Selectable filters: -low pass -10 Hz + Notch 50 Hz -low pass -10 Hz + Notch 60 Hz -low pass 256 Hz -low pass 512 Hz
Gain :	Automatic gain input voltage
Resolution :	1µV
Accuracy :	0.2%
Induced polarization windows :	20 windows with possibility to export the decay curve at 1 sample every 10 ms
Induced polarization measurement :	100% or 50% duty-cycle

