



terraTEM Transient Electromagnetic System

The terraTEM is a robust transient electromagnetic (TEM) survey system which provides high resolution conductivity imaging. Applications for the terraTEM include mineral exploration, near surface applications including geotechnical and engineering investigations, groundwater and salinity studies, and environmental surveys.

The terraTEM design team worked in the geophysical industry for many years before bringing the terraTEM to market. Utilising their combined experience in both fieldwork and interpretation of geophysical data, the design team implemented numerous improvements addressing recognised shortcomings in many commercial TEM systems. Additional improvements has put the terraTEM at the forefront of TEM systems. The terraTEM was the first commercially available system to recognise the importance of providing customers with a large, easily viewable screen for rapid on-site assessment and review of transient data. In addition, the incorporation of USB capabilities has greatly simplified the process of data transfer.

- ✓ 15 Amp internal transmitter
- ✓ optional 48V transmitter
- ✓ internal GPS or Crystal Synchronisation



Designed with both the transmitter and receiver within a single portable case, the terraTEM system is a reliable, convenient platform for completion of quality TEM soundings. The base system comprises a single console housing both a single receiver and a 15Amp 24V transmitter. An optional 48V internal transmitter is also available. A single battery housing is provided for the 2 x 12V batteries required for powering the system, along with a 24V battery charger (240V). Power, transmitter, receiver and interface cables are included. Also included are a USB memory stick for data transfer, stylus for operating the touch screen in hostile environments, and a CD containing all manuals and the data reduction program.

The user interface is controlled by a capacitive, sunlight readable touch screen with the ability to connect to an external mouse if preferred. The screen is a 15" LCD panel allowing for the clear display of acquired data and all acquisition parameters. Menus are clear and concise, which allows for rapid data acquisition with minimal time lost to learning a new system.



Standard software includes a comprehensive suite of diagnostic system information along with oscilloscope and single shot capabilities for quantitative assessment of ambient noise from the receiver. Data can be viewed in various formats depending upon user preferences. Also included as standard on the terraTEM are profile and decay plotting capabilities for in-field data review and quality control.



Hardware options include expansion of the single receiver channel to a three channel system, allowing for simultaneous sampling at 500kHz of three component transient data. An internal GPS can also be fitted to provide location information for soundings. An external 50Amp, 240V transmitter (terraTX-50) with either cable, GPS or Crystal synchronisation is also available. A three component downhole induction probe (VECTEM V), a sequential three component downhole B field tool (MAG-Pi), a surface B-Field sensor (TR_B) and surface receiver coils (TRC-1 and TRC-3) are also available.

Software upgrades include continuous acquisition mode, signal averaging algorithms, digital signal processing and spectral analysis. The data processing can also be upgraded to include conductivity depth pseudosections. Contouring of gridded data and data editing can also be completed on the terraTEM. Saving of various displays for later insertion into reports is also available.

terraTEM Specifications

- 500kHz sampling on up to three simultaneous channels.
- 15 Amp 24V(360W) transmitter (optional 15 Amp 48V (720W) transmitter).
- $\pm 10V$ input voltage range.
- Recording of transient response, Tx current, turn-on and turn-off times, internal temperature, and reference voltages.
- Oscilloscope and full waveform modes for diagnostic purposes.
- Export to standard TEM formats.
- Sunlight readable 15" colour capacitive touch screen as the user interface.
- Intuitive menus which allow rapid transition between setting the acquisition parameters and displaying acquired data.
- Advanced software allowing for standard profile and decay plots, as well as apparent conductivity pseudo-sections and contour plan maps.
- Multiple time series including user-defined for sampling the transient response. This can also emulate time series from other manufacturers if required.
- Ten gain settings from 1 to 8,000, along with an auto gain ranging option.
- Standard stacking along with more advanced signal processing algorithms for rejection of ambient noise.
- Automatic storage of system parameters.
- Data storage in 4GByte solid-state memory which allows for storage of up to 1,000,000 soundings.
- USB port for data transfer.
- 20 channel internal GPS for location information.
- RS232 port for external GPS or external control of terraTEM console. This can be used for integration to third party items using RS232 communications.
- External battery pack, designed to provide 24V power, allowing for 6-8 hours of continuous operation.
- Operating temperatures of -20 to +45 degrees Celsius.
- terraTEM console measures 53cm x 38cm x 17cm, weight 13kg.
- terraTEM battery pack measures 28cm x 25cm x 18cm, weight 12kg (when loaded with 2 x 12V batteries, not included in purchase).
- Optional 16 or 32 channel, 200kHz simultaneous version also available.

