Introducing the **terraTEM24**

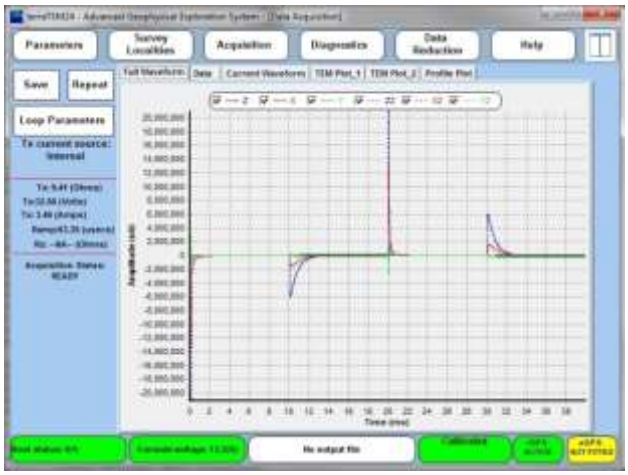
The terraTEM24 is the next generation of the successful terraTEM transient electromagnetic system. It is based on **purpose-built true 24 bit ADCs**. Every aspect of the terraTEM24 is specifically designed to acquire high-quality transient electromagnetic data from a wide variety of sensors ranging from active induction and B field sensors through to single loop configurations. The system has input protection up to 700 V, an increased input range of +/-200 V for coincident and single loop inputs, and a resolution of 23 nV per sample. When combined with a user-selectable **maximum sample rate of 625 kHz** the terraTEM24 has all your requirements covered.

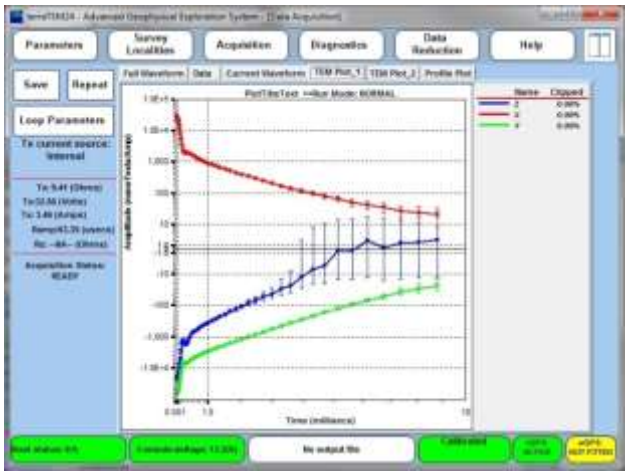
The terraTEM24 is available as a **1, 2, 3, 6, or 9 channel system** with **simultaneous recording across all channels**. It has true single sample 24 bit resolution extending to 198 db system dynamic range using Automatic Gain Control. And with the ability to be configured with either an internal transmitter or an external transmitter, the terraTEM24 is a highly versatile system.

Many of the popular features of the terraTEM have been enhanced for inclusion within the terraTEM24. These include the **easy to use operator-interface**, an **internal transmitter**, and **complete integration** with other products within the terraTEM suite including the surface TRC receiver coils, the VECTEM downhole induction probe and TR_B Field sensor. Another point to note is that each receiver port is equipped with separate power output and RS485 communications which provides even more flexibility for integration with third-party sensors.

Monex GeoScope Pty Ltd
6A Doongalla Road, The Basin, VIC 3154, Australia
p: +61 (0)3 9762 7862 **e**: info@monexgeoscope.com.au **w**:www.monexgeoscope.com.au

The user interface has been designed to allow field operators to readily acquire data without complicated menus. Field operators can rapidly assess transient response curves and perform in-field quality control. If required, survey parameters can be downloaded to the terraTEM24 from the survey designer to ensure compliance. The terraTEM24 software allows for a comprehensive suite of diagnostic system information to be displayed along with oscilloscope and single shot capabilities for quantitative assessment of ambient noise from the receiver. Software includes export capabilities, allowing data to be exported in all industry standard formats including AMIRA, USF, XYZ and ASCII.





The internal transmitter has undergone a radical remodelling with specifications increased to **50 A at 120 V**, or 6 kW. The internal transmitter features an **adjustable linear high-speed current turn-off**, and the ability to **record the full current waveform**. The fast linear turn-off (36 microseconds at 50 A for a 50 m × 50 m loop) means that the high sampling rates of up to 625,000 samples per second per channel can be used for high resolution shallow target exploration. An **optional 6 kW voltage rectifier**, suitable for either single or three phase power input, also gives the user flexibility to digitally control the transmitter current, maximising received signal without saturating early-time response. For those users who prefer the flexibility of a separate transmitter, the terraTEM24 can also be configured as a receiver only, synchronising via cable, GPS or an optional crystal module to the external transmitter, the terraTX-50 (50 A, 250V). Options such as these are designed to give the user greater flexibility in survey design.

The increased input range of +/- 200 V is specifically tailored for coincident and single loop configurations and will reduce the early-time signal clipping, prevalent in many standard TEM systems. For active sensors the input range and therefore sample resolution is reduced using either the automatic or manual gain settings.

All terraTEM24 models are fitted with an internal GPS for accurate timing along with positional information.

All of these features, combined with a **10”colour capacitive touchscreen**, **30 GByte data storage** and **powerful software** options, result in this new release terraTEM24 system setting the industry benchmark as did the terraTEM.

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SYSTEM SPECIFICATIONS

Display: 10” colour capacitive touchscreen, daylight visible with 800 x 600 resolution**.**

Storage: 30 GByte memory with soundings saved as standard stacked and windowed along with the full waveform if required.

Software: The data reduction and processing package allows for data quality control, contouring, apparent conductivity pseudosections, contouring of gridded data and data editing. Stacked and binned response curves, stacked waveforms with optional full time-series data saving, signal averaging algorithms, digital signal processing, sferic rejection, and spectral analysis are all available. Data can be viewed in various formats depending upon user preferences. Profile and decay plotting capabilities are also included for in-field data review and quality control.

Optional 1D inversion software is also available.

I/O port: Data transfer is via USB. External GPS connectivity is via a serial port. All receiver ports are fitted with individual RS485 ports for communicating with active sensors.

Operating temperature: -20°Celsius to +50°Celsius.

Manual: A comprehensive operation and trouble shooting manual is provided in soft copy form.

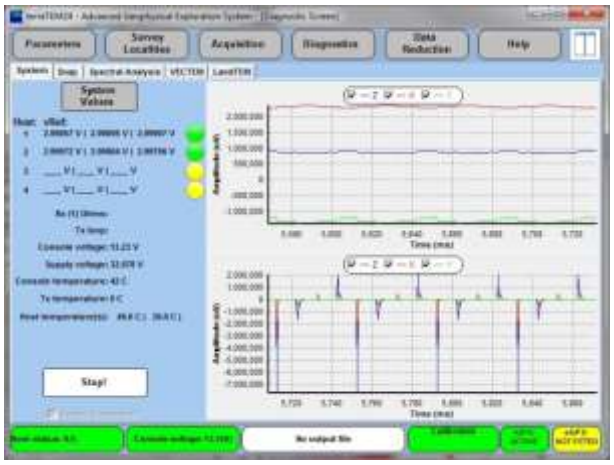
Battery charger: Suitable battery charger provided.

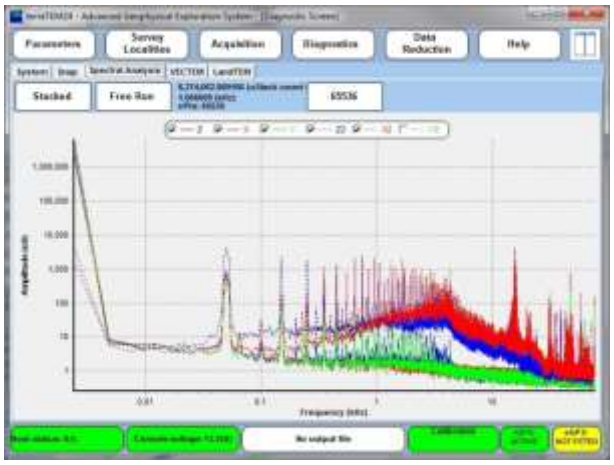
Housing: Rugged aluminium case.

Case Dimensions: 46 cm × 36 cm × 16 cm, 10 kg

Carry case: Sturdy field transit case provided.

Warranty: One year.





RECEIVER

Number of input of channels: Offered with 1, 2, 3, 6 or 9 simultaneously recorded channels. Systems with 12 channels are also available upon special request.

Resolution: True 24 bit resolution per sample. Resolution depends on the gain setting which can be either manual or automatic. Minimum resolution is 23 nV.

Input Range: Maximum input voltage is +/- 200V. All channels fitted with 700 V input protection

Sampling rate: User-selectable from 78 kHz to 625 kHz at full 24bits for each sample. Each channel has a distinct signal path and ADC and to minimise cross coupling. All data channels are simultaneously sampled.

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Windows (gates): 200 windows maximum. Pre-defined and user-selectable windowing schemes available. Along with windowed data, full waveform data can also be saved allowing soundings to be processed post-survey. This allows the user to change the window scheme, adjust delays for different external transmitters and receivers.

Functions measured: Tx turn on and turn off times, loop input voltage, Tx and where applicable Rx loop resistances, full transmitter current waveform, transient response, and many more parameters. Noise measurements can be acquired with the same parameters as a sounding to allow a direct comparison. Spectral analysis and oscilloscope modes are also available.

Stacking option: 1 to 65,536 Stacks

Gain: 1 to 100 and an auto gain option. With 24 bits there is no requirement for higher gains. A 0.1 gain is available for using with coincident or single loop configurations.

GPS: 20 channel integrated GPS for geo-referenced data recording and timing.

TRANSMITTER

Output current: 50 A at 6 V through to 120 V (6kW) internal transmitter as standard. An optional external transmitter, the terraTX-50 (50 A 250 V) is also available. Both these transmitter configurations can be operated from batteries or the Monex GeoScope Voltage Rectifier. Synchronisation between the terraTEM24 receiver and the optional external transmitter (terraTX-50) is via cable or GPS. An optional crystal module synchronisation is also available. Synchronisation with the internal transmitter is built into the hardware.

Waveform: Bipolar waveform with 50% duty cycle.

On/Off Time: Adjustable from 10 to 2,000 ms on/off time.

Turn Off: Depends on the selected transmitter. For example a terraTX-50:

(1)	10 Amp,	50 m × 50 m,	7.2 microseconds
(2)	50 Amp,	50 m × 50 m,	36 microseconds
(3)	33 Amp, 100 m × 100 m, 48 microseconds		

The user can also increase the ramp length from the minimum if required.

Transmitter Repetition rate: 25 Hz to 0.125 Hz or 0 milliseconds to 8 seconds.

Transmitter Loop size (Effective Area): This is dependent upon the client's own survey specifications. The transmitter can operate on any loop size/configuration.

Moments: User-selectable moments are available with the optional rectifier, allowing the input loop power to be adjusted rather than using external load power resistors. The user can accurately adjust the transmitter current to any value less than the 50 A maximum. This can either be controlled by the terraTEM24 receiver or directly by the operator.

Voltage Rectifier: 24 V – 120 V DC output power[1]. The input power source can be either a single or three phase generator. The voltage rectifier can be controlled via manual voltage and enable buttons or digitally controlled by the terraTEM24 or terraTX-50.

Contact Monex GeoScope Pty Ltd at sales@monexgeoscope.com.au for further information on this product.

[1] Different voltage ranges available upon request.