EMIT ElectroMagnetic Imaging Technology
www.electromag.com.au
3 The Avenue
Midland WA 6056
AUSTRALIA
+61 8 9250 8100
info@electromag.com.au

SMART Fluxgate

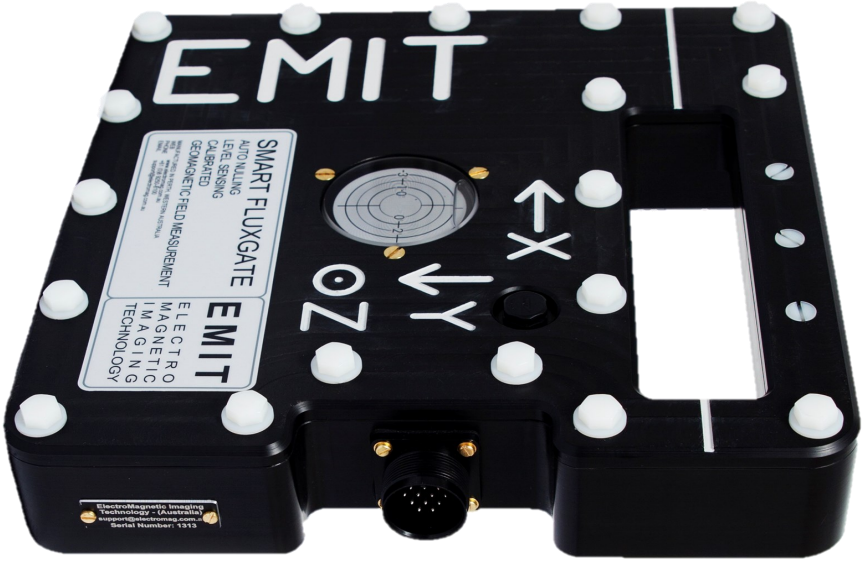
3-component surface magnetometer system for TEM, MMR and Magnetics

Calibrated, rugged 3-component fluxgate magnetometer with automated DC nulling, accurate digital tilt measurement and measurement of the Earth's DC magnetic field

- Low noise, 3-component fluxgate magnetometer sensor
- On-board accelerometers and temperature sensor
- Automated nulling and recording of the Earth's DC magnetic field
- Calibrated magnetometer and tilt outputs
- Robust housing, portable and lightweight, in-built handle
- Plug-and-play with a SMARTem24 receiver
- No batteries required (powered by SMARTem24 Receiver or external battery supply)
- Automated simultaneous recording of three components and tilt measurements on the SMARTem24 Receiver
- Tilt corrections can be applied in SMARTem24 software
- Can be used with other receivers
- Precision bubble level
- Maximum signal level +/-70,000 nT
- Sensor noise level: maximum 6 pT/√Hz @ 1Hz on all components
- Noise level: approximately 3 pT on late time window
- Bandwidth DC - 4 kHz

DIMENSIONS/SHIPPING

Item	SMART Fluxgate, and cable
Case Type	Rugged Plastic
Dimension	30 x 30 x 6 cm
Weight	24 kg



A powerful sensor for measurement of low frequency magnetic fields in TEM or MMR surveys

The use of fluxgate magnetometers in TEM surveys has become popular in the last decade, especially in applications where low transmitter frequencies are used. In surveys where the target or host is quite conductive, fluxgate magnetometers perform very well.

Measuring TEM responses with a B-field sensor, such as a low-noise fluxgate magnetometer, assists in the identification of responses from stronger conductors in the presence of signals from weaker conductors such as host or overburden features.

The response of a good conductor in a conductive host is observed earlier in time in a B-field TEM survey than in a dB/dt survey, which means that it is more likely to be above the noise floor of the TEM system. It is simple to interpret B-field data in Maxwell or other interpretation packages.

A low-noise fluxgate magnetometer is the perfect sensor for MMR surveys. MMR surveys are typically carried out at frequencies in the vicinity of 1 Hz and below – an area where the fluxgate magnetometer performs very well.

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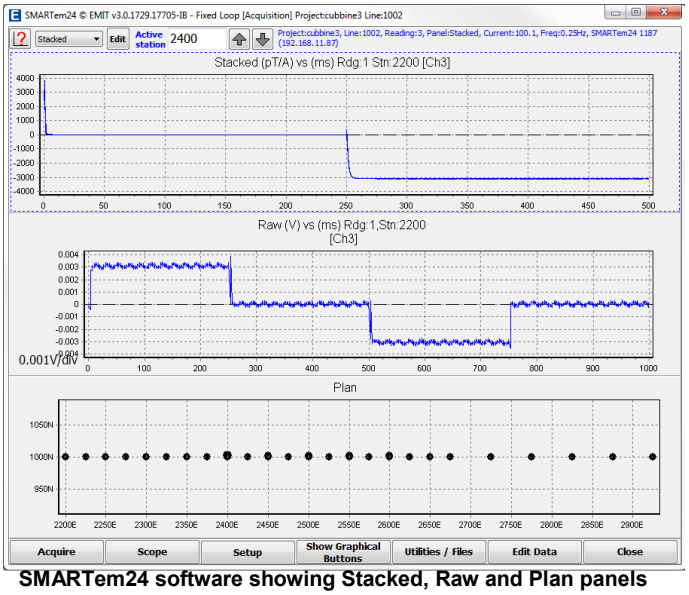
EMIT has been deploying fluxgate magnetometers for EM geophysical surveys since 1995 when the first modern fluxgates were used for TEM surveying in Australia. This revision of EMIT's fluxgate system is designed to make the use of a 3 -component fluxgate magnetometer simpler and more precise.

The SMART Fluxgate is specifically designed to interface with EMIT's SMARTem24 Receiver system, but can be deployed with most receiver systems.

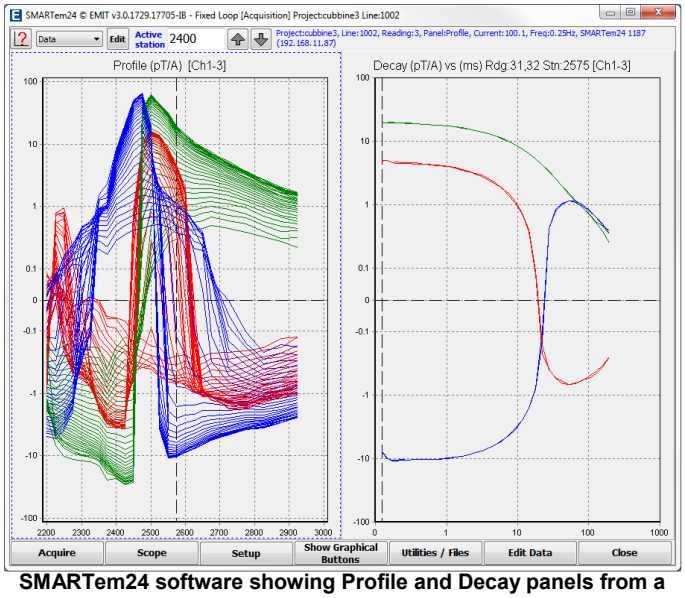
The SMART Fluxgate is powered by the Receiver. The SMARTem24 Receiver also handles the recording of the on-board accelerometers, calibration and tilt corrections, measurement of the Earth's field and the automated nulling of the Earth's DC magnetic field so the EM signal can be amplified.

EMIT uses the lowest noise fluxgate sensors available for commercial use and accurately calibrates the orientation and sensitivity of the SMART Fluxgate.

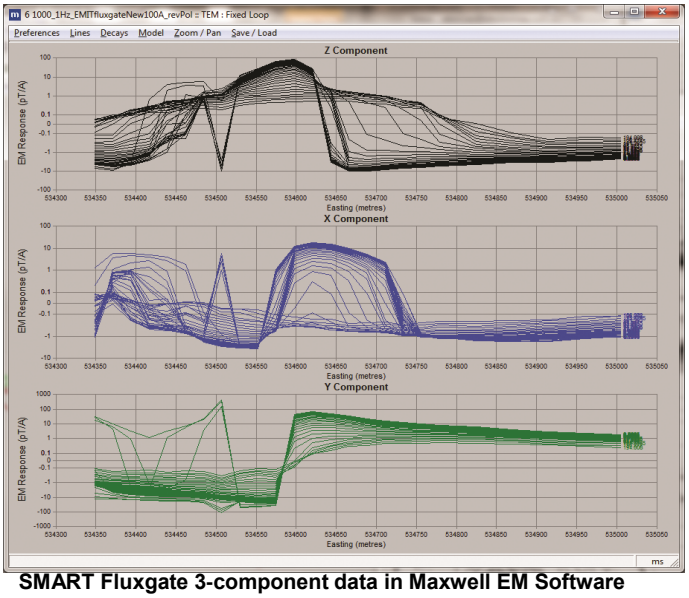
SMARTem24 Receiver



SMARTem24 software showing Stacked, Raw and Plan panels from a SMART Fluxgate survey



SMARTem24 software showing Profile and Decay panels from a SMART Fluxgate survey



SMART Fluxgate 3-component data in Maxwell EM Software

geophysical instrumentation ■ electromagnetic geophysics ■ geophysical modelling ■ technology development