



The EM61, one of the newest instruments from GEONICS, is a time-domain metal detector which detects both ferrous and non-ferrous metals. A powerful transmitter generates a pulsed primary magnetic field in the earth, which induces eddy currents in nearby metallic objects. The eddy current decay produces a secondary magnetic field measured by the receiver coil.

By taking the measurement at a relatively long time after the start of the decay, the current induced in the ground has fully dissipated and only the current in the metal is still producing a secondary field. The responses are recorded and displayed by an integrated data logger.

The EM61 detects a single 200-litre (55 gal) drum at a depth of over 3 metres beneath the instrument, yet is relatively insensitive to nearby cultural interference, such as fences, buildings and power lines. The response is a single, sharply defined peak, greatly facilitating quick and accurate location of the target. Depth of the target can usually be estimated from the width of the response.

The system can be pulled around as a trailer with odometer mounted on the axle to trigger the data logger or it can be carried by a single operator with a shoulder harness.

SPECIFICATIONS

Measured Quantities	Two channels of secondary response in mV
EM Source	Air-cored coil, 1 x 1m size
Current Waveform	Bipolar rectangular current with 25% duty cycle
EM Sensors	a) Main: Air-cored coil, 1x1m size, coincident with EM source b) Focussing: Air-cored coil, 1x1m size, 40cm above main coil
Measuring Ranges	40 000 mV for low gain 10 000 mV for high gain
Dynamic Range	18 bits
Output Monitors	4-line LCD with 16 characters per line and audio tone
Data Storage	18,700 records (ext. memory available)
Power Supply	12v rechargeable battery for 4 hour continuous operation
Operating Weight & Dimensions	Backpack: 10kg Coil Assembly: 16.5 kg (24kg trailer mode) Backpack: 60 x 30 x 10 cm Main Coil: 100 x 100 x 5 cm Focussing: 100 x 100 x 2 cm
Shipping Weights & Dimensions	61kg (86kg with trailer) 104 x 104 x 22 cm (Box 1) 54 x 54 x 52 cm (Box 2) – trailer option

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