

Description

The functionality of the RM85 Resistance Meter can be expanded to include the logging of fluxgate gradiometer data by the addition of the FAB1 (Fluxgate Adapter Box 1). The FAB1 acts as an interface for the output of a Sensys FGM650 fluxgate gradiometer to the RM85. The FAB1 is powered by a user supplied power bank fitted inside. It can be programmed via an RM85 menu for gradiometer operation (averaging for noise reduction, resolution, baud rates etc). Measurements can be made with a handheld system or MSP25 cart system. The RM85 then becomes a 3-in-1 instrument reducing ownership costs and offering extra flexibility: resistance - probe mode data logging (Twin, Wenener etc.), resistance - wheel mode data logging (Square array for rapid area coverage) and gradiometer data logging.

Handheld Gradiometer Mode

For use as a handheld gradiometer, a BASIC or ADVANCED RM85 is mounted on an aluminium CF51 carrying frame with the FAB1 positioned underneath the meter and an FGM650 held vertically at the opposite end of the frame. The CF51 has an integral Start/Stop switch mounted next to the carrying handle which initiates data collection; data collection rate is controlled by an internal timer. The switch can also be operated using the thumb of the carrying hand. On more challenging terrains, the switch unit can be removed and can be used as a separate hand-log trigger by adding an optional extension lead. In handheld mode RM85 battery life is extended by about 2 hours since circuitry for resistance measurements can be powered down.

Gradiometer measurements with MSP25 cart

In this mode an ADVANCED RM85 / EPIB1 / MSP25 collects high resolution square array resistance data as usual from the wheeled system but, with the addition of an FAB1, the RM85 can also collect gradiometer data. The FAB1 is mounted on the MSP25 main platform and a gradiometer mounting frame is fitted to support the FGM650 sensor tube which is cushioned against vibration. (In the example shown opposite the FM256 collects data independently from the RM85).

GPS

GPS data can be logged simultaneously with the gradiometer and resistance data. The GPS unit connects to a FAB1 RS232 port when gradiometer data is being collected. The GPS unit should have an update rate of 10-20 Hz for optimum data sampling. GPS logging is only available with an RM85 that has the GPS logging option fitted. The GPS unit should have a small magnetic signature when used with the handheld system.

Typical Specification - subject to change

FAB1 box dimensions	80 x 55 x 160 mm
FAB1 box weight (not including Power Bank)	0.35 Kg
Typical Power Bank weight (e.g. Ansmann 2600 or 5200 mAh)	0.1 - 0.2 Kg
Maximum allowable power bank dimensions	95 x 71 x 23 mm
FAB1 Power Bank Life (2600mAh power pack)	> 7 hours

Total Handheld System weight
(RM85, FAB1, CF51, FGM650 but not including power bank) 2.9 Kg

All RM85 will require a firmware upgrade to include the gradiometer mode. An RM85 with firmware earlier than Version 6.01 will require a new microprocessor PCB fitting.

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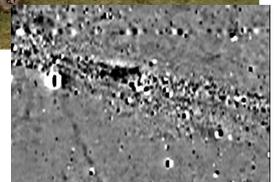
Prototype FAB1



Prototype CF51 carry frame



MSP25 with FGM650,
FM256 and GPS at
Temple Newsam:
FGM650 data +/-10nT



(dark positive) 100m x 70m x 0.25m x 1m, with
100m traverses. Earth resistance and
gradiometer search for Capability Brown
structures in parkland.



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