



Top Logger

**New
product!**

For use in harsh conditions—no extra environmental protection required

USB flash memory drive I/O

Internal battery powers both logger and instruments

Very low power consumption between scans

Fast battery recharge via USB port

Three interchangeable end cap/connection panels to suit either RWEs, SMART[®] extensometer/cable load instruments or an HI cell

End cap/connection panel is separated from logger body for ease of connection of instruments

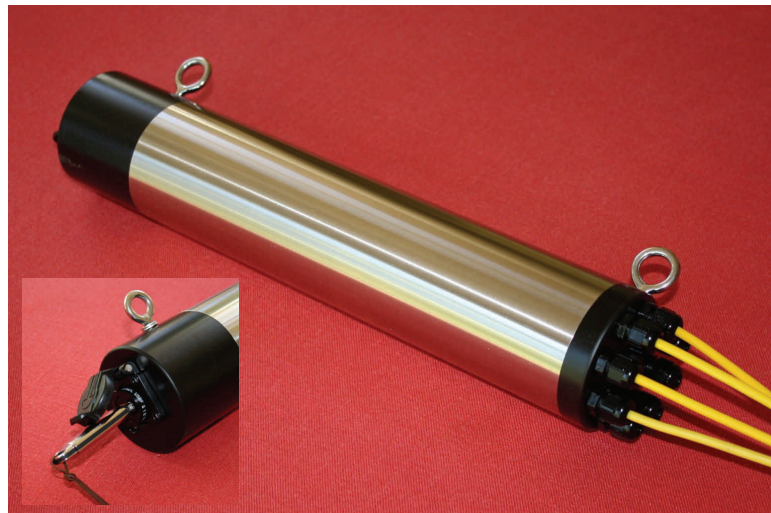
Top Logger can be located inside a borehole, or strapped to service pipes or mesh

Six scan intervals between 5 minutes and 12 hours plus an event scan mode

High resolution and accuracy; auto – ranging when measuring millivolts

Top Logger has been designed to measure and store outputs from:

- up to eight Resistance Wire Extensometers (RWE), or up to eight instruments of any type with differential voltage output
- up to 18 single-ended voltages from potentiometer based instruments such as rod extensometers and crackmeters
- one Hollow Inclusion (HI) 3D stress measurement cell



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Excellence in Geotechnical Measurement



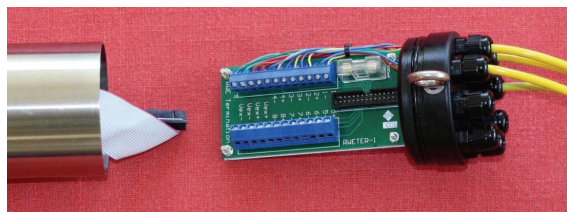
Top Logger

Size and installation

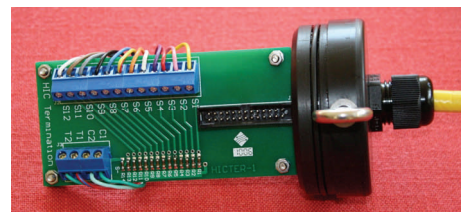
Top Logger is IP67 rated, compact in size and cylindrical—Ø77mm x 440mm long. Top Logger may be strapped to brackets, service pipes, steel mesh, etc., but for convenience and protection Top Logger may also be installed into a borehole, close to the collar. This mode of installation may be particularly useful when Top Logger is used to monitor an HI cell. Installation into a shallow borehole situated close to boreholes into which RWEs and/or SMART® instruments are installed may also be an option.

Instrument connection

Instrument connections are made to a removable termination cap, with a specific termination cap used when connecting (i) one HI cell, (ii) up to three SMART® extensometers/cable load instruments, (iii) up to eight resistance wire extensometers (RWE).



Termination cap with 4 x RWEs connected



HI cell termination cap

The instrument connection process and logger installation can be undertaken quickly and efficiently as no external power or mechanical protection for the logger is required. A typical Top Logger installation can be carried out in less than an hour.

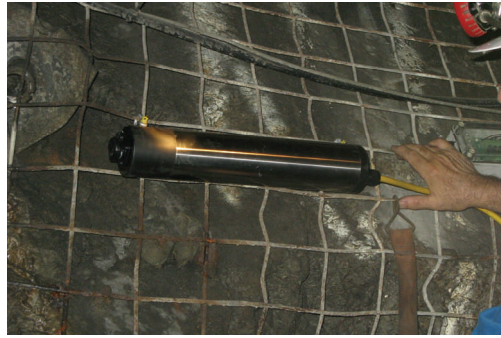


Connecting instruments to Top Logger in the field



Top Logger

Field installation example



Top Logger shackled to wall mesh in an underground mine

Setup

Top Logger is supplied with a simple setup program where the logger serial number, instrument type, number of instruments and scan rate is selected and downloaded to a USB flash memory drive. The USB drive, when plugged into the USB port of the logger, sets these parameters and automatically uploads any stored data. The data, as a text file, is readily available for processing using a spreadsheet.

Scan intervals

Scan intervals: 5 min, 10 min, 30 min, 1 hr, 6 hr, 12 hr

Event Scan: a specific event can be monitored on 5 min scans and is set to change to a slower scan rate (e.g. 6 hr) 1, 2 or 3 days after the event scan is initiated.

Range and resolution

HI Cell: range $\pm 32,000 \mu\text{V}$ at $1 \mu\text{V}$ resolution

RWE: range $\pm 32 \text{ mV}$ at 0.001 mV resolution auto-ranging to $\pm 310 \text{ mV}$ at 0.01 mV resolution

Potentiometer instruments: 0-2 V at 0.1 mV resolution

Battery life and recharge

The time between battery recharge depends on the type and number of instruments connected and the scan interval, e.g.

- 1 x HI Cell, 6 hr scan rate: approximately 12 months
- 3 x SMART® instruments, 6 hr scan rate: approximately 12 months
- 8 x RWEs, 6 hr scan rate: approximately 12 months
- 4 x RWEs, 10 min scan rate: approximately 6 weeks

The internal battery in Top Logger is recharged via the USB port using a portable battery recharge kit. The internal battery can be fully recharged from 10% capacity in approximately 1½ hours.

Top Logger & supplied accessories

- Top Logger including one of three types of termination cap
- Software and Manual
- USB flash drive, 2 Mb
- USB extension cable, 1m
- T handle Allen key
- Eye bolt x 2
- Silicone grease

Supplied separately

- Portable battery charger
- Three types of termination cap



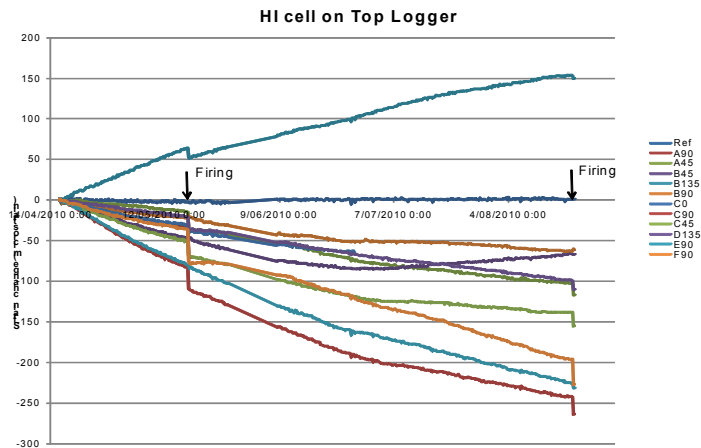
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Data

The uploaded data is in Text file format and contains the following header information: logger serial number, date and time of upload, site, type and number of instruments connected, range and units of recorded values, number of scans stored and number of scans remaining, logger temperature, remaining charge in battery (within 10%), set scan interval.

HI Cell data

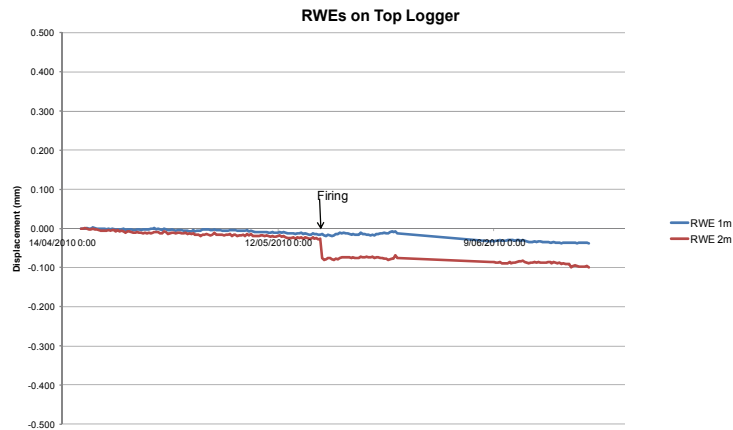
HI cell data includes: 12 strain gauge channels, thermistor reading as a temperature with resolution 0.1°C, strain bridge excitation voltage with resolution 0.001V, date and time of scan.



Example HI cell data recorded by Top Logger

RWE data

RWE data includes: 1 to 8 instruments (mV), date and time of scan.



Example RWE data recorded by Top Logger

Potentiometer data

Potentiometer data includes: 1 to 18 channels or 1 to 3 SMART instruments, date and time of scan.

No field generated potentiometer data at time of publication

SMART® instruments, Mine Design Technologies Inc., Canada

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