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TOP LOGGER

Version X1.10

LOGGER OPERATING MANUAL

SOFTWARE INTERFACE MANUAL

TOP LOGGER OPERATING MANUAL

Getting Started with TOP Logger

TOP Logger is a portable battery operated device designed to measure and record data from a range of instruments commonly used for geotechnical investigations. TOP logger is available in four basic hardware formats to match specific instrument applications and provides a range of scanning options to suit user requirements. Recorded data is stored in non-volatile memory and the logger can operate autonomously, following a full battery charge for periods of more than one year, depending on the programmed operating mode.

Each logger hardware option uses a custom termination cap with waterproof cable entry glands. The termination cap also provides screw terminal points, specifically tailored for each instrument design, allowing quick and reliable field connections to existing measurement clusters.

Access to the logger for data recovery and operating mode adjustment is provided by a sealed USB socket. All communications with the logger take place via a standard USB Memory device which can be easily carried and employed by field staff.

The TOP Logger battery can be charged in-situ using the Model 4020 charger. This device is a portable battery source employing purpose-designed electronics to transfer a full charge to the in-situ logger in approximately one hour. All TOP Loggers have in-built firmware to monitor battery performance and provide a status report including the charge state of the battery as part of every data recovery operation. Connection to a logger for charging is made via the same sealed USB socket used for memory device access.

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® Mine Design Technologies Inc. Canada

Logger Operation

INITIALISING TOP LOGGER

There is no ON/OFF switch for TOP Logger. The logger normally leaves the factory with the primary power supply fully charged and the internal clock battery isolated. The primary battery pack is manufactured from cells with a full charge shelf life on up to one year which will allow the logger to be put into service immediately after an initial recharge cycle.

The internal clock will re-start automatically when the logger clock is reset for the first time. The internal clock battery is integrated into the logger memory module and has a 10-year life expectancy. The memory module must be replaced if the clock battery becomes discharged.

USB MEMORY DEVICE

TOP Logger has no external switches to enhance its field reliability and waterproof integrity. All communication with the logger takes place via a USB memory device. Any USB memory device is suitable for use with TOP Logger as long as the insertion shaft is metal; devices with a large indicator light are preferred. The USB memory device indicator light displays data transfer activity and the device must not be removed while this indicator is active. The TOP Logger has its own LED indicator to show when information is transferring between the logger and the USB memory device. Removing the USB Memory device will return the logger to its low power mode.

Setup instructions and data for/from multiple loggers may be recorded onto a single USB device as a specific logger will only respond to its own coded file which corresponds to the serial number of the TOP Logger. Setup files will always be created in the root directory of the memory device. Data files are stored in directories named <TOPLnnnn> where <nnnn> is the logger serial number. If the directory does not exist, the logger creates it on the disk.

Memory Device Maintenance

Badly fragmented USB memory sticks will cause significant delays (30 seconds or more!) opening files or making directories. This is because the USB module has to search through the file system to establish useable clusters.

It is recommended that devices used for data recovery be periodically re-formatted. The memory device should be reformatted completely for best results. Using the 'quick format' option or simply deleting files from the device will not produce a significant improvement.

Data Transfers with a Lo-battery

When battery voltage is below 6.9 Volts, the message 'Battery too low to upload data' is inserted in place of data during data recovery

MODEL 4030 REMOTE ACCESS MODULE

The Model 4030 Remote Access Module (RAM) is an available accessory for TOP Logger. This device may be connected to the logger via the external USB access port and used to trigger manual scans by pressing the sealed push-button switch. A LED in the switch indicates that the logger is awake. The Remote Access Module is an excellent tool to allow an operator to take a set of initial manual readings during logger commissioning.

The Model 4030 can also be used to confirm the correct operation of an installed logger:

1. When the RAM cable is first inserted, the indicator LED should remain off, indicating that the logger is asleep.
2. If the indicator LED remains illuminated when the RAM cable is inserted, this indicates that the logger is awake and that the logger requires service.
3. When RAM button is pressed and released within 2 seconds, the logger will take a single scan and then go back to sleep. The LED indicator will only illuminate while the logger is taking the scan. The button must only be pressed momentarily otherwise the logger will think that a USB memory device has been inserted.

MOUNTING THE LOGGER IN THE FIELD

The cylindrical housing of TOP Logger makes it suitable for installation close to the collar of a suitable borehole. This mode of installation offers considerable physical protection from external influences such as damage by mine vehicles, or rock blasting. Alternatively, the logger is supplied with two stainless steel eye-bolts that can be used to secure the logger to any convenient pipe, roof-bolt or support mesh using metal shackles or suitable plastic cable ties.



TOP Logger with RWE termination end cap

Eye-bolts can be screwed into place after removing the protective cover plugs from the pre-drilled mounting holes in each of the logger end cap assemblies. Take care not to over-tighten the eye-bolts as this may damage the thread in the logger housing.



TOP Logger shackled to wire mesh using eye bolts

CONNECTING SENSORS

TOP Loggers have one of four removable termination caps designed to accept (i) a Hollow Inclusion (HIC) stress measurement cell, (ii) up to eight Resistance Wire Extensometers (RWEs), (iii) up to three SMART MPBX/cable instruments, (iv) one SMART MPBX/cable instrument plus up to five RWEs. The connections to the instruments are made via waterproof sealing glands and a custom termination board with screw terminals. TOP Loggers can be re-configured by the user for use with any of the four types of termination caps.

A termination cap is removed by unscrewing the stainless socket head retaining screw with the T-handle Alan key supplied in the accessory kit and carefully extracting the termination cap from the logger case tube. This action exposes a 26-way ribbon connector which is then removed from its connecting socket. The logger case tube may be put to one side whilst sensor terminations are completed, but care should be taken that moisture does not collect on either the termination module or the open logger housing. If either of these components gets wet, they must be immediately dried before re-assembly so that moisture does not get trapped inside the logger.

Once all sensor wires are connected, wipe a smear of silicon grease (from the tube supplied in the logger accessory kit) around the o-ring seal and partially reinsert the termination cap into the logger case tube. Re-connect the 26-way ribbon cable then complete the insertion of the cap inside the logger case tube. Ensure the ribbon cable does not get pinched between the termination cap and the case tube when the logger is being reassembled.



Connecting an HI Cell to an HIC termination end cap in the field



Reconnecting ribbon connector to termination board (RWE termination end cap shown)



Completing reassembly of logger following connection of instruments

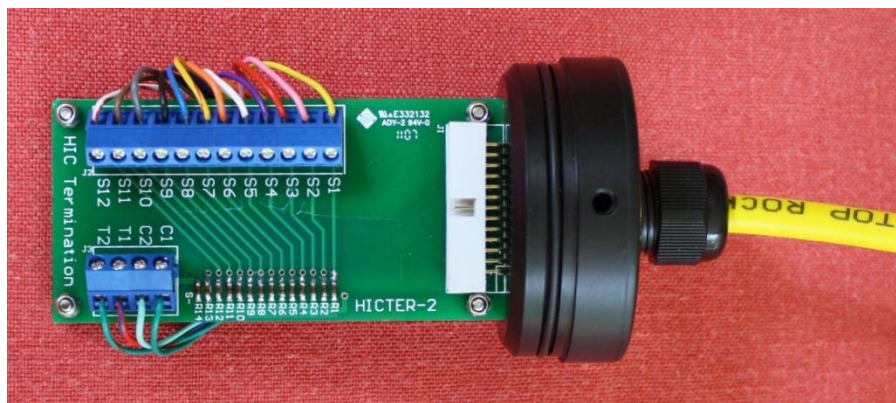
Hollow Inclusion Cell (HIC) Sensors

When configured to monitor an HI Cell, TOP Logger is supplied with a termination cap with a single cable gland input.

The HI Cell cable conductors must be connected in numbered sequence from S1 to S12. Terminals S10, S11 and S12 may be left open when a nine strain gauge HI Cell is connected. There are two common terminals C1 and C2 and two terminals T1 and T2 for the HI Cell thermistor.



HIC termination end cap



HI Cell connected to HIC termination end cap

SMART[®] Cable/MPBX Sensors

When configured to monitor up to three SMART[®] Cable or MPBX instruments, TOP Logger is supplied with a termination cap with three cable gland inputs. Each gland has a sealing plug that should only be removed when the gland is ready to be used for cable access.

A SMART instrument has six sensors and these sensors are connected in numbered sequence to Terminals SM1-1 to Terminal SM1-6 for instrument 1, Terminals SM2-1 to SM2-6 for instrument 2 and to Terminals SM3-1 to SM3-6 for instrument 3. There are two common terminals for V⁺ and four common terminals for V⁻ excitation for all three instruments.



SMART termination end cap

Resistance Wire Extensometer (RWE) Sensors

When configured to monitor RWEs, TOP Logger is supplied with a termination cap with eight cable gland inputs. Each gland has a sealing plug that should only be removed when the gland is ready to be used for cable access.

Up to eight RWEs can be connected in numbered sequence from Terminal 1 to Terminal 8. There are four common terminals for V⁺ and V⁻ excitation and sensors can be connected to these as required.



RWE termination end cap

RWE and SMART[®] Cable/MPBX Sensors

When configured to monitor up to five RWEs plus one SMART Cable sensor, TOP Logger is supplied with a COMEX termination cap with 6 cable gland inputs. Each gland has a sealing plug that should only be removed when the gland is ready to be used for cable access.

Up to five RWEs can be connected in numbered sequence from Terminal 1 to Terminal 5. There are two common terminals for Vex+ and Vex- excitation and sensors can be connected to these as required.

The SMART[®] Cable/MPBX sensors are connected in numbered sequence from Terminal SM1 to Terminal SM6. There are two terminals for the +2V and GND connections.



COMEX termination end cap

Model 4070 Protection Tube

The Model 4070 is a 150mm long stainless steel tube designed to fit all termination caps in place of the logger body. The Model 4070 allows the termination cap to be pre-wired and sealed until the logger is ready to be installed. Similarly, the Model 4070 can be left installed on a termination cap when a logger is removed for maintenance or temporary relocation.



Model 4070 Protection Tube fitted to RWE termination end cap

Re-charging TOP Logger

RECHARGING TOP LOGGER

TOP Logger is designed for recharging in-situ by the Model 4020 portable recharge module. When the charging module is connected to TOP Logger via its USB port, the logger battery will be returned to full potential in a time dependent on the level of discharge in the logger battery. The remaining capacity in the logger battery is reported in the header information of the data recovery files. If a TOP Logger battery is discharged to less than 10% of its capacity, it may take up to 100 minutes to recharge the battery. The TOP Logger battery cannot be over-charged if left connected for longer periods. If the TOP Logger batteries are topped up at regular intervals (e.g. 2 – 3 months, depending on scan rate and frequency of data recovery), charging may be typically completed in less than 30 minutes.

DATA TRANSFERS WITH A LO-BATTERY

When battery voltage is below 6.9 Volts, the message 'Battery too low to upload data' is inserted in place of data during data recovery

MODEL 4020 CHARGER

The Model 4020 is a portable battery source mounted in a robust waterproof case suitable for field personnel to convey to multiple TOP Logger sites. The Model 4020 has an active charging circuit to prevent over-charging of the TOP Logger battery and the internal battery source will recharge two loggers from their nominal discharged condition, or up to five loggers if the charge interval for each logger is limited to 30 minutes. The number of available TOP Logger charging cycles will depend greatly on the condition of the loggers connected, temperature and time between cycles.

The Model 4020 charger should be replenished via its supplied power pack for approximately 16 hours. A TOP Logger may be connected to the charging unit while a Model 4020 is connected to AC power although this will extend the time taken to fully replenish the Model 4020 internal storage battery by approximately 10%. Both the Model 4020 and connected TOP Loggers are prevented against over-charging if connected for extended charging periods. The CHARGE light will go out when a connected TOP Logger is fully charged.

The Model 4020 charger is supplied with a universal plug pack to operate with local electricity supply specifications. Please contact your supplier if the plug pack originally supplied with the charger is lost or broken. Substitutes are not recommended. For longevity of the Model 4020 battery, it is highly recommended that it be recharged immediately after use and overnight once more before it is next used in the field.



MODEL 4020 SPECIFICATIONS

Style:	Black thermoplastic case with carry handle	
Size:	240mm high x 190mm long x 110mm deep	
Weight:	2.2kg	
Sealing:	IP67	
Temperature:	Operating temperature	-10°C to +55°C
	Storage temperature	-25°C to +70°C
Power:	Internal Battery:	12V, 2000mAh
	Re-charging:	Recharge via universal plug pack
	Re-charging Time:	Approximately 16 hours
Connection:	Connection to logger USB socket with supplied custom cable	

Cadeanco is continually improving its products and processes and as such, this information is subject to change without notice.

HIC (Hollow Inclusion Cell) Input Connections

<u>LOGGER INPUT</u>	<u>FUNCTION</u>	<u>TERMINAL NO</u>	<u>INSTRUMENT WIRE COLOUR</u>
HIC Input #1	120 Ω resistor	S1	Yellow
HIC Input #2	Strain gauge A ₉₀	S2	Pink
HIC Input #3	Strain gauge A ₄₅	S3	Red
HIC Input #4	Strain gauge B ₄₅	S4	Purple
HIC Input #5	Strain gauge B ₁₃₅	S5	White
HIC Input #6	Strain gauge B ₉₀	S6	Orange
HIC Input #7	Strain gauge C ₀	S7	Yellow/Red
HIC Input #8	Strain gauge C ₉₀	S8	Blue
HIC Input #9	Strain gauge C ₄₅	S9	Black
HIC Input #10	Strain gauge D ₁₃₅	S10	Grey
HIC Input #11	Strain gauge E ₉₀	S11	Brown
HIC Input #12	Strain gauge F ₉₀	S12	White/Red
HIC Common Inputs	Common 1 & Common 2	C1	Dark green
		C2	Light green
HIC Thermistor Inputs	Thermistor temperature sensor	T1	Green/Red
		T2	Blue/Red

APPLICATION NOTES:

1. Instrument wire colours are applicable to HI Cells manufactured by Top Rock Technologies Pty Ltd.
2. The user should fully understand the wiring code of the HI Cell. Connecting the sensor wires incorrectly may result in erroneous stored data.
3. Terminals S10, S11 and S12 should be left unwired when the logger is used to monitor nine channel HI Cells. The logger should be configured correctly to avoid unnecessary scanning of these open inputs and subsequent waste of logger memory space.

SMART[®] Cable/MPBX Input Connections

<u>LOGGER INPUT</u>	<u>FUNCTION</u>	<u>TERMINAL NO</u>	<u>INSTRUMENT WIRE COLOUR</u>
SMART [®] Cable/MPBX #1	Anchor 1 signal +ve	SM1-1	Blue
	Anchor 2 signal +ve	SM1-2	Yellow
	Anchor 3 signal +ve	SM1-3	White
	Anchor 4 signal +ve	SM1-4	Green
	Anchor 5 signal +ve	SM1-5	Brown
	Anchor 6 signal +ve	SM1-6	Grey
SMART [®] Cable/MPBX #2	Anchor 1 signal +ve	SM2-1	Blue
	Anchor 2 signal +ve	SM2-2	Yellow
	Anchor 3 signal +ve	SM2-3	White
	Anchor 4 signal +ve	SM2-4	Green
	Anchor 5 signal +ve	SM2-5	Brown
	Anchor 6 signal +ve	SM2-6	Grey
SMART [®] Cable/MPBX #3	Anchor 1 signal +ve	SM3-1	Blue
	Anchor 2 signal +ve	SM3-2	Yellow
	Anchor 3 signal +ve	SM3-3	White
	Anchor 4 signal +ve	SM3-4	Green
	Anchor 5 signal +ve	SM3-5	Brown
	Anchor 6 signal +ve	SM3-6	Grey
Common +ve power	Sensor excitation +ve	+2V	Red & Orange
Common -ve power	Sensor excitation -ve	GND	Black & Purple

APPLICATION NOTES:

- Up to 18 potentiometer based instruments other than SMART instruments can be connected to a SMART termination end cap.
- The user should understand fully the wiring code of the SMART instruments. Connecting the sensor wires incorrectly may result in erroneous stored data.
- Sensors must be connected sequentially from Cable Input SM1 to SM3. When the logger is configured for less than its full three instrument capacity, sensors are scanned from SMART instrument #1 input upward.
- Unused sensor inputs may be left open however the logger should be configured correctly to avoid unnecessary scanning of these open inputs and subsequent waste of logger memory space.

RWE (Resistance Wire Extensometer) Connections

<u>LOGGER INPUT</u>	<u>FUNCTION</u>	<u>TERMINAL NO</u>	<u>RWE WIRE COLOUR</u>
Resistance Wire Extensometer #1	RWE 1 Signal +ve	1+	Yellow
	RWE 1 Signal -ve	1-	Blue
Resistance Wire Extensometer #2	RWE 2 Signal +ve	2+	Yellow
	RWE 2 Signal -ve	2-	Blue
Resistance Wire Extensometer #3	RWE 3 Signal +ve	3+	Yellow
	RWE 3 Signal -ve	3-	Blue
Resistance Wire Extensometer #4	RWE 4 Signal +ve	4+	Yellow
	RWE 4 Signal -ve	4-	Blue
Resistance Wire Extensometer #5	RWE 5 Signal +ve	5+	Yellow
	RWE 5 Signal -ve	5-	Blue
Resistance Wire Extensometer #6	RWE 6 Signal +ve	6+	Yellow
	RWE 6 Signal -ve	6-	Blue
Resistance Wire Extensometer #7	RWE 7 Signal +ve	7+	Yellow
	RWE 7 Signal -ve	7-	Blue
Resistance Wire Extensometer #8	RWE 8 Signal +ve	8+	Yellow
	RWE 8 Signal -ve	8-	Blue
Common RWE +ve power	RWE Excitation +ve	Vex+	Red – all RWEs
Common RWE -ve power	RWE Excitation -ve	Vex-	Green – all RWEs

APPLICATION NOTES:

1. Wire colours are applicable to Resistance Wire Extensometers (RWEs) manufactured by Top Rock Technologies Pty Ltd.
2. The user should fully understand the wiring code of the RWE sensors. Connecting the RWE wires incorrectly may result in damage to the instrument and erroneous stored data.
3. Instruments should be connected sequentially from Terminal 1 to 8. When the logger is configured for less than its full eight input capacity, sensors are scanned from RWE #1 input upward.
4. Unused instrument inputs may be left open however the logger should be configured correctly to avoid unnecessary scanning of these open inputs and subsequent waste of logger memory space.
5. The termination panel has a 500mA fuse for protection of the logger power supply connection against incorrect wiring or cable damage.

COMEX Logger Input Connections

<u>LOGGER INPUT</u>	<u>FUNCTION</u>	<u>TERMINAL NO</u>	<u>INSTRUMENT WIRE COLOUR</u>
RWE #1	RWE 1 Signal +ve	1+	Yellow
	RWE 1 Signal -ve	1-	Blue
RWE #2	RWE 2 Signal +ve	2+	Yellow
	RWE 2 Signal -ve	2-	Blue
RWE #3	RWE 3 Signal +ve	3+	Yellow
	RWE 3 Signal -ve	3-	Blue
RWE #4	RWE 4 Signal +ve	4+	Yellow
	RWE 4 Signal -ve	4-	Blue
RWE #5	RWE 5 Signal +ve	5+	Yellow
	RWE 5 Signal -ve	5-	Blue
Common RWE +ve power	RWE Excitation +ve	Vex+	Red – all RWEs
Common RWE -ve power	RWE Excitation -ve	Vex-	Green – all RWEs
SMART® Cable/MPBX Input	Anchor 1 Signal +ve	SM1	Blue
	Anchor 2 Signal +ve	SM2	Yellow
	Anchor 3 Signal +ve	SM3	White
	Anchor 4 Signal +ve	SM4	Green
	Anchor 5 Signal +ve	SM5	Brown
	Anchor 6 Signal +ve	SM6	Grey
Common +ve power	Sensor Excitation +ve	+2V	Red & Orange
Common -ve power	Sensor Excitation -ve	GND	Black & Purple

APPLICATION NOTES:

1. The COMEX interface combines one Smart cable with up to 5 RWEs. The user should fully understand the wiring code of both the RWE and SMART instruments. Incorrect connection of instrument wires may result in damage to the sensors and erroneous stored data.
2. Wire colours are applicable to Resistance Wire Extensometers (RWEs) manufactured by Top Rock Technologies Pty Ltd.
3. Unused RWE inputs may be left open, however the logger should be configured correctly to avoid unnecessary scanning of these open inputs and subsequent waste of logger memory space.
4. The termination panel has a 500mA fuse for protection of the logger power supply connection against incorrect wiring or cable damage.

HIC Logger Mode Specifications

PHYSICAL SPECIFICATIONS:

Size:	77mm diameter x 440mm long	
Weight:	2.3 kg	
Material:	304 Stainless Steel Case with Acetal end-caps	
Sealing:	IP54	
Temperature:	Operating temperature	-20°C to +55°C
	Storage temperature	-25°C to +70°C

ELECTRICAL SPECIFICATIONS:

Power:	Internal Battery:	Custom Ni-MH battery pack, 7.2V, 800mAh
	Charging:	Recharge via Model 4020 Charger Connection through external USB socket
Data Logging:	Input Channels:	12ch HI Cell, 1 temperature channel, excitation data
	Storage Capacity:	15412 scans of data (12ch HI Cell inc Time & Date)
	Data Backup:	10 years without primary power
	Logger Timing:	Real-time clock, non-volatile operation 10 year count without primary power
	Scanning Intervals:	5 min, 10 min, 30 min, 1 hour, 6 hour, 12 hour 5 min Event Mode scanning for 1, 2 or 3 days, Auto-reset
Data:	Data Format:	Data (mV units), Time, Date
	Data Separator:	Tab separated columns, text format
	Data Recovery:	via USB Memory Device, 4Gb maximum
External Interface:	Logger Port:	USB Type A Socket with protective IP54 cover (IP67 protection option available)
	Interface Type:	USB Memory Device, 4Gb maximum
	Comms Rate:	56,800 baud, Non-transparent mode
	Instruction Set:	Custom text file created by WINDOWS Interface software

Cadeanco is continually improving its products and processes and as such, this information is subject to change without notice.

SMART[®] Cable/MPBX Logger Mode Specifications

PHYSICAL SPECIFICATIONS:

Size:	77mm diameter x 440mm long	
Weight:	2.3 kg	
Material:	304 Stainless Steel Case with Acetal end-caps	
Sealing:	IP54	
Temperature:	Operating temperature	-20°C to +55°C
	Storage temperature	-25°C to +70°C

ELECTRICAL SPECIFICATIONS:

Power:	Internal Battery:	Custom Ni-MH battery pack, 7.2V, 800mAh
	Charging:	Recharge via Model 4020 Charger Connection through external USB socket
Data Logging:	Input Channels:	Up to a maximum of 3
	Storage Capacity:	12186 scans of data (1 instrument inc Time & Date)
	Data Backup:	10 years without primary power
	Logger Timing:	Real-time clock, non-volatile operation 10 year count without primary power
	Scanning Intervals:	5 min, 10 min, 30 min, 1 hour, 6 hour, 12 hour 5 min Event Mode scanning for 1, 2 or 3 days, Auto-reset
Data:	Data Format:	Data (volt units), Time, Date
	Data Separator:	Tab separated columns, text format
	Data Recovery:	via USB Memory Device, 4Gb maximum
External Interface:	Logger Port:	USB Type A Socket with protective IP54 cover (IP67 protection option available)
	Interface Type:	USB Memory Device, 4Gb maximum
	Comms Rate:	56,800 baud, Non-transparent mode
	Instruction Set:	Custom text file created by WINDOWS Interface software

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RWE Logger Mode Specifications

PHYSICAL SPECIFICATIONS:

Size:	77mm diameter x 440mm long	
Weight:	2.3 kg	
Material:	304 Stainless Steel Case with Acetal end-caps	
Sealing:	IP54	
Temperature:	Operating temperature	-20°C to +55°C
	Storage temperature	-25°C to +70°C

ELECTRICAL SPECIFICATIONS:

Power:	Internal Battery:	Custom Ni-MH battery pack, 7.2V, 800mAh
	Charging:	Recharge via Model 4020 Charger Connection through external USB socket
Data Logging:	Input Channels:	Up to a maximum of 8
	Storage Capacity:	22781 scans of data (8 x RWE inc Time & Date)
	Data Backup:	10 years without primary power
	Logger Timing:	Real-time clock, non-volatile operation 10 year count without primary power
	Scanning Intervals:	5 min, 10 min, 30 min, 1 hour, 6 hour, 12 hour 5 min Event Mode scanning for 1, 2 or 3 days, Auto-reset
Data:	Data Format:	Data (mV units), Time, Date
	Data Separator:	Tab separated columns, text format
	Data Recovery:	via USB Memory Device, 4Gb maximum
External Interface:	Logger Port:	USB Type A Socket with protective IP54 cover (IP67 protection option available)
	Interface Type:	USB Memory Device, 4Gb maximum
	Comms Rate:	56,800 baud, Non-transparent mode
	Instruction Set:	Custom text file created by WINDOWS Interface software

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COMEX Logger Mode Specifications

PHYSICAL SPECIFICATIONS:

Size:	77mm diameter x 440mm long	
Weight:	2.3 kg	
Material:	304 Stainless Steel Case with Acetal end-caps	
Sealing:	IP54	
Temperature:	Operating temperature	-20°C to +55°C
	Storage temperature	-25°C to +70°C

ELECTRICAL SPECIFICATIONS:

Power:	Internal Battery:	Custom Ni-MH battery pack, 7.2V, 800mAh
	Charging:	Recharge via Model 4020 Charger Connection through external USB socket
Data Logging:	Input Channels:	Up to a maximum of 5 RWEs, 1 SMART Cable
	Storage Capacity:	16898 scans of data (5 x RWE, 1 x SMART® Cable/MPBX inc Time & Date)
	Data Backup:	10 years without primary power
	Logger Timing:	Real-time clock, non-volatile operation 10 year count without primary power
	Scanning Intervals:	5 min, 10 min, 30 min, 1 hour, 6 hour, 12 hour 5 min Event Mode scanning for 1, 2 or 3 days, Auto-reset
Data:	Data Format:	Data (mV & Volt units), Time, Date
	Data Separator:	Tab separated columns, text format
	Data Recovery:	via USB Memory Device, 4Gb maximum
External Interface:	Logger Port:	USB Type A Socket with protective IP54 cover (IP67 protection option available)
	Interface Type:	USB Memory Device, 4Gb maximum
	Comms Rate:	56,800 baud, Non-transparent mode
	Instruction Set:	Custom text file created by WINDOWS Interface software

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TOP Logger Accessories & Options

ACCESORIES:

Standard:	Supplied with logger:	USB Memory Device, 4Gb Stainless steel mounting brackets (2) Silicon grease 4mm T-Handle Model 4040 Windows® USB Memory Device Software
Optional:	Order individually:	Model 4011 RWE Termination Cap Model 4012 HIC Termination Cap Model 4013 SMART Termination Cap Model 4014 COMEX Termination Cap Model 4020 Portable Charger (including universal AC plug pack) Model 4030 Remote Access Module Model 4070 Protection Tube

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SOFTWARE INTERFACE MANUAL

TOP Logger Interface

Version X1.10

The TOP Logger Interface is a graphical user application designed to create and save a set of instruction files on a USB Memory device. When the memory device is inserted into the USB socket of TOP Logger, these instruction files are read and executed by the control system of TOP Logger. The operator can select from a list of basic instructions to recover stored data or customize the operating mode of the logger.

The application is a stand-alone executable created with the National Instruments Corporation LabVIEW® program development system. The installation of this software on any computer will confirm your acceptance of the Software Licence Agreement contained in the **ReadMe.pdf** file accompanying this release kit.

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Computer System Requirements

The TOP Logger Interface application utilises the Windows® operating system. The interface screen has been designed for a 1280 x 768 resolution screen using 256 colours and different settings will result in loss of screen detail.

MINIMUM SYSTEM

80486-based PC
 1280 x 768 Monitor using 256 colours
 Minimum 8MB of RAM (16MB or more recommended)
 CD ROM Drive for software installation
 A mouse or other pointing device

Installing the Software

INSTALLATION

1. The TOP Logger Interface application is distributed on an installation CD. Insert the CD and double-click on the <setup.exe> file to begin
2. Change the path, if necessary, to point to the folder where you require the software to be installed. Click **Next** to complete each stage of the installation.
3. The software installer will automatically recognize that an earlier version of the application is installed. Run the <setup.exe> file to upgrade or re-install the application and support files.
4. The application may also be installed from CD files copied to an appropriate HDD folder.

INSTALLED FILES

The installer will create the following primary files in the folder specified by the user:-

TOPX110.exe	The software application for USB Loggers
TOPBLX110.exe	Utility to estimate logger battery life
File Merge.exe	Utility to merge TOP Logger data files
TOPX110.ini	LabVIEW configuration file
USB Operating Manual.pdf	Operating Manual for USB Loggers
USB ReadMe.pdf	Warranty, disclaimer and installation information

REMOVING THE APPLICATION

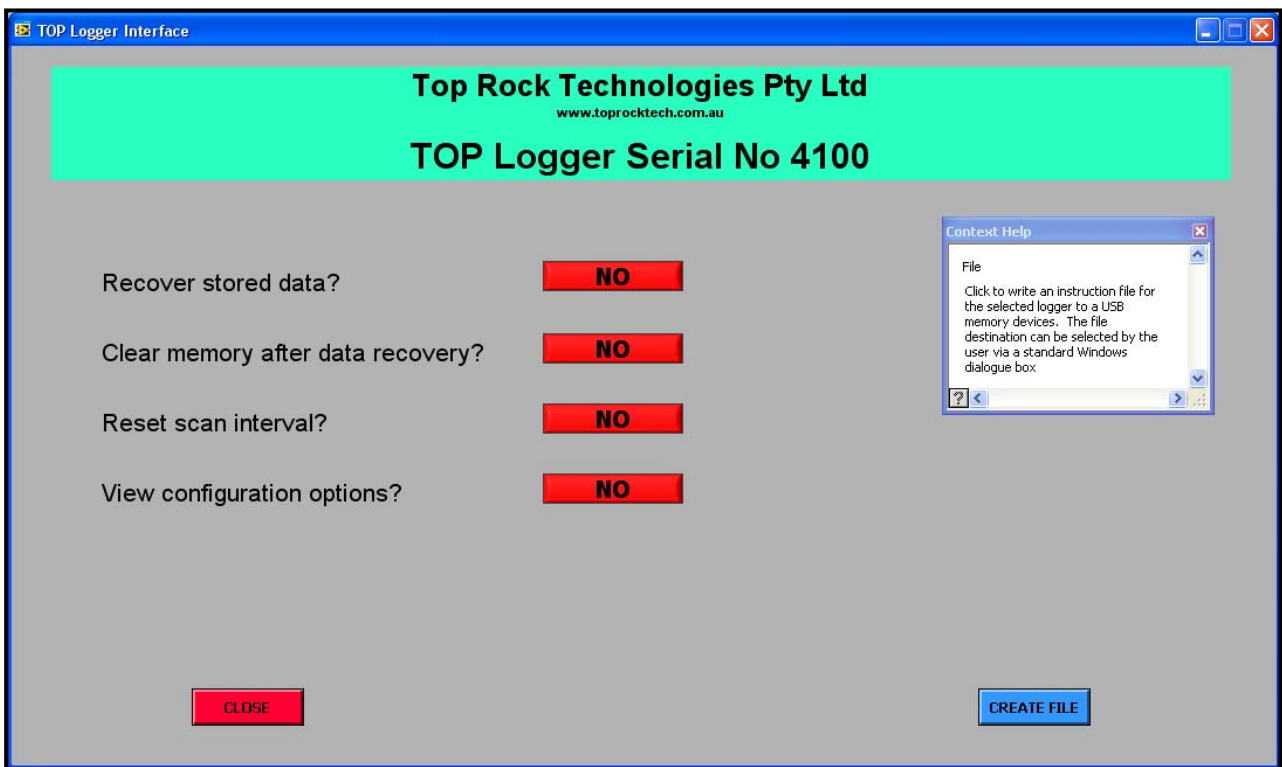
The application must be removed via the [Control Panel/Add or Removes Programs] function of the Windows® operating system.

Getting Started

OPERATING THE SOFTWARE

The software is configured to run automatically when loaded. Alternatively it can be started manually by clicking with the left mouse button on the [RUN] Arrow [\Rightarrow] in the toolbar. Once the application is running, it must be terminated via the available [CANCEL] or [CLOSE] buttons to ensure that the application completes saving all default values prior to shutting down.

The software is operated by moving the screen pointer over the required screen function and activating the selection by clicking with the left mouse button. On-line HELP is available at all times by pressing [CTRL-H] and moving the pointer over the screen components. A brief description of the component function will appear in the HELP window.



Interface Functions



[Enter New Serial No] DIALOGUE SCREEN

This screen will only appear when the interface does not have any stored logger information in its default list. Type in a new 4-digit serial number found on the logger case or with accompanying documentation. The data box will not normally appear during routine interface operations unless all stored serial numbers are deleted from the default list.

APPLICATION NOTE 1: This 4-digit number is used to create unique instruction files that will only be read and implemented by a logger with the same serial number. Multiple instruction files may be stored on the same USB memory device for convenience. Ensure that the serial number is entered correctly for proper operation with your specific logger.

APPLICATION NOTE 2: Entering [0000] will generate a global file that can be read by all TOP Loggers. Access to the configuration command options are inhibited as they cannot be used as global functions.

[ENTER] BUTTON

Select this option by clicking with the left mouse button to save the new serial number to the default file. This button will not appear until exactly 4 digits are entered/

[CANCEL] BUTTON

Select this option by clicking with the left mouse button to exit without saving any data to the default file.



[Select Logger Serial No] MENU OPTION

This menu selection displays the current stored list of logger serial numbers. Expand the list by clicking on the ▼ arrow with the left mouse button.

[SELECT] BUTTON

Select this option by clicking with the left mouse button to view available logger instructions and default data for the selected logger.

[CANCEL] BUTTON

Select this option by clicking with the left mouse button to exit without saving any data to the default file.

[ADD NEW NUMBER] BUTTON


Select this option by clicking with the left mouse button to open a dialogue data entry box to add a new serial number to the default list. All logger instruction commands are initially set to <NO> for new serial numbers. Click on the [CANCEL] or [ENTER] buttons to close the dialogue box and return to the main screen.



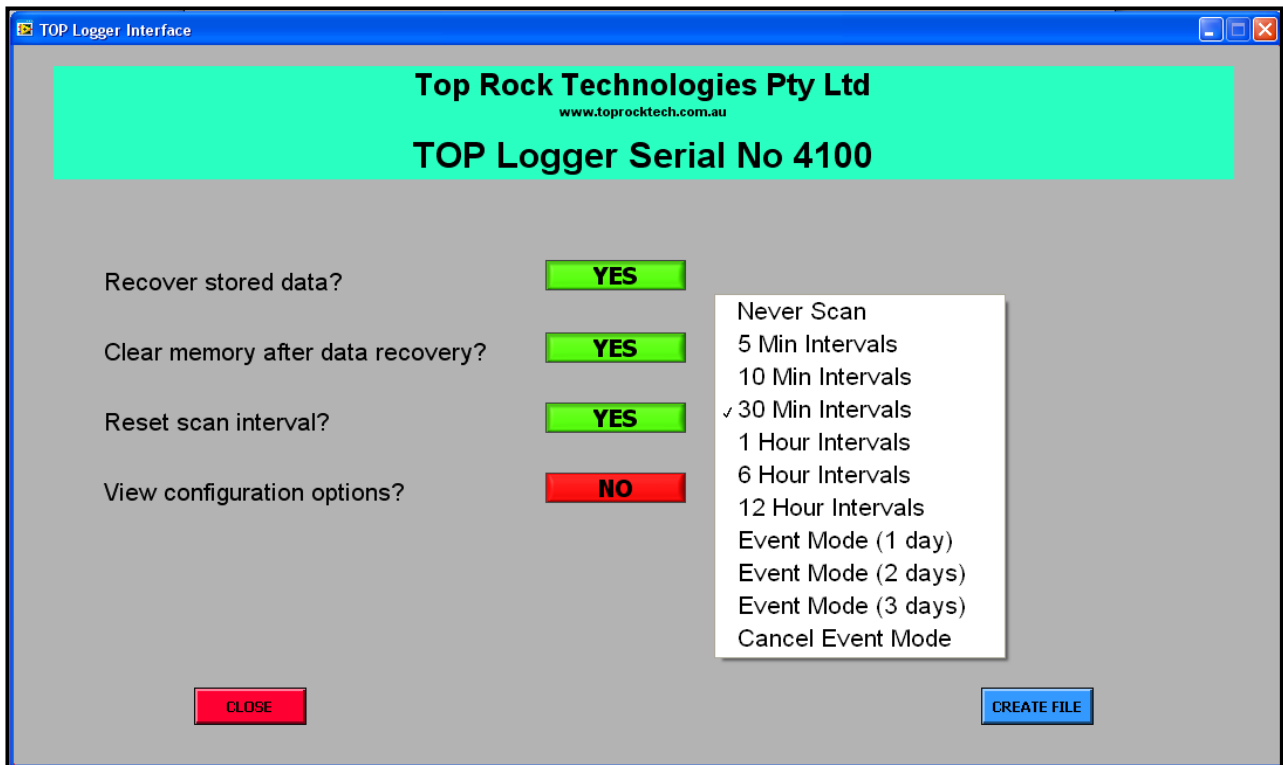
The screenshot shows a grey dialog box with the title "Enter New Serial No". In the center, the number "4100" is displayed in a white box. Below the number, the text "Serial No must be 4 digits" is shown. At the bottom of the dialog, there are two buttons: a red "CANCEL" button on the left and a blue "ENTER" button on the right.

[DELETE DISPLAYED NUMBER] BUTTON

Select this option by clicking with the left mouse button to remove the selected serial number from the default list. The delete command must be confirmed before it is carried out. Click on the [CANCEL] or [ENTER] buttons to close the dialogue box and return to the main screen.



The screenshot shows a grey dialog box with the title "Confirm Delete?". At the bottom of the dialog, there are two buttons: a red "CANCEL" button on the left and a blue "YES" button on the right.



[Recover stored data?] OPTION

Click on the [NO/YES] selector to instruct the logger to copy data stored in the logger memory onto the USB Memory device. The data file will be given a unique filename based on the logger serial number and time of transfer.

APPLICATION NOTE: By default, stored data will remain in the logger memory after this instruction is implemented. The logger memory can only be cleared by implementing the [Clear memory after data recovery?] option.

[Clear memory after data recovery?] OPTION

Click on the [NO/YES] selector to instruct the logger to clear all stored data once it is successfully transferred to the USB memory device. Setting this option to [NO] will leave data in the logger memory.

APPLICATION NOTE: The logger memory is large enough to hold many scans of data depending on logger configuration mode. Leaving data in the logger memory means that this old data will be transferred every time the logger memory is read. This will impact on the time taken to transfer data and logger battery life. The user will also have to manage old data included with the data file.

[Reset scan interval?] OPTION

Click on the [NO/YES] selector to see available options for recording data.

APPLICATION NOTE 1: Changes to the scan interval are implemented immediately the new instruction is received by the Top Logger.

APPLICATION NOTE 2: The [Event Mode (*n* days)] scanning option will instruct the logger to immediately beginning scanning at 5 minute intervals. This rate will be maintained for 1, 2 or 3 full days, as selected, to capture data associated with specific events.

The logger will automatically reset to the scanning rate that was originally operating before Event Mode scanning was implemented. The automatic scan rate reset will take place at 2400 on the day following the implementation of Event Mode scanning.

eg. Event Mode (1 day) started at 0800 on 3/4/10, scanning will be reset at 2400 on 4/4/10

Event Mode (2 day) started at 1300 on 3/4/10, scanning will be reset at 2400 on 5/4/10

Event Mode (3 day) started at 1700 on 3/4/10, scanning will be reset at 2400 on 6/4/10

APPLICATION NOTE 3: Event Mode scanning can be cancelled at any time by implementing the [Cancel Event Mode] instruction.

The user should consider the availability of logger memory and power to ensure that the Event Mode cycle can be completed successfully.

[View configuration options?] OPTION

Click on the [NO/YES] selector to expand the menu to show configuration options for the logger.

APPLICATION NOTE 1: In general, these expanded options will be used to initially setup the logger for a particular application. Care should be taken when using these options to ensure the logger is set correctly for the connected instruments and logging requirements.

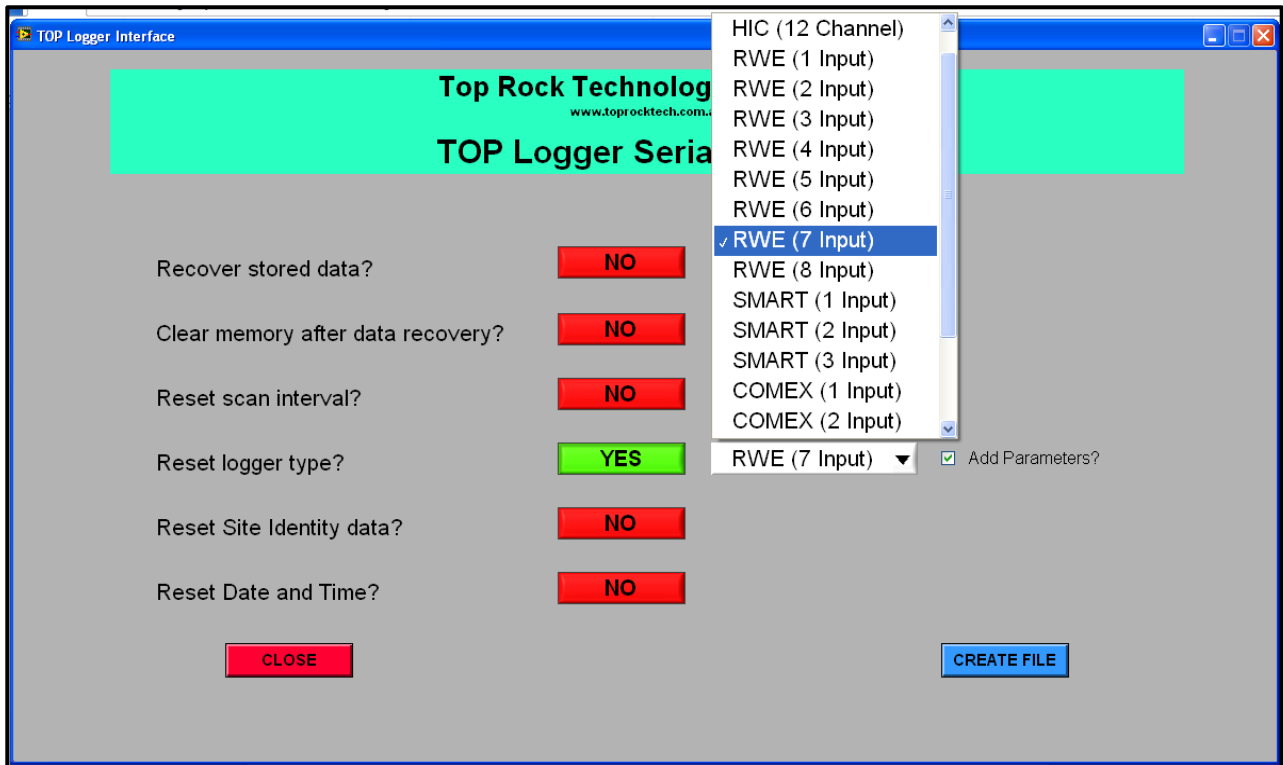
APPLICATION NOTE 2: When any of the configuration options are selected, a second instruction file is generated. Once this second file is read by its designated Top Logger, it is automatically deleted to avoid accidental implementation of the configuration instruction set during subsequent use of the USB memory device.

[CREATE FILE] BUTTON

Click on this button to open a Window File Dialogue box to save the instruction file.

[CLOSE] BUTTON

Select this option by clicking with the left mouse button to exit without saving any data to the default file.



[Reset logger type?] OPTION

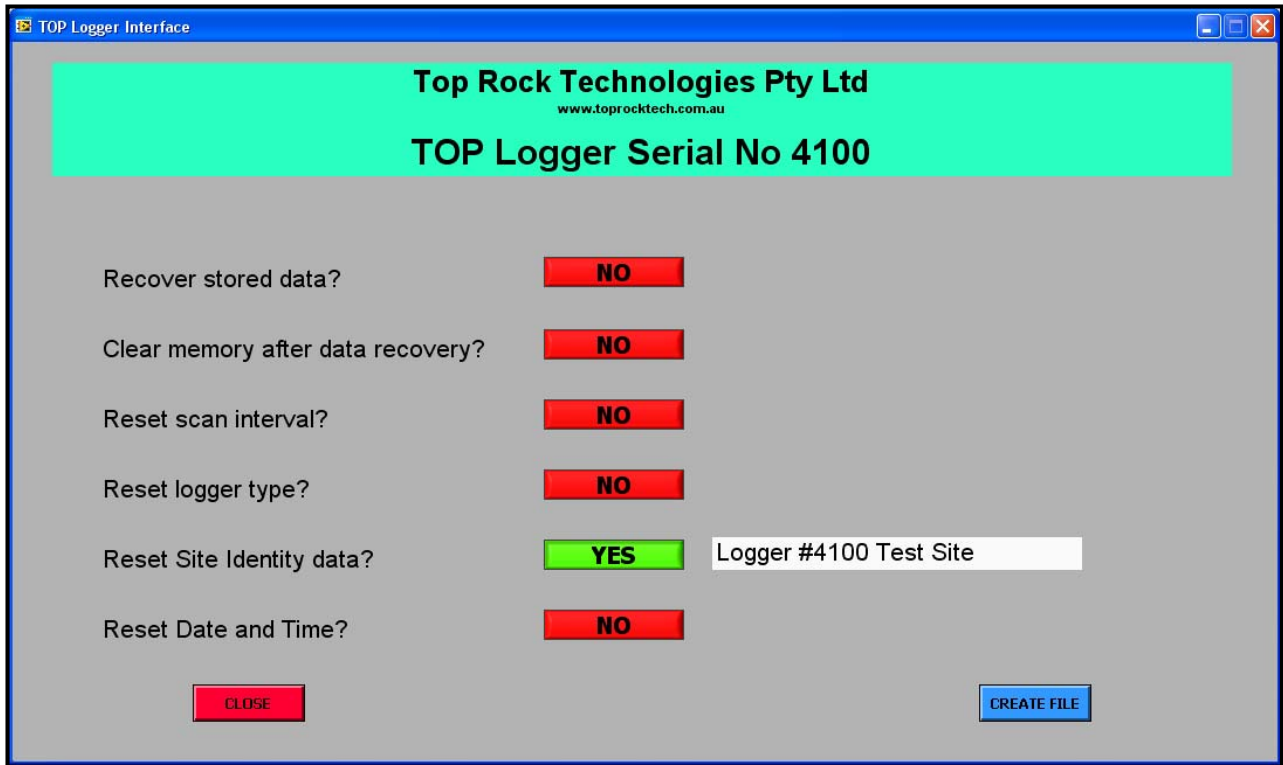
Click on the [NO/YES] selector to see available options for configuring the logger.

The available drop down menu lists all available options currently implemented in the logger firmware. The option chosen will depend on the instrument configuration to be monitored and the logger termination options purchased.

See more information on the Top Logger hardware termination options on Pages 4 – 6 and Pages 9 – 12 of the Logger Operating Manual

[Add Parameters?] OPTION

Check the selector box to instruct the logger to include the internal logger temperature and battery voltage level parameters with every logger scan. Recording logger parameters will reduce the available number of scans by approximately 3% and the number of available scans will be adjusted automatically depending on the logger operating mode.



[Reset Site Identity data?] OPTION

Click on the [NO/YES] selector to open a text data box.

This option allows the logger to be assigned a local site identity that will be included with data recovered from the logger for easier identification. The site identity description must be limited to 25 characters and longer entries will be truncated.

The site identity can be updated at any time by implementing this instruction with new data entered into the text entry box.

TOP Logger Interface

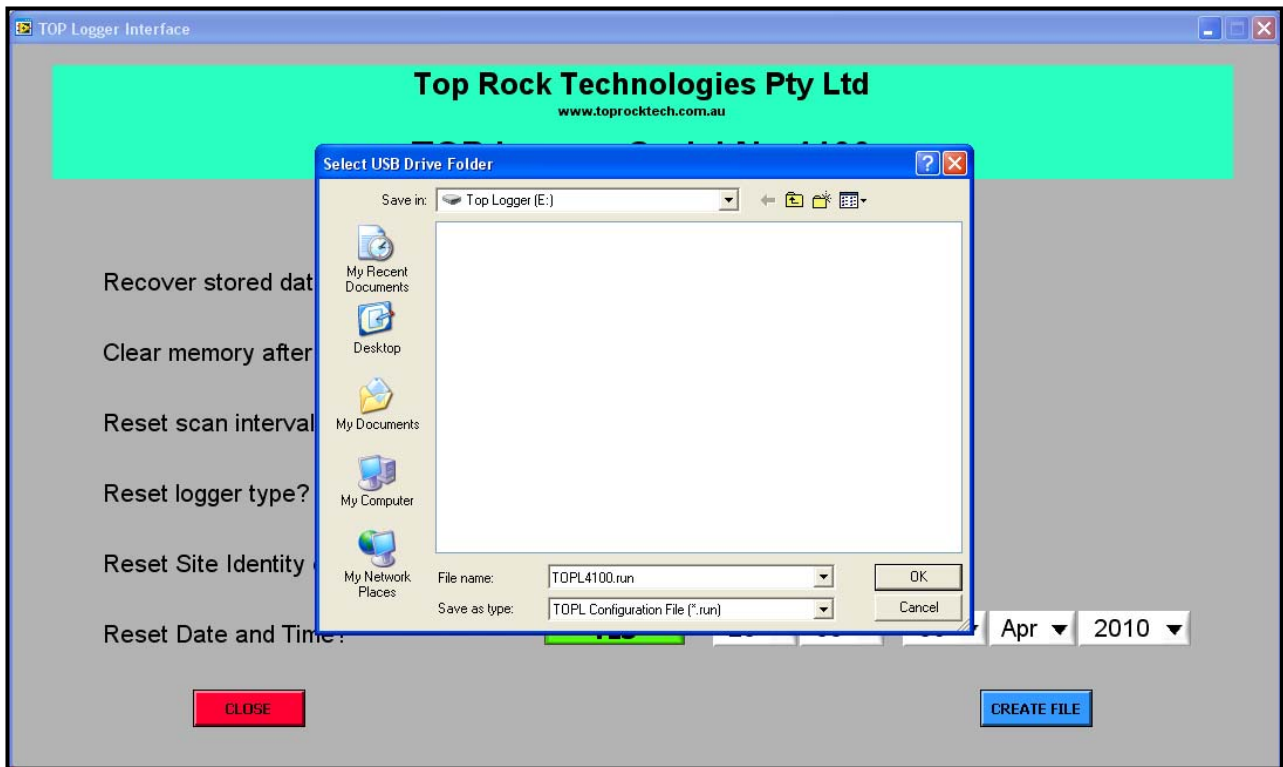
Top Rock Technologies Pty Ltd
www.toprocktech.com.au
TOP Logger Serial No 4100

Recover stored data?	<input type="button" value="NO"/>
Clear memory after data recovery?	<input type="button" value="NO"/>
Reset scan interval?	<input type="button" value="NO"/>
Reset logger type?	<input type="button" value="NO"/>
Reset Site Identity data?	<input type="button" value="NO"/>
Reset Date and Time?	<input type="button" value="YES"/> 20 ▾ 00 ▾ 06 ▾ Apr ▾ 2010 ▾

[Reset Date and Time?] OPTION

Click on the [NO/YES] selector to show time and date selection boxes.

APPLICATION NOTE: The logger internal clock will be reset to match the displayed time and date parameters immediately the USB memory device is inserted into the logger USB port. Set a suitable time and date far enough ahead to allow the logger to be reset to correctly match the local time zone so that recorded events can be accurately evaluated.



[Select USB Drive Folder] OPTION

Select the destination drive for the logger instruction file(s).

Instruction files for multiple loggers can be created and stored into the same root directory and a single USB memory device may be used for all loggers. A Top Logger will only respond to an instruction file name matching its own preset format and will ignore instruction files created for loggers with other serial numbers.

APPLICATION NOTE 1: The file must be stored in the root drive of the USB memory device as this is the default location for all Top Loggers to search for their own instruction file.

APPLICATION NOTE 2: When any of the configuration options are selected, a second instruction file is generated. Once this second file is read by its designated Top Logger, it is automatically deleted to avoid accidental implementation of the configuration instruction set during subsequent use of the USB memory device.

APPLICATION NOTE 3: Do not edit the <TOPL****.run> or <TOPL****.set> file name formats that are automatically generated for recognition by the specified logger.

Overcoring Mode Operation

TOP Logger Interface

Top Rock Technologies Pty Ltd
www.toprocktech.com.au

TOP Logger Serial No 4110

Recover stored data?	<input type="button" value="NO"/>	Unavailable in Overcoring Mode
Clear memory after data recovery?	<input type="button" value="NO"/>	Unavailable in Overcoring Mode
Reset scan interval?	<input type="button" value="NO"/>	Unavailable in Overcoring Mode
Reset logger type?	<input type="button" value="YES"/>	Overcoring Mode ▼
Reset Site Identity data?	<input type="button" value="YES"/>	Enter new Site ID to create file!
Reset Date and Time?	<input type="button" value="YES"/>	20 ▼ 00 ▼ 06 ▼ Apr ▼ 2011 ▼

OPERATING MODE

The TOP Logger can be configured to record data from a HI Cell during an overcoring test. In this mode, the logger will start to record cell data at 30-sec intervals as soon as the USB memory device is inserted into the logger. The logger memory is cleared and the logger will record data for up to 6 hours, after which time it will automatically stop.

Inserting the USB memory device into the logger a second time will stop the logger recording data. The recorded data is retained in the logger memory and can be recovered multiple times if necessary.

[Reset logger type?] OPTION

Choose the Overcoring Mode option to automatically configure the logger.

[Reset Site Identity data?] OPTION

A unique Site Identity tag must be entered before files can be created on the USB memory device. The default prompt message must be replaced by the user site identity. The site identity description must be limited to 25 characters and longer entries will be truncated.

APPLICATION NOTE: The site identity option cannot be disabled in Overcoring Mode.

[Reset Date and Time?] OPTION

Click on the [NO/YES] selector to show time and date selection boxes.

APPLICATION NOTE: The logger internal clock will be reset to match the displayed time and date parameters immediately the USB memory device is inserted into the logger USB port. Set a suitable time and date far enough ahead to allow the logger to be reset to correctly match the local time zone so that recorded events can be accurately evaluated.

HIC Data File Format

```

TOP-Logger 4100 OK, (Version: 1.10)
Date: 02/04/2010
Time: 12:05:44
Site: Top Rock Testing
Mode: 9 Gauge HI Cell
Scans stored: 10
Scans free: 3836
Scan interval: 6 Hour
Logger Temperature: 26.4 deg C
Remaining Battery: <90%
Sensor Range: +/- 32.767 mV

```

CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	CH 9	Therm	Excv	Time	Date
0.476	0.082	0.925	2.344	1.639	0.606	-0.518	0.472	-0.659	21.2	2.000	06:00:00	31/03/2010
0.478	0.083	0.926	2.346	1.640	0.608	-0.518	0.474	-0.657	21.2	2.000	12:00:00	31/03/2010
0.480	0.085	0.927	2.347	1.641	0.609	-0.516	0.474	-0.655	21.2	2.000	18:00:00	31/03/2010
0.480	0.085	0.927	2.348	1.642	0.609	-0.515	0.476	-0.654	21.2	2.000	00:00:00	01/04/2010
0.479	0.083	0.926	2.347	1.641	0.608	-0.515	0.475	-0.655	21.2	2.000	06:00:00	01/04/2010
0.479	0.084	0.927	2.347	1.641	0.609	-0.516	0.476	-0.655	21.2	2.000	12:00:00	01/04/2010
0.478	0.084	0.927	2.347	1.640	0.607	-0.516	0.475	-0.655	21.2	2.000	18:00:00	01/04/2010
0.479	0.085	0.927	2.347	1.641	0.609	-0.516	0.475	-0.654	21.2	2.000	00:00:00	02/04/2010
0.478	0.083	0.925	2.346	1.639	0.608	-0.518	0.474	-0.657	21.2	2.000	06:00:00	02/04/2010
0.478	0.083	0.927	2.346	1.641	0.609	-0.516	0.475	-0.655	21.2	2.000	12:00:00	02/04/2010

Upload OK

The HI Cell data file header contains the following information:-

- a) Logger identification header
- b) Data recovery date
- c) Data recovery time
- d) System site identification information
- e) Logger configuration mode
- f) Number of scans stored and uploaded
- g) Number of available scans left in memory
- h) Current scan interval
- i) Internal temperature of the logger
- j) Estimated life remaining in logger battery
- k) Sensor range
- l) A channel identification header

The data for each scan is recorded as follows:-

- a) The data from connected sensors in (mV) units.
- b) The temperature of the cell thermistor in (°C) units.
- c) The cell excitation voltage in (Volt) units.
- d) The time and date that the scan occurred.
- e) Over/Under-range measurements will record a full-scale reading of 32.000mV.
- f) All data scans use tab separation between columns for easy conversion to spreadsheet applications.

SMART[®] Cable/MPBX Data File Format

```

TOP-Logger 4100 OK, (Version: 1.10)
Date: 02/04/2010
Time: 12:05:44
Site: Top Rock Testing
Mode: 06 Smart Cable Channels
Scans stored: 10
Scans free: 7256
Scan interval: 6 Hour
Logger Temperature: 26.4 deg C
Remaining Battery: <90%
Sensor Range: 0 to +2.0000 Volts.

```

SM1-1	SM1-2	SM1-3	SM1-4	SM1-5	SM1-6	Excv	Time	Date
1.0298	1.0271	1.0201	1.0176	1.0212	1.0294	2.000	06:00:00	31/03/2010
1.0298	1.0272	1.0201	1.0176	1.0212	1.0294	2.000	12:00:00	31/03/2010
1.0299	1.0272	1.0201	1.0177	1.0212	1.0295	2.000	18:00:00	31/03/2010
1.0299	1.0272	1.0201	1.0177	1.0212	1.0295	2.000	00:00:00	01/04/2010
1.0299	1.0272	1.0201	1.0177	1.0212	1.0295	2.000	06:00:00	01/04/2010
1.0299	1.0272	1.0201	1.0177	1.0212	1.0295	2.000	12:00:00	01/04/2010
1.0299	1.0272	1.0201	1.0177	1.0212	1.0295	2.000	18:00:00	01/04/2010
1.0300	1.0272	1.0202	1.0177	1.0213	1.0295	2.000	00:00:00	02/04/2010
1.0300	1.0272	1.0201	1.0177	1.0212	1.0295	2.000	06:00:00	02/04/2010
1.0300	1.0272	1.0201	1.0177	1.0212	1.0295	2.000	12:00:00	02/04/2010

Upload OK

The SMART Cable data file header contains the following information:-

- a) Logger identification header
- b) Data recovery date
- c) Data recovery time
- d) System site identification information
- e) Logger configuration mode
- f) Number of scans stored and uploaded
- g) Number of available scans left in memory
- h) Current scan interval
- i) Internal temperature of the logger
- j) Estimated life remaining in logger battery
- k) Sensor range
- l) A channel identification header

The data for each scan is recorded as follows:-

- a) The data from connected sensors in (Volt) units.
- b) The cell excitation voltage in (Volt) units.
- c) The time and date that the scan occurred.
- d) Over/Under-range measurements will record a full-scale reading of 2.0000 volts.
- e) All data scans use tab separation between columns for easy conversion to spreadsheet applications.

RWE Data File Format

```

TOP-Logger 4100 OK, (Version: 1.10)
Date: 02/04/2010
Time: 12:05:44
Site: Top Rock Testing
Mode: 8 Resistance Wire Extensometers
Scans stored: 10
Scans free: 5676
Scan interval: 6 Hour
Logger Temperature: 26.4 deg C
Remaining Battery: <90%
RWE Low Range: +/- 32.000 mV, High Range: +/-310.00 mV.

```

CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Time	Date
-0.747	-0.075	0.004	-0.449	-0.266	-0.212	-0.992	-0.387	06:00:00	31/03/2010
-0.747	-0.075	0.003	-0.450	-0.268	-0.212	-0.993	-0.387	12:00:00	31/03/2010
-0.748	-0.075	0.002	-0.450	-0.267	-0.212	-0.994	-0.387	18:00:00	31/03/2010
-0.748	-0.075	0.004	-0.449	-0.266	-0.210	-0.993	-0.385	00:00:00	01/04/2010
-0.747	-0.073	0.004	-0.450	-0.265	-0.210	-0.992	-0.382	06:00:00	01/04/2010
-0.749	-0.075	0.003	-0.451	-0.267	-0.210	-0.993	-0.382	12:00:00	01/04/2010
-0.749	-0.075	0.003	-0.450	-0.266	-0.210	-0.992	-0.380	18:00:00	01/04/2010
-0.749	-0.074	0.003	-0.450	-0.266	-0.209	-0.993	-0.379	00:00:00	02/04/2010
-0.750	-0.075	0.003	-0.451	-0.265	-0.208	-0.993	-0.378	06:00:00	02/04/2010
-0.750	-0.075	0.002	-0.451	-0.266	-0.208	-0.992	-0.377	12:00:00	02/04/2010

Upload OK

The RWE data file header contains the following information:-

- a) Logger identification header
- b) Data recovery date
- c) Data recovery time
- d) System site identification information
- e) Logger configuration mode
- f) Number of scans stored and uploaded
- g) Number of available scans left in memory
- h) Current scan interval
- i) Internal temperature of the logger
- j) Estimated life remaining in logger battery
- k) Sensor range
- l) A channel identification header

The data for each scan is recorded as follows:-

- a) The data from connected sensors in (mV) units.
- b) The time and date that the scan occurred.
- c) Over/Under-range measurements will record a full-scale reading of 310mV.
- d) All data scans use tab separation between columns for easy conversion to spread sheet applications.

COMEX Data File Format

```

TOP-Logger 4100 OK, (Version: 1.10)
Date: 02/04/2010
Time: 12:05:44
Site: Top Rock Testing
Mode: 5 RWE Extos & 6 Smart Cable Channels
Scans stored: 10
Scans free: 4202
Scan interval: 6 Hour
Logger Temperature: 26.4 deg C
Remaining Battery: <90%
RWE: +/-32.000 mV, +/-310.00 mV; Smart Sensor: 0 to +2.0000 Volts

  CH 1   CH 2   CH 3   CH 4   CH 5   SM1-1  SM1-2  SM1-3   SM1-4   SM1-5   SM1-6
Excvt   Time           Date
-0.747 -0.074  0.004 -0.449 -0.014  0.0704  0.1718  0.4400   0.6725   1.1156  1.9965
2.002   06:00:00    31/03/2010
-0.747 -0.074  0.005 -0.449 -0.015  0.0704  0.1718  0.4400   0.6725   1.1156  1.9965
2.002   12:00:00    31/03/2010
-0.748 -0.075  0.004 -0.449 -0.016  0.0705  0.1718  0.4400   0.6725   1.1156  1.9966
2.002   18:00:00    31/03/2010
-0.748 -0.074  0.004 -0.450 -0.016  0.0705  0.1719  0.4401   0.6725   1.1156  1.9966
2.002   00:00:00    01/04/2010
-0.748 -0.074  0.005 -0.449 -0.015  0.0705  0.1719  0.4400   0.6725   1.1157  1.9967
2.002   06:00:00    01/04/2010
-0.747 -0.073  0.006 -0.448 -0.014  0.0705  0.1719  0.4400   0.6725   1.1157  1.9967
2.002   12:00:00    01/04/2010
-0.747 -0.074  0.005 -0.449 -0.014  0.0705  0.1719  0.4400   0.6725   1.1157  1.9967
2.002   18:00:00    01/04/2010
-0.747 -0.073  0.005 -0.449 -0.016  0.0705  0.1719  0.4400   0.6726   1.1157  1.9968
2.002   00:00:00    02/04/2010
-0.746 -0.073  0.005 -0.448 -0.014  0.0704  0.1719  0.4400   0.6726   1.1157  1.9967
2.002   06:00:00    02/04/2010
-0.747 -0.073  0.005 -0.448 -0.015  0.0704  0.1719  0.4400   0.6725   1.1157  1.9967
2.002   12:00:00    02/04/2010
Upload OK

```

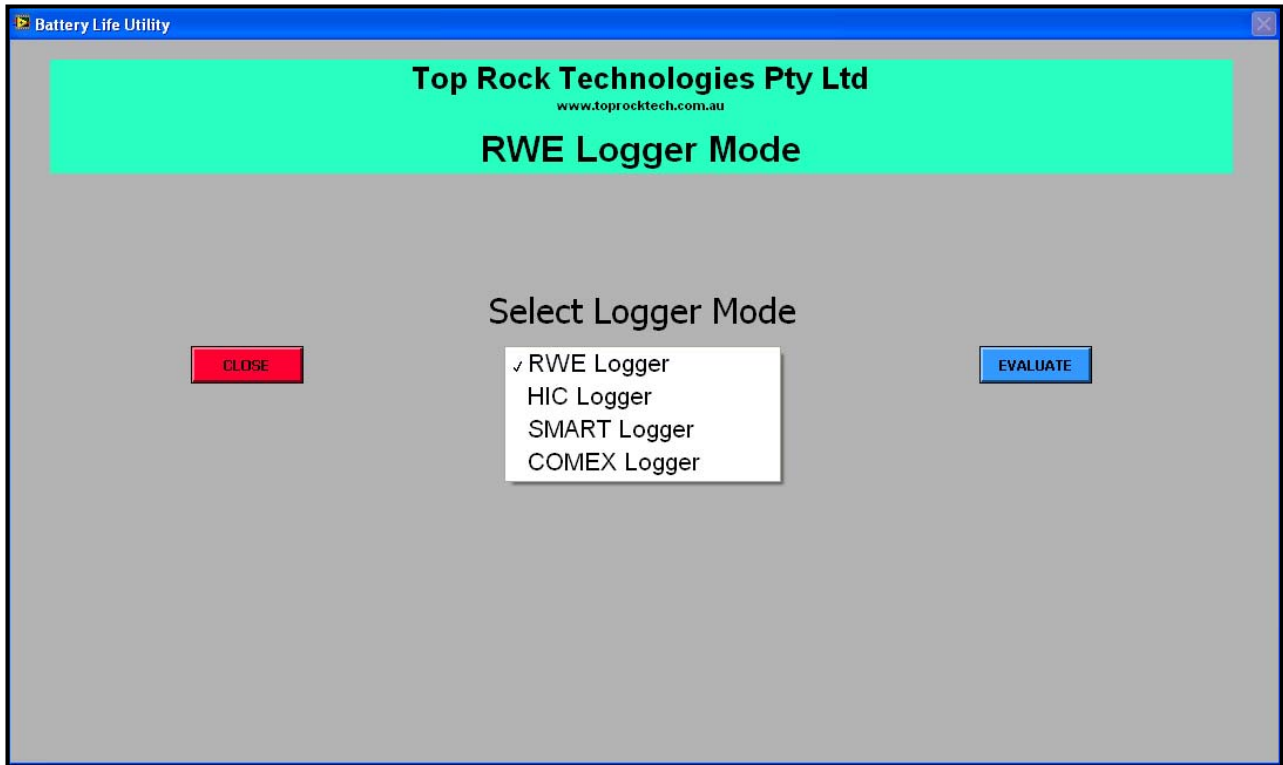
The COMEX data file header contains the following information:-

- a) Logger identification header inc firmware version
- b) Data recovery date
- c) Data recovery time
- d) System site identification information
- e) Logger configuration mode
- f) Number of scans stored and uploaded
- g) Number of available scans left in memory
- h) Current scan interval
- i) Internal temperature of the logger
- j) Estimated life remaining in logger battery
- k) Sensor range
- l) A channel identification header

The data for each scan is recorded as follows:-

- a) The data from RWE sensors in (mV) units.
- b) The data from the SMART[®] Cable sensor in (Volt) units.
- c) The SMART[®] Cable sensor excitation voltage in (Volt) units.
- d) The time and date that the scan occurred.
- e) Over/Under-range measurements on RWE sensors will record a full-scale reading of 310mV.
- f) Over/Under-range measurements on the SMART[®] Cable sensor will record a full-scale reading of 2.0000 volts.
- g) All data scans use tab separation between columns for easy conversion to spreadsheet applications.

Battery Life Utility



[Select Logger Mode] OPTION

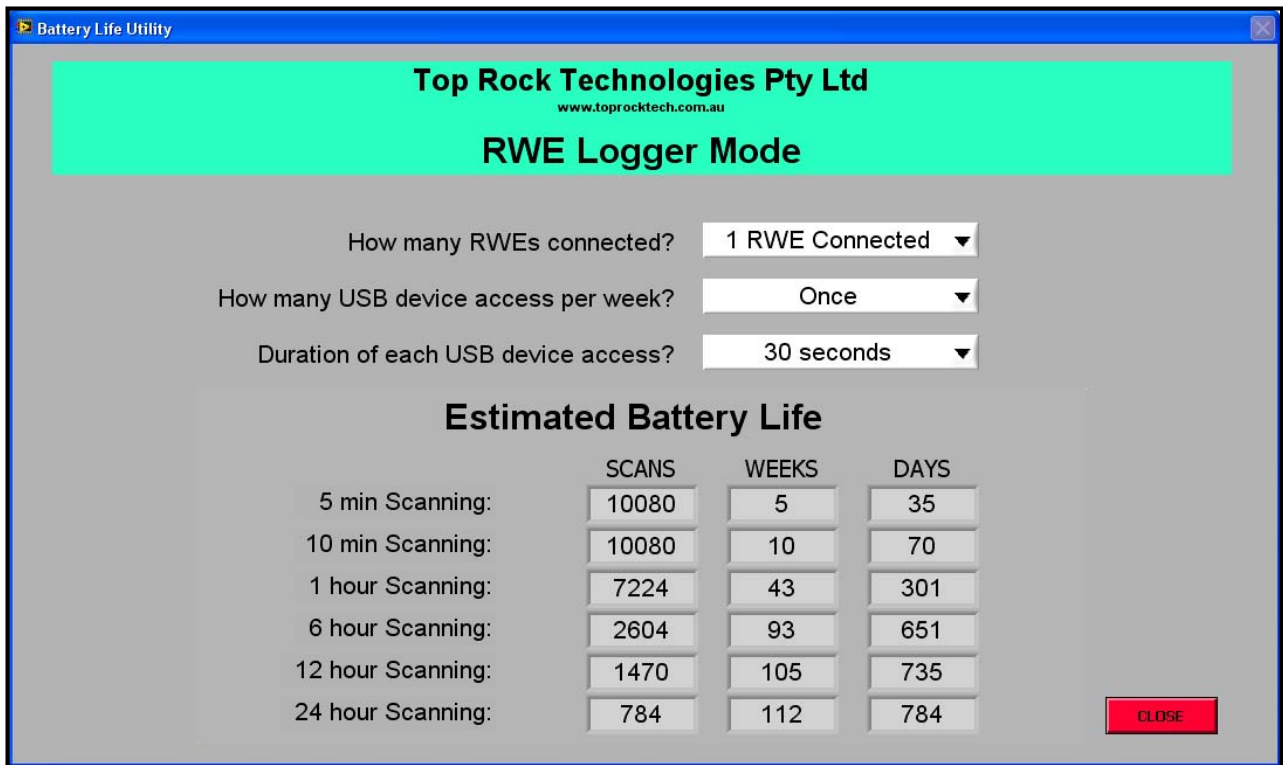
Click on the ▼ arrow with the left mouse button and select from the list of available logger modes. Each operating mode will display a different set of instrument connection options.

[EVALUATE] BUTTON

Select this option by clicking with the left mouse button to display further options for the selected logger operating mode and battery life estimates for all programmed scan rates.

[CLOSE] BUTTON

Select this option by clicking with the left mouse button to cancel the application.



[How many RWEs connected?] OPTION (Available in RWE Mode only)

Click on the ▼ arrow with the left mouse button and select from the list of available RWE connections. More connected instruments will reduce the available battery life.

[How many USB device access per week?] OPTION

Click on the ▼ arrow with the left mouse button and select from the list of weekly access times. Waking the logger to read and write to the USB device consumes power so the fewer times the logger is woken up, the longer the battery operating life.

[Duration of each USB device access?] OPTION

Click on the ▼ arrow with the left mouse button and select from the list of access duration times. The logger remains awake while the USB device is inserted into the socket and the USB device itself uses the logger battery to operate. The less time the USB device is in the socket, the longer the battery operating life.

[CLOSE] BUTTON

Select this option by clicking with the left mouse button to close the application.

Top Rock Technologies Pty Ltd
www.toprocktech.com.au

HIC Logger Mode

Which type of HI Cell? 12 Gage Cell ▼

How many USB device access per week? Once ▼

Duration of each USB device access? 30 seconds ▼

Estimated Battery Life

	SCANS	WEEKS	DAYS
5 min Scanning:	4032	2	14
10 min Scanning:	4032	4	28
1 hour Scanning:	4032	24	168
6 hour Scanning:	2044	73	511
12 hour Scanning:	1274	91	637
24 hour Scanning:	728	104	728

CLOSE

[Which type of HI Cell?] OPTION (Available in HIC Mode only)

Click on the ▼ arrow with the left mouse button and select either the 9 gage or 12 gage HI cell. More strain gages will reduce the available battery life.

[How many USB device access per week?] OPTION

Click on the ▼ arrow with the left mouse button and select from the list of weekly access times. Waking the logger to read and write to the USB device consumes power so the fewer times the logger is woken up, the longer the battery operating life.

[Duration of each USB device access?] OPTION

Click on the ▼ arrow with the left mouse button and select from the list of access duration times. The logger remains awake while the USB device is inserted into the socket and the USB device itself uses the logger battery to operate. The less time the USB device is in the socket, the longer the battery operating life.

[CLOSE] BUTTON

Select this option by clicking with the left mouse button to close the application.

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SMART Logger Mode

How many SMART Cables connected? 1 SMART Cable ▼

How many USB device access per week? Once ▼

Duration of each USB device access? 30 seconds ▼

Estimated Battery Life

	SCANS	WEEKS	DAYS
5 min Scanning:	10080	5	35
10 min Scanning:	10080	10	70
1 hour Scanning:	7392	44	308
6 hour Scanning:	2604	93	651
12 hour Scanning:	1470	105	735
24 hour Scanning:	784	112	784

CLOSE

[How many SMART Cables connected?] OPTION (Available in SMART Mode only)

Click on the ▼ arrow with the left mouse button and select from the list of available SMART cable connections. More connected cables will reduce the available battery life.

[How many USB device access per week?] OPTION

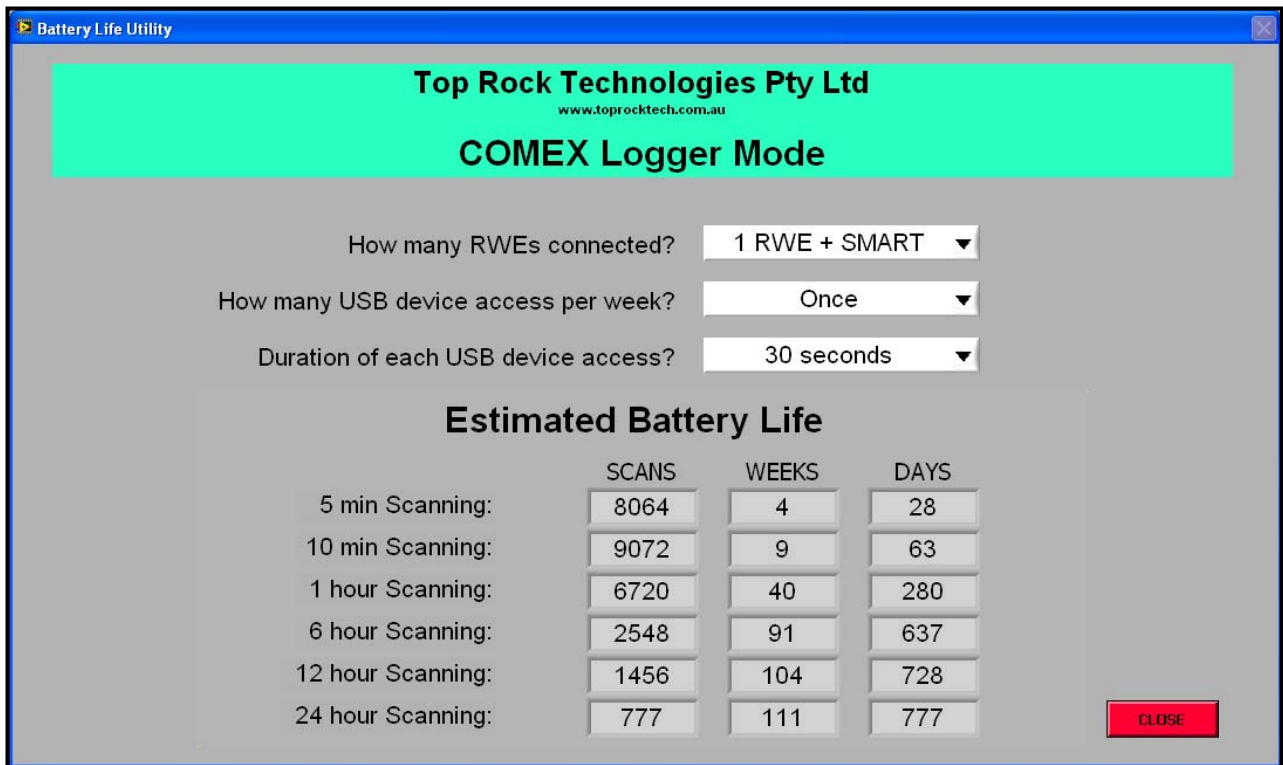
Click on the ▼ arrow with the left mouse button and select from the list of weekly access times. Waking the logger to read and write to the USB device consumes power so the fewer times the logger is woken up, the longer the battery operating life.

[Duration of each USB device access?] OPTION

Click on the ▼ arrow with the left mouse button and select from the list of access duration times. The logger remains awake while the USB device is inserted into the socket and the USB device itself uses the logger battery to operate. The less time the USB device is in the socket, the longer the battery operating life.

[CLOSE] BUTTON

Select this option by clicking with the left mouse button to close the application.



[How many RWEs connected?] OPTION (Available in COMEX Mode only)

Click on the ▼ arrow with the left mouse button and select from the list of available RWE connections. The algorithm assumes that there is always a single SMART cable instrument connected. More connected instruments will reduce the available battery life.

[How many USB device access per week?] OPTION

Click on the ▼ arrow with the left mouse button and select from the list of weekly access times. Waking the logger to read and write to the USB device consumes power so the fewer times the logger is woken up, the longer the battery operating life.

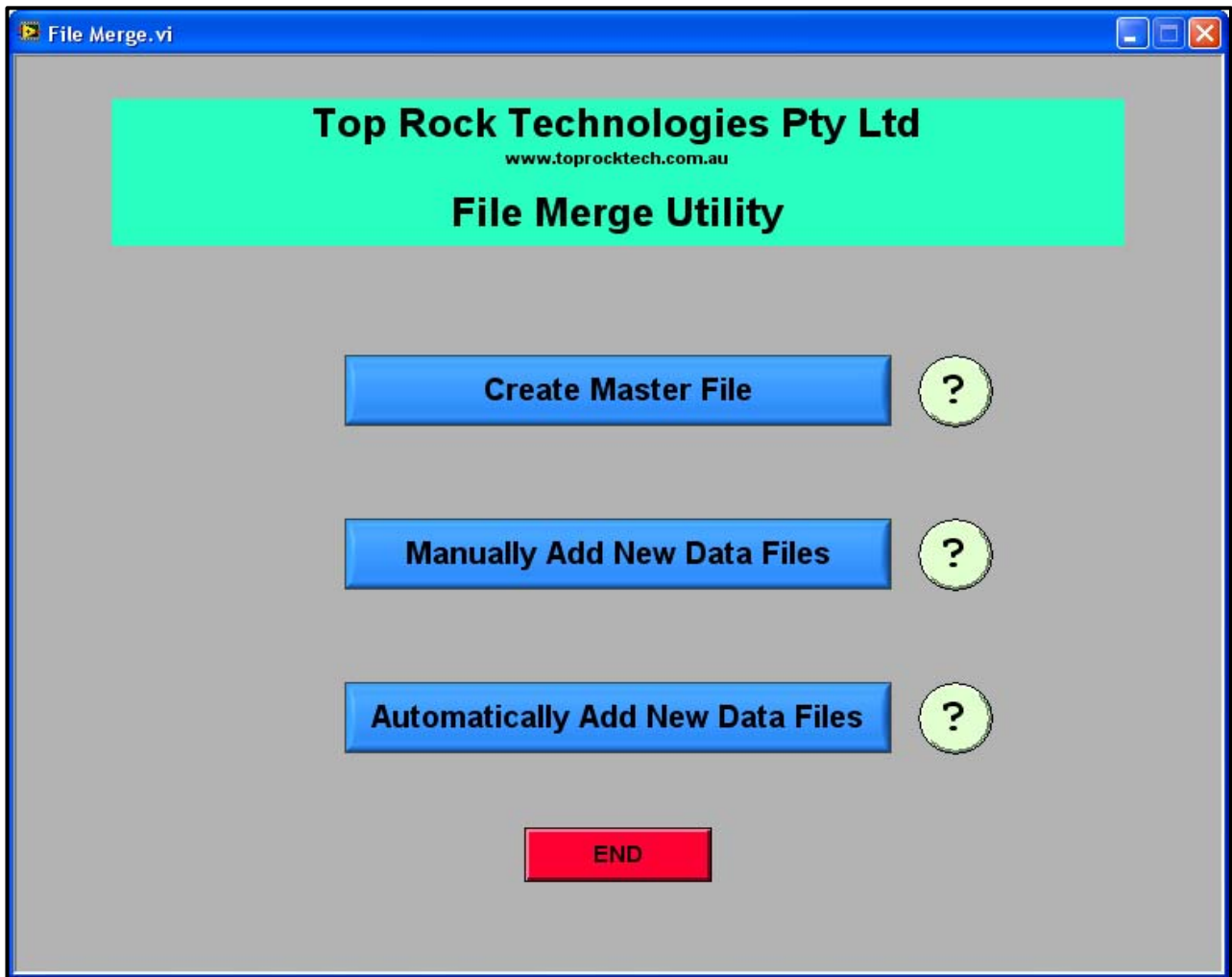
[Duration of each USB device access?] OPTION

Click on the ▼ arrow with the left mouse button and select from the list of access duration times. The logger remains awake while the USB device is inserted into the socket and the USB device itself uses the logger battery to operate. The less time the USB device is in the socket, the longer the battery operating life.

[CLOSE] BUTTON

Select this option by clicking with the left mouse button to close the application.

File Merge Utility



The File Merge utility provides options to combine TOP Logger data files into a single master file.

[Create Master File] BUTTON

Click this button to create an initial master file. This will usually be the first file recovered from any site. The header and upload information from the data file will be modified to enable additional files to be appended and the original data file will be archived to a ZIP file automatically created by the utility.

APPLICATION NOTE 1: The master file may be renamed as required however it must retain the <Msern *.txt> format to allow additional data files to be appended automatically.

APPLICATION NOTE 2: The ZIP archive file that is created by the application must retain the <Lsern Archive.zip> format originally created by the utility. Renaming or moving this file(s) from the folder containing the master file will generate errors that will prevent the utility from running.

[Manually Add New Data Files] BUTTON

Once a master file and its ZIP partner file are created, TOP Logger data files may be manually added. Both the master file and the new data file must be manually selected. Scans from the selected data file will be appended to the master file and the original data file will be moved to the archive ZIP file.

[Automatically Add New Data Files] BUTTON

For networks with large numbers of loggers, new data files may be automatically added to existing master file(s) and archived. The naming formats must be strictly enforced to allow the application to find the master and archive files.

APPLICATION NOTE 1: The master file(s), archive file(s) and data file(s) must be located in the same folder so that the application can process them automatically.

APPLICATION NOTE 2: The master file may be renamed as required however it must retain the <Msern *.txt> format to allow additional data files to be appended automatically.

APPLICATION NOTE 3: The ZIP archive file that is created by the application must retain the <Lsern Archive.zip> format originally created by the utility. Renaming or moving this files from the folder containing the master file will generate errors that will prevent the utility from running.

[END] BUTTON

Select this option to close the utility.