EL Data Recorder

56813500

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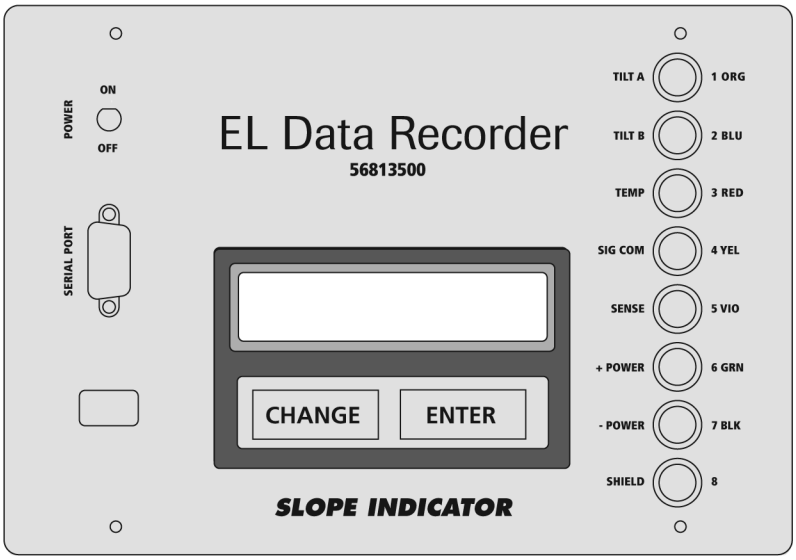
The EL Data Recorder

Introduction

The EL Data Recorder works with Slope Indicator's EL SC sensors. The EL Data Recorder Manager program, supplied on a Resource CD with the Recorder, is used to transfer readings from the Recorder to a PC.

Controls & Connectors



Power Switch

The power switch turns power on and off.

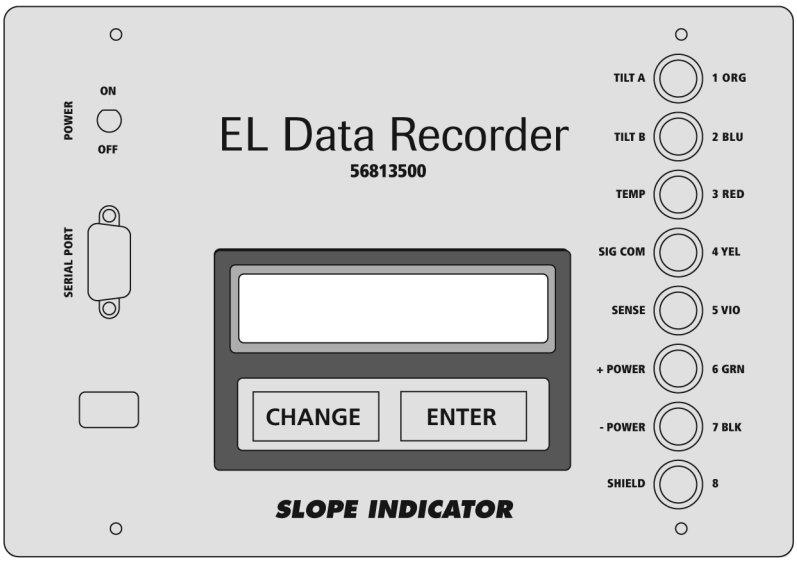
The Recorder goes into standby mode if no key is pressed for a period of time. To restore full power, press any key, or switch the Recorder off and on. When you are finished taking readings, always switch the recorder off.

Serial Port and Interface Cable

The serial port is used for communication with a PC. Use the supplied serial interface cable to connect the serial port on the Recorder to the serial port on your computer. Some laptops have only USB ports. In that case, you will need a USB/Serial adapter.

The cable is a standard "modem" cable. If you lose yours, you can find a replacement at any computer supply store. Ask for a "modem cable" with male and female DB9 connectors. Slope Indicator's part number for the cable is 50306869.

Controls & Connectors Continued



Binding Posts

Connect signal cable from the sensor directly to the binding posts on the right side of the front panel. The table below shows the wire colors for Slope Indicator's standard signal cable. If you have a uniaxial sensor, no connection is made to Tilt B.

Binding Posts	Wire Color
Tilt A	Orange
Tilt B	Blue
Temp	Red
Sig Com	Yellow
Sense	Violet
+Power	Green
-Power	Black
Shield	bare wire

Keypad and Display

The Recorder is controlled by two keys: Change and Enter.

Change

The Change key displays different options. Options are identified by a prompt and a colon. For example, one option is sensor type. The Recorder displays: Type: Unixial. If you press the Change key, the Recorder will display Type: Biaxial.

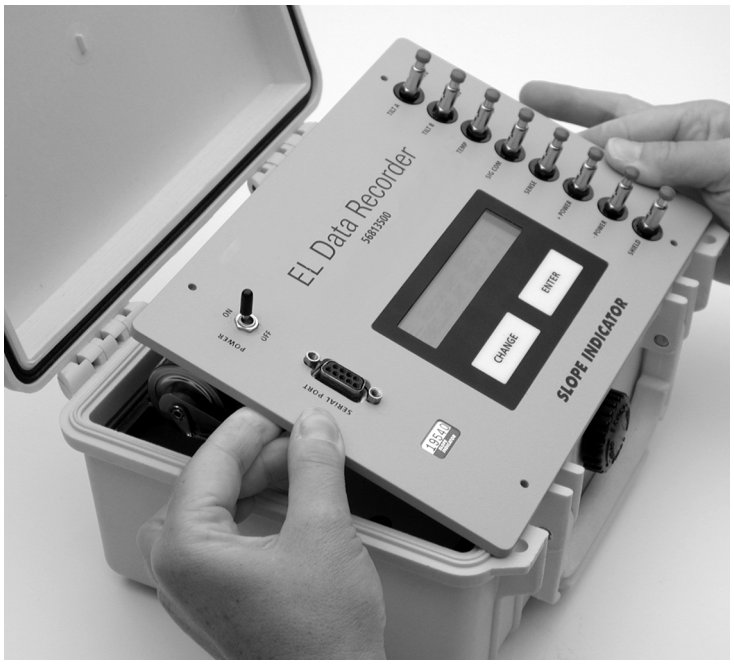
Enter

The Enter key accepts the option that is currently displayed. It is also used to record readings.

Batteries

The Data Recorder requires three D-cell alkaline batteries. The Recorder displays battery voltage when you switch it on. Replace the batteries when voltage falls below 3.6V.

1. Remove the four screws from the panel.
2. Place your hand on the panel, then turn the Recorder over, so that the panel drops out of the box to rest on your hand.
3. Pull the battery tube from its retaining clips and replace the batteries.
4. Check the orientation of the battery tube (the + terminal is red) and press the tube into the retaining clips.
5. Replace the panel and screws. The panel is a tight fit. The photo below shows the easiest way to fit it into the box.



Taking Readings

Overview

The steps in taking a reading are:

1. Connect sensor signal cable to the recorder.

2. Choose uniaxial or biaxial.

3. Observe the reading.

4. Record the reading.

Connect Signal Cable

Connect signal cable from the sensor to the binding posts on the front panel. The outer jacket of the cable must be stripped back about 75 mm (3") so that wires are long enough to connect to the posts. The table below shows wire colors for Slope Indicator's standard signal cable. The blue wire is not used with uniaxial sensors.

Binding Posts	Wire Color
Tilt A	Orange
Tilt B	Blue
Temp	Red
Sig Com	Yellow
Sense	Violet
+Power	Green
-Power	Black
Shield	bare wire

Choose Type

Switch on the Recorder and press Enter. At the Type prompt, select the type of sensor that you have. Press Enter to select the option that is displayed.

Pressing the Change key will display:

- Uniaxial
- Biaxial
- Multiplexed (See Appendix A for more information).

Observe the Reading

The Recorder displays EL readings in volts and the temperature reading in degrees C. Tilt readings are labeled A and B. (The B reading appears only with biaxial sensors). Temperature readings are labeled T.

Record the Reading

When you save a reading, the Recorder tags the reading with an ID number, the date, and the time. Choose an ID between 0 and 50. (The Manager program lets you increase the maximum ID number to 999, if necessary).

The Recorder remembers the most recently used ID. This lets you record a second reading with the same ID or advance to the next ID with a single press of the Change key.

This ID system eliminates the need to pre-program the recorder with sensor serial numbers or other IDs. However, it does require some planning on your part because later, when you process the data, you must match these IDs to the actual sensor serial numbers and calibration records.

1. Press Enter when you want to save a reading. The Recorder prompts Save as: n. (n is an ID for the sensor that you are reading).
2. Choose an ID number. Press Change to increment the number. Press Change + Enter together to decrement the number.
3. Press Enter to save the reading.
4. Press Enter again to continue.

The Manager Program

Introduction

The Manager program is used to transfer readings from the Recorder to a PC. It is also used to change some of the Recorder's default settings.

The newest version of the EL Data Recorder Manager program can be downloaded from the Slope Indicator's website: www.slopeindicator.com.

Download and Install

1. At the Slope Indicator website, choose Downloads -> Software -> EL Data Recorder Manager.
2. The File Download dialog appears. Choose Save.
3. The Save-As dialog appears. Choose a folder. The name of the file you are downloading is "setupelrecorder.exe".
4. When the download is complete, keep your browser open. Choose File -> Open. Navigate to the setup file and choose Open.
5. Follow the setup instructions.

Installation from a Resource CD

1. Close all programs.
2. Place the Resource CD in your CD-ROM drive. Wait for a menu to appear. If the menu does not appear, push the eject button and then push the CD tray back in.
3. Choose Software.
4. Click on EL Data Recorder Manager.
5. Choose "Run this program from its current location." This starts the setup program. Follow on screen directions.
6. Afterwards, you will find the EL Data Recorder Manager program installed on your hard disk under C:\Program Files\EL Recorder.

Alternative Installation from CD

If autorun is disabled on your computer, follow the instructions.

1. Start your Browser.
2. Choose File Open and navigate to your CD ROM drive.
3. Click on "CDmenu." Then follow instructions above.

Testing Communications

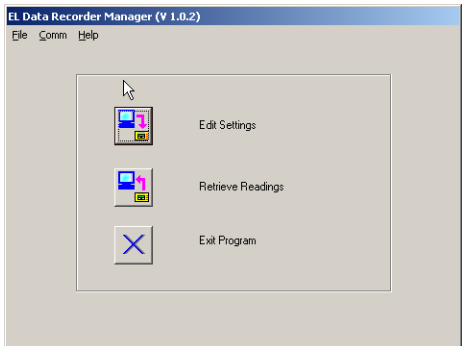
The Manager program communicates with the Recorder through a serial connection. The steps below tell how to check the connection.

Connect the Data Recorder to your PC

1. Find the serial port on your PC. It will have a 9-pin or a 25-pin connector. Desktop PCs typically have two or more serial ports. Some laptops have only USB ports. In that case, you will need a USB/Serial adapter.
2. Connect the interface cable (supplied) to the serial port. Use the DB25 adapter if you must connect to a 25-pin port. If you have lost yours, you can buy a replacement at any computer supply store. Ask for a "modem cable" with male and female DB9 connectors.
3. Connect the other end of the interface cable to the serial port on the front panel of the Recorder.
4. Switch on the Recorder.

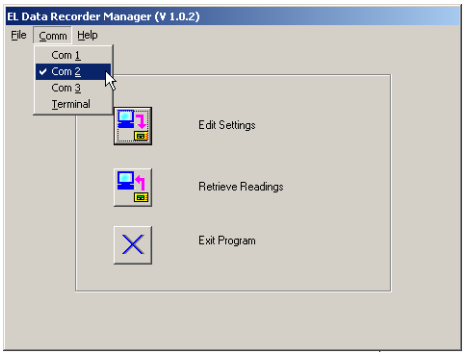
Start the Program

1. Click the Start button.
2. Choose Programs.
3. Choose EL Recorder Manager.
4. Choose EL Recorder.
5. The screen at right should appear.



Trouble Shooting

The Edit Settings screen should appear. If you see an error message, click OK to clear the message, and then these actions:



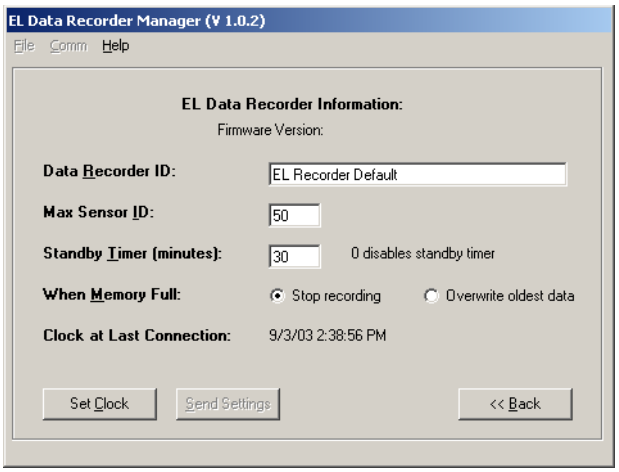
- Try a different port: Click "Comm" as shown at right, and choose a different port from the drop-down list.
- Check that the cables are firmly connected to the Data Recorder and to the computer.
- If you are using Hot Sync or a similar serial communications program with a palm top computer, try disabling the program temporarily.

Changing Default Settings

Edit Settings

The Manager program lets you edit some of the Recorder's default settings. The most important of these is the Recorder's clock, since it is used to time-stamp recorded readings.

1. Connect the Recorder to your PC.
2. Start the Manager Program.
3. Click on the "Edit Settings" button. An information screen appears. The settings are explained below.



Data Recorder ID

Enter an identifier for the Recorder. This ID does not appear in the data file.

Max Sensor ID

Enter a number between 1 and 999.

Standby_Timer

Enter the number of minutes the recorder should wait before entering the low power standby mode. Note that the standby mode still requires power, so when you are finished taking readings, always switch the Recorder off.

When Memory Full

You can record more than 5000 readings before memory is full, so this parameter is not critical.

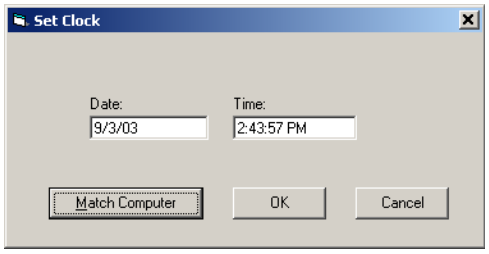
When "stop recording" is selected, the Recorder will record readings until its memory is full and will then stop and wait for you to retrieve the readings. No readings are overwritten.

When "Overwrite oldest data" is selected, the Recorder will store readings normally until memory is full. Then it will continue to record new readings by overwriting the earliest readings.

Clock at Last Connection

This field shows what time you connected the Recorder to your PC. It does not monitor the Recorder's clock in real time.

Set Clock



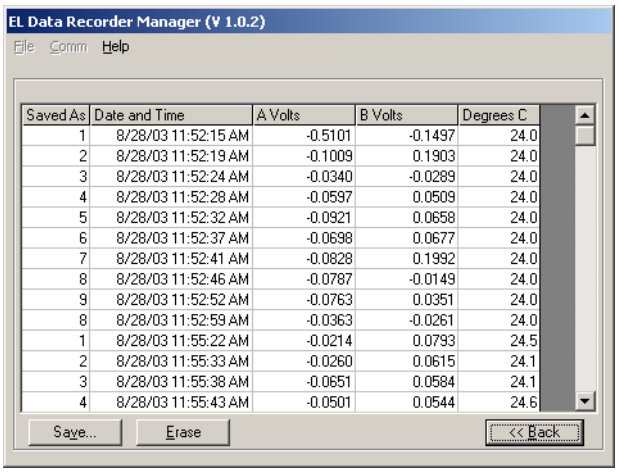
1. To reset the Recorder's clock, click the "Set Clock" button.
2. Then click the "Match Computer" button to synchronize the Recorder's clock with your computer's clock.

   To set a different time, click in the date and time fields, type in values, and click OK. The date display format in the dialog is controlled by the short date setting in Windows (Control Panel > Regional Settings > Date).

Retrieving Readings

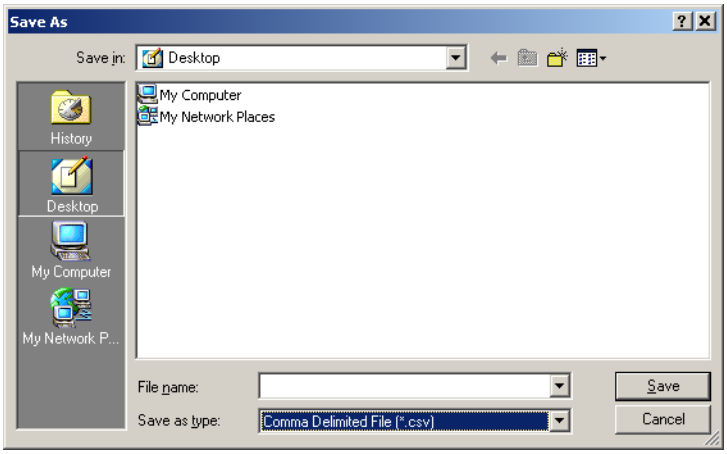
Retrieve Readings

1. Connect the Data Recorder to your PC.
2. Start the Manager program.
3. Choose Retrieve Readings.



Save Readings

4. Click the Save button. The Save As dialog appears. Specify a location and file name. Then click the save button.



Clear Memory

Click the Erase button to clear the Recorder's memory.

Data Format

Data is stored in a CSV file (a text file with comma-separated values), ready for import into a spreadsheet. Each line of data has the following fields: ID, Date & Time, Tilt A, TiltB, Temp. The TiltB field contains a zero when uniaxial sensors are read.