DATA LINK PRO

USER MANUAL

for the

SinCorder

Section Topic   Page

Installing Data Link Pro

Before installation of Data Link Pro, you should have a good working knowledge of your computer system. You should know how to locate COM ports and cables associated with communication to and from the data logger. If you have any concerns regarding this, contact someone within your organization that can be of assistance to you.

In general, Data Link Pro is installed by placing the CD in your CD-ROM drive. Data Link Pro has "Autorun" capability and the install page should come up automatically.

Minimum System Prerequisites

Pre-Requisites for Installing Data Link Pro

- Pentium (or equivalent) Personal Computer
- Windows 95, 98, or Windows NT 4.0 (or 2000) installed
- 32 Megabytes of RAM memory
- 30 Megabytes of disk space
- Data Link Pro requires the Microsoft Internet Explorer (IE) web browser for viewing the help file. If you are running Windows 95, insure that your IE is version 4 or better. IE must be installed before Data Link Pro is installed.

Starting Data Link Pro

For the proper installation of Data Link Pro on you computer, follow the steps listed below:

Automatic Installation – For computers with CD-ROM AutoRun features installed.

1. Place the Data Link Pro (DLP) CD-ROM in the computer's CD Drive
2. The CD should start to spin within the drive. The opening window "Splash Screen" for DLP will appear. This tells you that DLP is ready for installation.
3. Move your mouse pointer over the silver words "Data Link Pro" and left click once.
4. The File Download window opens. Select "Run this program from its current location." Left click the **OK** button.
5. The Security Window opens. Left click the **YES** button.
6. DLP starts the installation process. In the Welcome window, left click the **NEXT** button.
7. In the next window, enter your name and the name of your company. Left click the **NEXT** button.
8. The Choose Destination Location window opens. The path to the folder that DLP will install to is displayed. (If you do not want DLP to install at that location, left click the **BROWSE** button and select a new location.) Left click the **NEXT** button.
9. The Select Program Manager Group window opens. Left click the **NEXT** button.

10. The Start Installation window opens. Left click the **NEXT** button.
11. DLP will now install.
12. The HTML Help 1.3 window opens. Left click the **YES** button.
13. The HTML Help 1.3 window opens again. Left click on the **OK** button.
14. The Installation Complete window opens. Left click the **FINISH** button.
15. The Install window opens. Left click the **OK** button to restart your computer.

Manual Installation – For computers with no CD-ROM AutoRun features installed.

1. From the computer's desktop, left click on the My Computer icon.
2. In the next window, left click on the icon for the CD-ROM drive (normally Drive D)
3. In the next window, look for the file named "AutoRun." It will have a blue icon with a torch in the middle. Double click the icon with the left mouse button to open it.
4. The opening window or "Splash Screen" for DLP will open.
5. The File Download window opens. Select "Run this program from its current location." Left click the **OK** button.
6. The Security Window opens. Left click the **YES** button.
7. DLP starts the installation process. In the Welcome window, left click the **NEXT** button.
8. In the next window, enter your name and the name of your company. Left click the **NEXT** button.
9. The Choose Destination Location window opens. The path to the folder that DLP will install to is displayed. (If you do not want DLP to install at that location, left click the **BROWSE** button and select a new location.) Left click the **NEXT** button.
10. The Select Program Manager Group window opens. Left click the **NEXT** button.
11. The Start Installation window opens. Left click the **NEXT** button.
12. DLP will now install.
13. The HTML Help 1.3 window opens. Left click the **YES** button.
14. The HTML Help 1.3 window opens again. Left click on the **OK** button.
15. The Installation Complete window opens. Left click the **FINISH** button.
16. The Install window opens. Left click the **OK** button to restart your computer

The Four "Faces" of Data Link Pro

The User Interface has four basic tabs, each contain various tools to perform specific actions. Across the top of the user interface, you will see the following four interface tabs: Device Setup, Survey Script, Survey Readings, and Close Interval Survey.

Device Setup Tab

The Device Setup tab is the first tab you open each time you run Data Link Pro. There are actions that must be performed on this page before any of the other tabs can be accessed. There are two ways to interface with Data Link Pro:

1. Initialize with the Data Logger.
2. Click the Skip Button.

Initialize, Com Port, and Baud Rate   [💡 Initialize]

The **Initialize** function attempts to initialize the SinCorder for hosted operations. The **Initialize** button should only be pressed when the SinCorder is connected to the computer and the Com Port and Baud Rate have been set. If you are unsure about what baud rate the SinCorder is set up for, select **Search** from the Baud Rate drop-down list. Data Link Pro will test all supported baud rates and determine at which rate the SinCorder is programmed. Upon successful completion of the Initialize function, the other file folder tabs present with n Data Link Pro will appear.
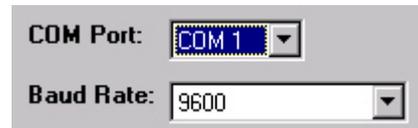
COM Port: [COM 1 ▼]
Baud Rate: [9600 ▼]

Data Link Pro may not be able to initialize if the SinCorder is in the **Keyboard Locked** mode. If the SinCorder fails to initialize, depress the **ESC** button on the SinCorder and attempt to initialize again.

Skip Button   [🖨 Skip]

If you wish to access a previously saved report and do not wish to download data from a data logger, select the **Skip** button. The Survey Script, Survey Readings, and Close Interval Survey tabs will display. You may click on any of these tabs to manipulate files, generate graphs, load a saved script or report, and edit/save you changes. SinCorder communications functions (buttons) will be disabled until you go back to the setup folder and press the **Initialize** button.

Editing Scripts

Scripts may be edited line-by-line by simply double-clicking the line you wish to change. Alternately, you can edit the script in a free-form format by pressing the **Notepad** button located to the right of the **Save** button. The free-form text editor allows you to print your script to any installed printer.

Background

SinCorder scripts are thoroughly documented in your SinCorder manual within the section entitled "Downloading." In general, scripts are used for site-based surveys and are text files that follow a relatively simple design. Consider the following script:

> PPL Crossing (A)@
> South side of road
> Pipe to Soil #
> Casing to Soil #
> RECTIFIER 247 (A)@
> 925 West 61st Street
> Volts #10.4
> Amps #9.6
> Pipe to Soil #0.993
> !

Different sites are separated by a blank line. A few special characters are used: "@" tells the SinCorder to date/time stamp the site when we take readings there. The "#" tells the SinCorder that a reading is taken here. The "#" may be followed by a number which the SinCorder will display as the previous reading taken at the site. Finally, the "!" character is used to mark the end of the script. The SinCorder has a limit of 30 characters per line, though the "@" and "#" symbols can be the 31st character in a pinch.

When performing a scripted survey on the SinCorder, you may navigate through the sites, select a site, and enter readings for each prompt. Pressing **D** on the SinCorder, allows you to optionally enter a 30-character descriptor (i.e. explanation or note) that appears alongside the reading in the readings report.

Send Script

The **Send Script** function sends a script to the SinCorder. This button is disabled until a script has been loaded into Data Link Pro and you have performed the Initialization function in the Device Setup folder.

Save Script

Once you have loaded and edited your script, the **Save Script** function allows you to save your script to a disk file. The format of the file is simple text.

Load Script

The **Load** function allows you to open a saved script in Data Link Pro. You will see a window within which you can access any folder on your disk drive and upload scripts saved with the ".SCR" file extension. Once your script appears in the space provided, double-clicking on a line of text will bring up a window within which the script text may be edited.

Obtaining the Results of a Scripted Survey

The "Survey Readings" file folder contains the functionality to work with the results of a scripted survey. To download survey results from the SinCorder, press the **Get Readings** button. This button loads a scripted survey report from the SinCorder, places the raw report in the top box, and readings parsed from the data into the grid within the middle of the folder. You may edit either version of the results before exporting. Additional buttons provide the ability to Import results previously obtained and saved using the **Export** button.

Get Readings

The **Get Readings** function reads a report from the SinCorder for the scripted survey you performed. The top text window displays the raw, unprocessed SinCorder report while the bottom window displays the data parsed into "Grid" form. Pressing the **Notepad** button located to the right of the **Export** button allows you to edit the text of the report or print it to any installed Windows printer. If no scripted surveys exist in the memory of the SinCorder (or no readings were taken on the scripted survey), the top window will display "No Data Available."

Import

The **Import** function loads readings into Data Link Pro from disk files. Readings may be "Imported" into Data Link Pro that are saved in dBase (*.dbf), Paradox (*.db), or text file formats. Imported readings will be read into the readings grid in the middle of the folder.

Export

The **Export** function allows you to export your scripted readings file to a variety of common formats. Name the file then press the **Save** button. Data Link Pro will save the readings as an Excel File, dBase Table, Paradox Table, or Text File. When exporting to Excel, you will be asked whether you would like to view the results in Excel immediately. If you respond "yes," Data Link Pro will launch Excel and display the spreadsheet just created.

Update Script Button

Once a scripted survey report has been obtained from the SinCorder, the **Update Script** button is enabled, allowing you to save an updated script that includes the readings contained in this report. *Note: at every reading prompt, the SinCorder will display, if available, the reading taken at the site during the previous survey.* The **Update Script** button allows you to take advantage of this SinCorder feature. After the script is built, Data Link Pro will turn to the Survey Script folder where you can review and **then save** the updated script.

Date `Date`

Within the grid on the Readings folder, the Date column displays the date on which the site was visited. Double-clicking on an individual cell within the Date column brings up a window within which the text may be edited.

Prompt `Prompt`

Within the Readings tab, the Prompt column displays the prompt text that appeared in the SinCorder for this reading. Double-clicking on an individual cell in the Prompt column brings up a window within which the text may be edited.

Reading `Reading`

Within the Readings tab, the Reading column displays the actual readings taken. Double-clicking on an individual cell within the Reading column brings up a window within which the text may be edited.

Site `Site`

Within the Readings tab, the Site column displays the site name for each reading taken. Double-clicking on an individual cell within the Site column brings up a window within which the text may be edited.

Time `Time`

Within the Readings tab, the Time column displays the time of day that the site was last visited. Double-clicking on an individual cell in the Time column brings up a window within which the text may be edited.

Description `Description`

Within the Readings tab, the Description column displays any descriptors (i.e. explanations or notes) entered into the SinCorder for a reading. Double-clicking on an individual cell in the Description column brings up a window within which the text may be edited.

Overview of Close Interval Survey

The Close Interval Survey features within Data Link Pro offer a number of facilities and capabilities for producing high quality graphs and export files from a Single or Multiple mode SinCorder report.

Contents of the Close Interval Survey Folder

The box at the top of the screen holds the raw report data from the SinCorder. Buttons at the top of the folder provide access to CIS graphing capabilities and the ability to edit/print the raw report. The middle of the screen displays the parsed readings in a grid. This grid may be directly edited by simply clicking on the cell and entering new data.

Above the Progress and Status message area of the folder at the bottom of the screen, is an embedded group of folders, which contain your settings that Data Link Pro uses to interpret the raw report when it updates the Readings grid. Of these sub-folders, the Setup folder contains general settings for the CIS job. This is where you specify the telltale strings you will use in SinCorder descriptors.

If the *Use flag/feet remedies* checkbox is checked, the next sub-folder will be the Remedies folder within which you select how you want to resolve the common CIS data discrepancies. The Format folder controls how Data Link Pro will format location information in the Feet column of the grid. Lastly, the Readings folder contains the SinCorder report mode setting and the command buttons for getting the report from the SinCorder as well as importing and exporting parsed CIS data files. Allowances are made, and remedies employed, for handling the various discrepancies normally found in CIS data. These discrepancies are:

- Too **few** readings between surveying flags (technician's stride was to long)
- Too **many** readings between surveying flags (technician's stride was too short)
- Landmarks along the way provide **contrary location** information
- Failure of technician to note a surveying **flag**

Telltale Strings

SinCorder descriptors are used to note the passing of major CP equipment along the pipeline. The Setup folder is where you identify the characters that denote the particular facility. For rectifiers, test stations and mileposts, this telltale string can optionally be followed by a milepost or station number. For example, if the telltale string for a rectifier is "/R", a SinCorder descriptor of "/R472+23" means that the reading was taken in the presence of a rectifier with a station number of 472+23.

Note: M.C. Miller Co., Inc. strongly suggests that your SinCorder descriptors use station numbers or mileposts (or neither), but never both. Mixing station numbers and mileposts will likely result in a little "location war" between the two systems since, while similar, these numbers are not directly translatable one to the other.

When station or milepost numbers are present within the descriptors, Data Link Pro uses this information as a superior source of location information. Therefore, if there is a discrepancy between the raw feet of the report and the exact station number (or milepost) in the descriptor, the station number will be believed and the prior data will be adjusted according to the currently selected override remedy.

Facilities along the pipeline noted by means of a telltale string within the descriptor appear as annotations on the CIS graph.

CIS Graphs

Other than the gathering and maintenance of the CIS readings, the primary goal of CIS is to generate a graph to facilitate a visual analysis. Data Link Pro will produce a graph of the readings and display, visually, the location of pipeline facilities (i.e. rectifiers, test stations, mileposts, and flags) installed along the way. The x-axis may be formatted as simple feet, station numbers, or mileposts. Full graph zooming/scrolling facilities are provided, as well as the ability to print the graph. A comprehensive dialog box is provided to adjust all settings and properties of the graph.

CIS Readings Grid

The Close Interval Survey tab displays the readings in table or "Grid" form within the middle of the folder. The upper box displays the raw data (i.e. the SinCorder Single or Multiple mode report) taken from the SinCorder. You may edit either the raw report or the parsed results in the grid before the printing/exporting of the graph.

To edit the raw CIS report, press the **Notepad** button located just above (on the right hand side) of the report itself. The dialog will allow you to print the raw report. To edit the parsed readings (and other information) within the grid, click on the cell you wish to change and edit the data in-place.

CIS Description Column Description

The **Description** column displays the SinCorder descriptor (if present) for each reading. Telltale information will be stripped from the descriptor before placement in the Description column. Double-clicking on a cell in the Description column brings up a window within which the cell text may be edited.

CIS Feet Column Feet

The Feet column displays the location where the reading was taken and is formatted according to the specifications you provided in the Format sub-folder. Double-clicking on a cell in the Feet column brings up a window within which the cell text may be edited.

CIS Info Column Info

The Info column displays information gleaned from the presence of telltale strings in the SinCorder reading descriptors. It may contain information concerning the remedy, which generated the reading, if applicable. Data in the Info column of the CIS grid may be optionally displayed on the CIS graph. Double-clicking on a cell within the Info column brings up a window within which the cell text can be edited.

CIS Maximum Column Maximum

The Maximum column, present after parsing a Multiple Mode SinCorder report, displays the highest potential reading of the two readings taken at the indicated location. Double-clicking on a cell in the Maximum column brings up a window within which the cell text may be edited.
The Minimum and Maximum columns are present only in the "Multiple Mode" SinCorder reports.

CIS Minimum Column Minimum

The Minimum column, present after parsing a Multiple Mode SinCorder report, displays the lowest potential reading of the two readings taken at the indicated location. Double-clicking on a cell in the Minimum column brings up a window within which the cell text may be edited.
The Minimum and Maximum columns are present only in the "Multiple Mode" SinCorder reports.

CIS Reading Column   `Reading`

The Reading column displays the actual voltage taken at the indicated location. Double-clicking on a cell in the Reading column brings up a window within which the cell text may be edited. The Reading column is present only in Single mode SinCorder Reports. **Note: Invalid readings are parsed as 0 (zero) volts.**

Graph & Numbers Buttons   `Graph ➡`   `⬅ Numbers`
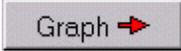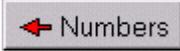
The "Graph" and "Numbers" buttons allow you to you to toggle between the *Graph* and *Grid* pages or the Close Interval Survey folder easily. You can define the exact specifications for your survey in *Grid* form and view the actual *Graph* before printing.

CIS Format Tab

Format Tab   `Setup  Format  Readings`
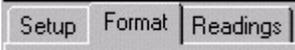
The CIS Format Tab allows you to specify how you want location information (i.e. the feet column) to appear in the CIS grid.

Location Reference

Location Reference
- ⦿ Feet
- ○ Station Number
- ○ Milepost
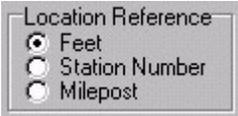
The Location Reference allows you to choose the general type of location information to display for each reading. Changing this setting re-formats any existing data within the *Starting Value* setting, described below.

Starting Value   Starting Value [0]

The Starting Value function allows you to set the location where you began the Close Interval Survey represented by the current SinCorder report. The data entered must conform, in format, to the currently selected *Location Reference* type.

Direction   Direction [Increasing ▼]

The Direction setting allows you to choose either *increasing* or *decreasing* location values and usually corresponds to the direction in which you walked the pipeline for this report.

CIS Setup Tab

Setup Tab

The CIS Setup tab allows you to set the characteristics of the Close Interval Survey before loading the SinCorder report into Data Link Pro.

Readings every … feet

This drop down menu sets the spacing between individual CIS readings.
Note: to change this value after having read the report from the SinCorder, you will need to re-read the report after making your change.

Flags are placed every … feet

This check box function sets the distance between each surveying flag.
Note: if surveying flags are not used, set this to zero and uncheck the Use flag/feet remedies checkbox. This value should be set before loading your SinCorder report into Data Link Pro.

Use flag/feet remedies

This checkbox enables a lot of behavior and is one of the most important settings. Check this box if you are using surveying flags and want to enable special Data Link Pro remedies to automatically fix discrepancies in the data. When this box is checked, the Remedies sub-folder appears within which you select the specific remedies that Data Link Pro should employ. See the Overview for a general discussion of common discrepancies and Data Link Pro's remedies.

Telltale Strings

The character strings provided in this area tell Data Link Pro how to interpret SinCorder reading descriptors

CIS Remedies Tab

Remedies [Remedies]

The Remedies tab contains four settings, which offer a number of choices to correct the four possible types of deficiencies in a Close Interval Survey.

Extra Readings

```
Extra Readings
⦿ Do nothing
○ Delete
○ Adjust feet
```
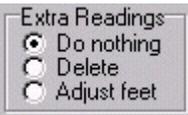
In this case, there are too <u>many</u> readings between successive flags.

- Do nothing - Take no action
- Delete - Delete the extra readings (see Delete/Interpolate note below)
- Adjust feet - Calculate the average feet per reading and adjust the location of every reading accordingly

Missing Readings

```
Missing Readings
⦿ Do nothing      ○ Flat Line to Flag
○ Interpolate     ○ 0v to Flag
○ Adjust feet     ○ Gap Line
```
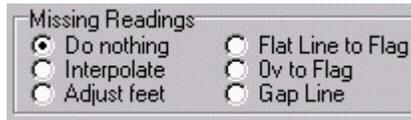
In this case, there are too <u>few</u> readings between successive flags.

- Do nothing - Data Link Pro takes no action
- Interpolate - Insert interpolated readings in the data until there are the correct amount
- Flat line to flag - Take the last reading and duplicate it until there are the correct amount
- 0 volts to flag - Insert 0 volt readings until the correct number of readings are present
- Gap the line - Show the readings as missing with a gap in the graph line
- Adjust feet - Calculate the average feet per reading and adjust the feet of every reading accordingly

Missing Flags

```
Missing Flags
⦿ Do nothing
○ Auto Insert
○ Ask Me
```

Defined as having 175% to 225% of the expected readings-per-flag between flags.

- Do nothing - (Manual)
- Auto Insert - The missing flag is inserted at the point where it was expected
- Ask Me - We show the grid area where the missing flag should have been and prompt the user

Overrides
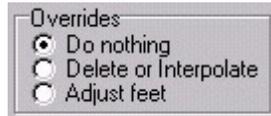
Location information in a telltale string is different from the expected location

- Do nothing
- Delete or Interpolate (see Delete/Interpolate note below)
- Adjust feet

Regardless of the setting for the various remedies, if there are more than 225% or less than 25% of the expected readings between two flags, that situation will not be remedied.

Deleting and Interpolating Readings

When a remedy involves deleting extra remedies or inserting interpolated readings, the change is spread through the flag area evenly. If one reading is to be deleted, the reading at the mid-point between the two flags will be chosen. If two readings are to be deleted, the middle reading and one 75% of the flag interval will be chosen. A third deletion would occur at the 25% location, and so on. Inserted interpolated readings are handled the same way.

CIS Readings Tab

The CIS Readings tab contains command buttons for getting a CIS report from the SinCorder, and importing/exporting CIS to/from disk files. It is the sub-folder within which you set the type of report to receive from the SinCorder (i.e. Single or Multiple).

Get CIS
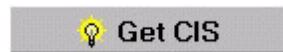
The **Get CIS** button will get CIS readings from the SinCorder and displays the data in both the Raw Report area and, after parsing, the CIS Readings Grid. All selections in the Setup, Remedies, and Format sub-folders should be made before pressing this button.

Import
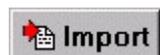
This function is used to load the CIS Grid from a file previously saved to disk using the Export command. Once in the grid, the graph of the data can be viewed and printed. Importing Excel files will work only with Excel files that are unaltered from their exported state.

Export

The Export function is used to save readings from the CIS Grid to a database file or Excel spreadsheet. With this function, a CIS reading may be merged with an existing CIS reading file, provided it is saved in a compatible format.

Mode   Mode: MULTIPLE

The Mode setting contains a drop down menu within which you may choose to receive a "Single" or "Multiple" SinCorder report containing your CIS readings. Within the grid, "Single Mode" will display only a single reading for each location. Within the grid, "Multiple Mode" will display a "Minimum" column and a "Maximum" column containing the highest and lowest potentials for each location.

Re-Process Data

This function will re-parse the CIS readings after changes have been made to the raw report in the top window of the Close Interval Survey folder.

Redline (aka " .85 Line")

Click on the **Show Redline at** checkbox to have a line of reference appear on the graph at the constant value entered into the text edit box to the right of the checkbox. This checkbox appears next to the Graph button above the SinCorder Raw report window.

CIS Graph Functions

Page Left/Right

The Page Left/Right" arrows allow you to scroll along the graph in either direction.
Note: Paging arrows only work if "Zoomed" into an area of the graph.

Zoom In/Out

This function allows you to focus in and print out a small section of the graph, if desired.

Grid Points Points ☐

This check box function (when checked) causes Data Link Pro to draw a point shape for each reading along the line in the Close Interval Survey.

Grid Info Info ☐

This check box function (when checked) will draw any text present in the "CIS Info" grid column cells onto the graph.

Redline (aka ".85 Line")

Click on the **Show Redline at** checkbox to have a line of reference appear on the graph at the constant value entered into the text edit box to the right of the checkbox. This checkbox appears next to the Graph button above the SinCorder Raw report window.

Edit Graph Properties

This function takes you to a dialog box, which allows you to change any aspect of the CIS graph. This dialog box features a "What's This?" style help facility. To discover the use or function of any given parameter, click on the small question mark button in the upper right corner. Then, click on the parameter about which you have a question.

Chart	Series

Series	General	Axis	Titles	Legend	Panel	Paging	Walls	3D

Print Graph

Printing your graph is done by clicking the **Edit Graph Properties** button , selecting the General tab , then clicking the **Print Preview** button Print Preview... , wherein you can format your graph as needed.
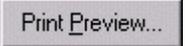
Save Graph to a Disk

After you have customized your graph, use the **Save Graph to a Disk** button to save your graph to a disk or to your computer. Graphs can be saved in either Bitmap (*.BMP) or Enhanced Metafile (*.EMF) format.

What are the Procedures for Downloading Multiple Data Sets Using Data Link Pro?

To download a data set from your SinCorder into Data Link Pro you will need to perform the following:

1) Ensure that your SinCorder is properly connected to a computer with DATA LINK PRO installed

2) Start Data Link Pro

3) When DATA LINK PRO opens, select a COMM port and baud rate, and then click the **Initialize** button. This initializes the SinCorder with Data Link Pro. Once Data Link Pro is initialized, three more tabs appear: Survey Script, Survey Readings, and Close Interval Survey. The tab labeled Close Interval Survey is the one you want. Position your mouse arrow over the Close Interval Survey tab and the text will highlight, then click to select the tab.

4) Then, look for the Readings tab and click to select it.

5) Click on the drop down list box to the right of the word MODE and select the mode within which to download the readings: single or multiple.
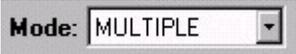
6) You are now ready to download data from your SinCorder. Click on the Get CIS button. This will begin downloading the readings. In the upper box, you will see the data being loaded into Data Link Pro from the SinCorder. When the download is complete, the data will appear in the grid (or table) in the middle of the viewable area of the user interface.
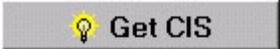
In the event that you have more than one data set per mode: for example, two data sets in single/multiple mode, Data Link Pro will download all data for that mode during the same process. Once the data has been downloaded, M. C. Miller Co., Inc. recommends that you save the data to a file so it may be reloaded, if necessary.

> ***After all data has downloaded, if more than one set of data exists in the script, you must edit the script to view the data correctly. While the two (or more) data sets are in the script, you will not be able to view a correct and accurate graph.***

To edit the script and separate the data sets after downloading, select the **Edit/Print/Save Raw Data Report** button. This will open the 'Edit CIS Readings Report' box. This box allows you to edit the downloaded script.

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The functionality of the 'Edit CIS Readings Report' box is the same as Notepad with the exception of the search ability available in Notepad. In the case of having more than one data set in the script, select the data you wish to remove from the downloaded script.

Remove the lines by right clicking on the selected lines and selecting cut. This will place the extra data, including the header information, onto the clipboard enabling you to paste the data into a text file using Notepad (or a similar text editor) and save the file for future reference. Once you have finished editing the script to your satisfaction, select the button labeled **OK**.

At this point, click the **Re-Process Data** button. Data Link Pro will re-process the edited script. When Data Link Pro is finished re-processing the script, you can view the graph and make any necessary changes to the graph.

If you have collected data using both single and multiple modes, it is still possible to download all of the data from the SinCorder. You simply must download twice, once in each mode. For example, if you select single mode Data Link Pro will download all of the SinCorder data sets that were collected in single mode, the same is true in multiple mode. To accomplish this, proceed to download data as though there were data stored using only one mode. As usual, select either single or multiple mode before downloading. Data Link Pro will download only the data sets that were collected in the mode you have selected.

After you have downloaded the data set and saved the file, you must save the data to a file before you download into Data Link Pro again. Select the second mode (the mode in which you have not yet downloaded the data), and then proceed to download again. When Data Link Pro has finished downloading the data in the second mode, save the data to another file. You now have two separate files, one containing all of the multiple mode data sets, and one containing the single mode data sets. When you are finished downloading and saving all of the data from the SinCorder that you require, you can load each separate file into Data Link Pro to view or edit as you wish.

How Do I Create and Send a Script File to the SinCorder for Use with Data Link Pro?

Data Link Pro will allow you to download readings taken from individual stations with your SinCorder. This is done using script files. You use the script file to let the operators of the SinCorder know when and where to take readings.

There are two file formats that can be loaded into the script editor, a script (.scr) file and a text (.txt) file. The text file is written using a text editor like Notepad. A script (.scr) file is a text file that has been saved from within Data Link Pro as an (.scr) file.

To write a script, use the following format.

```
Location Header @ <ENTER>
Site prompt     # <ENTER>
Site prompt     # <ENTER>
Site prompt     # <ENTER>
End of site prompts (A blank line) <ENTER>
<ENTER>
Location Header @  <ENTER>
Site prompt     # <ENTER>
Site prompt     # <ENTER>
Site prompt     # <ENTER>
End of site prompts (A blank line)  <ENTER>
<ENTER>
!
```

- Location headers must be less than or equal to 30 characters
- Site prompts must be less than or equal to 30 characters
- The '@' and '#' signs are special characters which must not be used within a header or prompt
- The maximum number of prompts per location header is 99
- The '@' and '#' signs may be used as the 31st character
- <ENTER> Terminates each line in the file
- <ENTER> Separates the last site prompt from the next location header
- The exclamation point '!' terminates the download file
- <ENTER> must precede the exclamation point '!'

What are the Special Characters?

The '@' sign instructs the SinCorder to automatically record the time and date when data was last collected at a location header.

- The use of the '@' sign is optional
- The '@' sign is the last character of the location header
- The '@' sign can be the 31st character of the location header
- The '@' sign cannot be used with prompts
- There is one date and time recorded per location header
- The time and date stamp corresponds to the very last voltage readings taken at a location

The '#' sign tells the SinCorder that there is a numeric reading to be taken, it also instructs the SinCorder to automatically display that site's last previously recorded data next to that particular site prompt. For example, if STATION 126 had a previously recorded IR DROP of -110.3 mV, this value would be displayed alongside the new IR DROP reading as IR-PROMPT # -110.3 mV so the field operator could compare it to the real time voltage applied to the terminals.

- The use of the '#' sign is optional
- The '#' sign is the last character of the site prompt
- The '#' sign can be the 31st character of the location header
- The '#' sign cannot be used in a header location
- The '#' sign can be followed by 9 data characters
- The SinCorder does not check for valid data values
- The user may enter any 9 characters after the # sign

The '!' is the end of file mark, it instructs the SinCorder that this is the end of the download file.

- The '!' must appear at the end of the download file
- The end of file marker must be preceded be <ENTER>
- The '!' may be used in the location header and site prompt as long as it does not appear as the first character

The following is an example of a script:

```
Rect MP100.5@
West End 12" Lateral     100.5#
SPLIT CUR A#
ZINC B#
COPPER C#
SILVER D#
VOLTS#
AMPS#
RECT_wLXLxE9BPrN#

Rect MP100.4@
West End 12" Lateral     100.4#
SPLIT CUR A#
ZINC B#
COPPER C#
SILVER D#
VOLTS#
AMPS#
RECT_A6ev2Jwgnlt#
```

How Do I Load a Script into the SinCorder from Data Link Pro?

After you create the script using your text editor, such as Notepad, you are ready to load the script into Data Link Pro. To load a script into Data Link Pro and send it to your SinCorder, perform the following steps:

1. Open Data Link Pro and "Initialize" your SinCorder. Choose the correct COMM port and baud rate. The baud rate needs to match the baud rate to which the SinCorder is set. To set or find out what baud rate to which the SinCorder is set, turn on the SinCorder. Press the PRGM key. Using the up or down arrows, select OUTPUT and press the ENTER key on the SinCorder. You will see in the display window of the SinCorder; BAUD RATE: ####, SELECT: ####. The most common setting for the baud rate is 9600. Once you have the correct baud rate and COMM port, press the "INITIALIZE" button.

2. When the SinCorder is initialized, three more tabs will appear: Survey Script, Survey Readings, and Close Interval Survey. The tab you are interested in is the "Survey Script" tab (the second tab from the left). Select this tab by clicking on it.

3. Within the "Survey Script" tab, locate and click on the "Load" button. Clicking the "Load" button opens an "Open file" box. The default directory that is opened when you click the "Load" button is the SinCorder directory. The default file format is (.scr). If the file you have just created, using Notepad does not appear in the directory opened by default, you may have saved it in a different directory. Locate the file and select it, then click the **Open** button. This will load your text file, or script, into Data Link Pro.

4. After the script file has been loaded into Data Link Pro, it should appear in the upper dialog box within the Survey Script Tab. Look over the script and make sure it is one you have just created, and then click the "Send Script" button. This will load the script into your SinCorder.

5. You are now ready to go take your readings at your test sites.

Instructions on how to take a reading with the SinCorder by using the script will be explained a little later in this document. For now, let us explain how to download your newly collected SinCorder data into Data Link Pro.

How Do I Download Scripted Data from the SinCorder Using Data Link Pro

After you have collected all the necessary data, you are ready to download into Data Link Pro. To download your data, follow these steps:

1. Start your Data Link Pro software and initialize the software with your SinCorder. (See the above steps on initializing Data Link Pro with your SinCorder)

2. When initialization is complete and the rest of the tabs appear, select the "Survey Readings" tab.

3. You can now download the readings by clicking the 'Get Readings' button.

During the download process, you will see the data being loaded into the upper window of the Survey Readings Tab. When the download is complete, the data will be processed and placed into the grid below the window showing the raw data downloaded from your SinCorder. At this point, the three buttons labeled **Export**, **Update Script**, and the **Edit/Print raw SinCorder report** button will be used to manipulate the data file.

The **Export** button allows you to choose a file format and save this report to be viewed in either a database or spreadsheet. The choices of file formats are dBase (*.DBF), Paradox Tables (*.DB), Text (*.TXT), and Excel files (*.XLS). When you click on the **Export** button, a 'Save As' dialog box appears which enables you to choose the location, name, and file format in which to save.

The Up**date Script** button is used to save the data that has been downloaded to the script as a reference to compare the most recent data to. When the button is pressed, the data that has been collected is stored in the script next to its reference. The next time you load the script and send the script to the SinCorder, you will see the data referenced as past data.

If you forget to take a reading on the script, you will get a message asking if you want to update the script without this reading. If you click "NO," the **Update Script** button will not be enabled and the new data will not be added to the old script.

If you click yes, Data Link Pro assumes that you want to discontinue that reading from your script. The Survey Script Tab will open up your script with the new data added, however, the forgotten reading and the line of script is deleted.

If you have clicked "Yes" by mistake and updated the script but deleted the forgotten reading, it can be fixed. If you know which reading was not taken, you can double-click on the line of script where it should be located, re-enter it, and save.

How Do I Take a Reading with the SinCorder by Using the Script?

You have sent a script to the SinCorder and are out in the field ready to take readings. When the SinCorder is on and the window displays "Voltage is O.K. Logger Ready" press the **Disp** button.

```
VOLTAGE IS O.K.
 LOGGER READY
```

```
DISP
```

You should see the message "Display Option Select: Data" in the display window.

```
DISPLAY OPTION
 SELECT:  DATA
```

If your display window has the words "Time" or "Channel" in place of the word "Data", press the **UP** arrow until you come to the "Display Option Select: Data" message.

```
↑
```

With the message "Display Option Select: Data" in the display window, press the **Enter** button.

```
DISPLAY OPTION
 SELECT:  DATA
```

```
ENTER
```

You should see a message like this in the display window. The cursor should be flashing on the first digit of the Enter number.

```
SITE    #: 00004
ENTER   : 00004
```

At this time, press the LOG/STBY button to begin the data logging process.

```
LOG/
STBY
```

A flashing "L" should appear in the upper left corner of the display window.

```
L   SITE    #: 00004
    ENTER    : 00004
```

With the cursor flashing on the lower line of the display window, enter the reading value for the site, and press **Enter** to record the reading, then press the **Up** arrow to advance to the next site. Repeat this process until you reach the end of your scripted reading list.

```
L   SITE    #: 00004
    ENTER    : 0.854
```

```
ENTER
```

```
↑
```

An asterisk should appear in the lower left corner of the display window when you have finished logging all sites in the script. At this time, press the **LOG/STBY** button to end logging mode, the flashing "L" should disappear. You may turn off you SinCorder at this time.

```
L   SITE    #: 00009
*    ENTER    : 0.932
```

```
LOG/
STBY
```

T

U

Z