

EDUchat

**Communications Software for
Embedded Diagnostic Unit**

— Software Guide —

**This instruction book contains
documentation for software
versions starting with c3.01**

Manufactured for

Continental Electronics Corporation

by

SINE SYSTEMS

Table of Contents

Software Guide

Topic	Page Number
Installing EDUchat	
System Requirements	1
Alternate Operating Systems	1
Changes in the Version	1
Installing the EDUchat Program	2
Setting up EDUchat	
Starting EDUchat	3
Adding a Local Connection	4
Adding a Remote Connection	5
Editing a Directory Entry	6
Using Passwords	7
Changing Passwords	8
Using EDUchat	
Using the Terminal	9
Collecting Data	10
Recording Data	11
Controlling the Transmitter	12
Calibrating the Analog Meter Displays	13
Viewing Data	14
Scanning Data	16
Printing Data	17
Page Setup	19
Graphing Data	20
Printing a Graph	22
Adjusting EDU Hardware	23
Transmitter Profiles	24

Legal Stuff

This document and the software it describes are ©copyright 1995-7 by Sine Systems, Inc. All rights reserved. The software described in this document is furnished under license. Ownership is retained by Sine Systems, Inc.

In developing this software, Sine Systems, Inc. has attempted to offer the most correct and clearly expressed information possible. Nonetheless, errors can occur and this software does rely upon third party software for portions of its functionality which may also be imperfect. Sine Systems, Inc. does not warrant that the software is free from bugs, errors, or other program limitations.

Trademarked names are used for identification purposes only with no intention of infringing on the trademark.

Pictures used in this document are for example purposes only. Actual screens may vary.

Updating from previous software versions

THIS IS VERY, VERY IMPORTANT !

Check your Profile!

Users of previous versions of this software should check their profile for the following error. Many of the status channels have incorrect 'polarity' due to a mistake in the way a data type was handled combined with a documentation error. The downloaded data is correct but the translation routine that converts the data will make it appear that the polarity should be reversed. Most profiles were created reflecting this problem. When this (new) software is used, it will appear to be incorrect. This software is correct and the profile is at fault. The profile should be changed. The correct status channel polarities are as follows:

Channel	Description	Above trip	Below trip
9	Spare	---	---
10	Spare	---	---
...			
19	Phase Loss	Normal	Fault
20	Card Cage	Normal	Fault
21	Air Interlock	Normal	Fault
22	Temperature Interlock	Normal	Fault
23	Ready	Normal	Fault
24	PA Door Interlock	Normal	Fault
25	PA Grid Door Interlock	Normal	Fault
26	Remote Plate Interlock	Normal	Fault
...			
33	Filament On	Off	On
34	Auto Power Control	Manual	Auto
35	VSWR Overload	Normal	Overload
36	PA Screen Overload	Normal	Overload
37	PA Plate Overload	Normal	Overload
38	IPA Fault	Normal	Fault
39	Exciter Fault	Normal	Fault
40	Spare	---	---
41	Local Control	Local	Remote
42	Left Rear Door Interlock	Normal	Fault
43	Center Rear Door Interlock	Normal	Fault
44	Right Rear Door Interlock	Normal	Fault
45	Center Front Panel Interlock	Normal	Fault
46	Right Front Panel Interlock	Normal	Fault
47	Remote Interlock	Normal	Fault
48	Plate On	On	Off

Check your Profile (continued)

The recommended procedure is to make backup copies of your profile and data files. Then, select File | Open | Profile from the menu and correct the profile until the status indicators match the ploarity shown above. The profile is saved automatically as you edit.

Any data files that you may have will need to be translated to reflect changes to the profile. This is very simple. Select File | Translate from the menu and select a data file from the dialog. The next time the data file is opened, it will be retranslated using the new, corrected profile and the data will reflect the changes.

File Extensions

Previous versions of EDUchat used the extension .MDB and .DAT for data files. Starting with software version 3.00, EDUchat will use the extension .EDU as the default for its data files. This is due to changes in the program to work more smoothly with Win95. The file extension .DAT is used by several other programs and we don't want those programs to launch when you click on EDUchat data files. The actual data file format is no different whether the extension is .MDB, .DAT or .EDU and all three file types will be shown in file dialog boxes. Simply rename the old files with the new extension to avoid any confusion.

EDUchat Software Guide

Version 3.00

Released 1•27•97

This document describes EDUchat software that is designed to run on a personal computer with Microsoft Windows 3.1 or Windows 95. It is intended that the software be used with Embedded Diagnostic Unit hardware.

Installing EDUchat

System Requirements

Installing and running EDUchat requires:

- Microsoft Windows 3.1 or Windows for Workgroups 3.11 or Windows 95 already installed on your computer. (EDUchat is a 16-bit program.)
- Personal computer with 4 Mb of RAM (minimum) and approximately 5 Mb of available hard disk space for installation (does not include space for data file storage)
- One 3.5 inch high density (1.44 Mb) floppy drive
- A standard VGA monitor or better (640 x 480 minimum; 600 x 800 is recommended)
- Any Windows 3.1 compatible printer (optional)
- A 2400 baud modem or better (optional)
- Familiarity using the Windows operating environment

Alternate Operating Systems

This program should run acceptably with OS/2 and OS/2 Warp for Windows since they load Windows 3.1 when programs requiring Windows are running.

The examples in this document assume that Windows 3.1 is running because it is more widely used than Windows 95 or OS/2 at the time of this writing. Users of these alternate operating environments should substitute equivalent functions of the operating system in use where necessary.

Changes in this Version

EDUchat version 3.00 includes major improvements to the report printing capabilities. The graph window can be resized to take advantage of larger monitors. The program responds to the system colors better (although light gray is still works best choice for 3D objects) and makes use of the non-bold system font popularized in the newer Win95 and WinNT 4.0 environments. Although it is a 16-bit program, EDUchat will register its file types with the Win95 system registry so that data files receive the proper icon and will launch the EDUchat program when double-clicked. (A side effect of this improvement is that EDUchat now uses the extension .edu as the default for its data files since many other programs claim the overworked .dat extension. Data files with the old extensions .dat and .mdb will still be recognized by EDUchat--the file format has not changed--and files may be renamed as necessary.

Installing EDUchat (continued)

Installing the EDUchat Program

To install EDUchat on your computer:

- 1 Start the computer as you normally do and run Windows.
- 2 Insert Disk 1 in the disk drive (A:).
- 3 Select **Run** from the **File** menu of the Windows Program Manager.
- 4 Type A:\SETUP and click **OK**.

You will be prompted for the name of the directory into which the EDUchat program and its associated files should be installed.

- 5 Follow the instructions given by the EDUchat install routines to complete program installation.

EDUchat installation usually completes without difficulty. On those instances where unexpected questions arise, here are some tips.

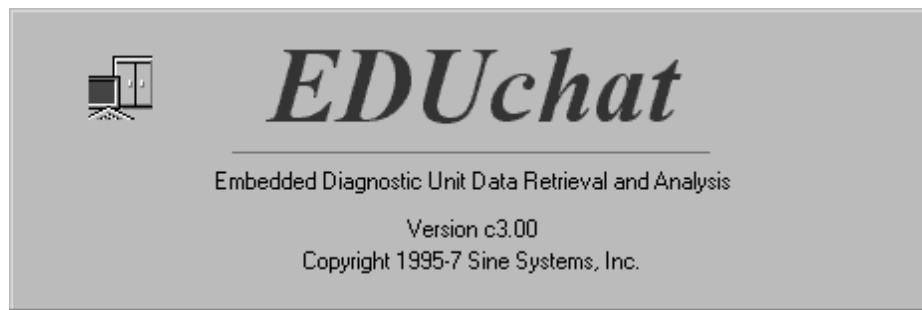
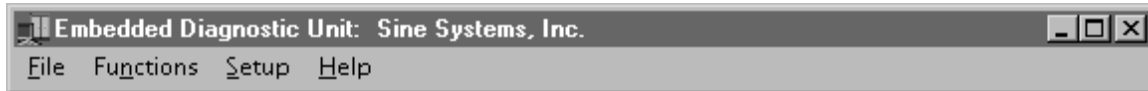
- This program copies some files with the extensions .VBX, .OCX and .DLL to your Windows system area--the standard location for such files. Every attempt has been made to include the most recently released version of these files. If you receive any messages asking if a file should be replaced, select the option so that the newest file is used.
- Windows 3.1 must be running in 386 Enhanced Mode. Windows for Workgroups only runs in 386 Enhanced Mode. Consult your Windows documentation for more information. Windows 95 users may disregard this notice.
- File sharing must be installed for EDUchat version 2.00 (or higher) to run properly (even in single user environments). This was not a requirement of earlier versions of EDUchat. The install program will try to install the Windows file sharing component VSHARE.386 for users of Windows 3.1 and Windows for Workgroups. Alternately, the DOS file sharing component SHARE.EXE may be used if it is loaded during system boot. Windows 95 users may disregard this notice.

Setting up EDUchat

Starting EDUchat

An EDUchat icon resides in a Program Manager Group that is created during EDUchat installation. To begin using EDUchat:

- 1 Double-click the **EDUchat** Program Manager Group to open it.
- 2 Double-click the **EDUchat 3.00** icon (the version number may be different) to start the EDUchat program. The EDUchat splash screen appears while the program loads and initializes. The EDUchat main menu bar installs at the top of the screen.



The EDUchat menu has four options initially. Some tasks may add extra items to the menu bar temporarily. The four main options are:

- **File**--opens data files for viewing, translating and printing; and opens profiles for viewing and editing; allows printer setup; quits EDUchat
- **Functions**--access to other functions of EDUchat such as the terminal
- **Setup**--adjust modem and communication settings, passwords, and other EDUchat parameters such as restoring window positions to factory default locations
- **Help**--find out about the EDUchat program

Setting up EDUchat (continued)

The first time EDUchat runs it will initialize software defaults. Of course, these defaults will not match all configurations of all computers. Unless you reinstall EDUchat or change the computer system hardware, EDUchat only needs to be set up one time.

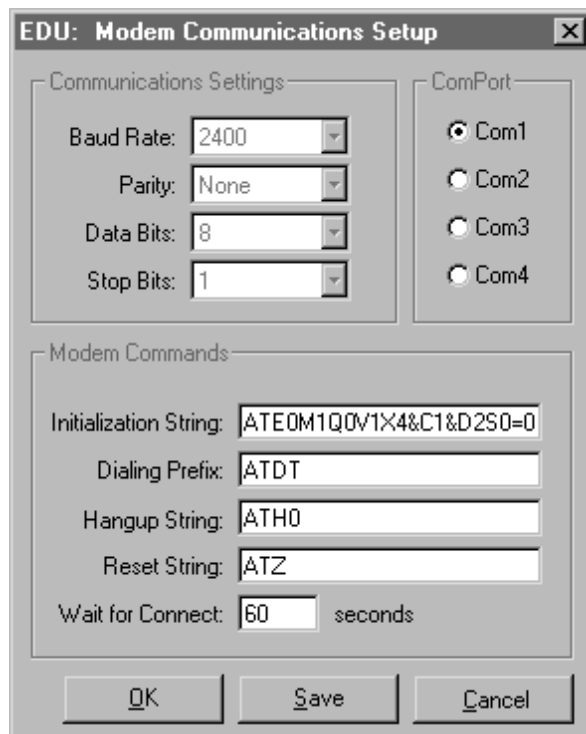


Adding a Local Connection

If you are near the transmitter site and the computer is connected to the EDU hardware directly by a cable then you are using a Local Connection. This is how to setup a Local Connection:

- 1 Click **Setup** on the EDUchat menu bar.
- 2 Select **Connections** from the Setup menu and **Local** from the submenu. The Local Communications Setup window opens.
- 3 Select the com port that you will be using to connect to the EDU. The default for local connections is com 1. (Other options are fixed at this time.)
- 4 Click **Save** to make this the new default com port and close the setup window.

Setting up EDUchat (continued)



Adding a Remote Connection

Setting up a remote connection is similar to setting up a local connection except that options are added for modem control. *Please check the modem options carefully and make sure that the commands are valid for your modem.* Modems vary widely by manufacturer each having adopted their own superset of the "AT" command set. If you are using a modem that is capable of 9600 bps or more, pay special attention to the modem initialization string.

To setup EDUchat to recognize the modem in the computer:

- 1 Click **Setup** on the EDUchat menu bar.
- 2 Select **Connections** from the Setup menu and **Modem** from the submenu. The Modem Communications Setup window opens.
- 3 Select the com port to which the modem is connected--the default is com 2.

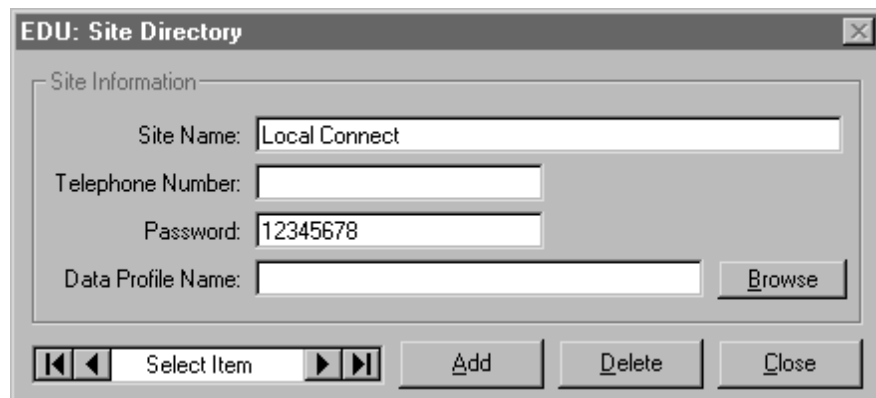
Review the modem commands and verify that they are valid for your modem--edit as needed. The default values may not work on all models by all manufacturers. Modem initialization strings can be very tricky. The goal is to make the modem as dumb as possible. Use the commands appropriate for your modem to disable as many "features" as possible--distinctive ring detection, fax capability, error correction, even automatic data compression as EDU data is already compressed. EDUchat can reset the modem to the "smart" settings stored in the modem when it is done with the Reset string.

- 4 Click **Save** to make these the new default options when EDUchat runs and exit the Modem Communications Setup.

Editing a Directory Entry

A directory of sites is kept so that EDUchat can manage several transmitters at different locations. When EDUchat is installed, a single entry is entered into the directory for local connections. Other entries can be added to the the EDUchat directory for both local and remote connections.

Directory entries require a name, telephone number, password, and a transmitter profile. The profile is a special file that describes your transmitter for the EDUchat program so that resulting data is valid. *If the wrong profile is used, your data will be unreliable.* Profiles are specific to transmitter model and can vary from transmitter to transmitter. If you do not know which profile to use, EDUchat provides a "blank" profile called **rawdata.pro** which resides in the profiles subdirectory of the EDUchat directory. This profile does not translate the incoming data at all. It is usually used for calibrating the profile formulae but it can be used as a *temporary* profile if necessary.



To add a new site to the directory:

(if the EDUchat Terminal window is already visible, skip to step 3):

- 1 Click **Functions** on the EDUchat menu bar.
- 2 Select **Terminal** from the EDUchat menu bar. The Terminal window opens.
- 3 Click **Directory** on the Terminal to display the Site Directory window.
- 4 Click **Add** to add a blank directory entry.

Fill in the display areas with the site name, telephone number (as you would dial it) and the password required to access the EDU at that site. *If you are creating an entry for a local connection, do not enter anything in the telephone number area as this will make it a remote connection.* Finally, type in a profile name directly, or

- 5 Click **Browse** to select a profile that will be used for this site--it is not optional.

If you do not know the name of the profile that should be used, you can use rawdata.pro temporarily and edit the directory entry later.

- 6 Click **Exit** to save the new directory entry and exit the Site Directory window.

Setting up EDUchat (continued)

Using Passwords

EDUchat restricts some control functions with password protection so that only authorized users have access to those functions. For example, suppose EDUchat is running on a system in a control room full time. All users have access to the displayed data and can take readings. When a user clicks on one of the Control Panel buttons to change a transmitter adjustment, a message box appears prompting for a password to verify control authorization. If the user enters the password correctly, the control function continues normally. Otherwise, the control function does not occur.



Once entered, the password will remain active (allowing control access) for a preset period of time. This time period is adjustable from one to fifteen minutes. The factory default setting is three minutes. At the end of this time period, password access is cleared and the password must be entered again with the next control function.

Setting up EDUchat (continued)

Changing Passwords

Two passwords are used: the 'User' password controls access to control panel functions while the 'Administrator' password controls access to the profile editor and other functions such as changing the passwords.

When EDUchat is first installed, the passwords are clear and can be changed at any time. *If EDUchat is to be installed on a commonly available computer, it is strongly recommended that you change the passwords before allowing other users on the system.* This will avoid a situation where a curious user performs the initial unprotected password setting and locks you out of the system. Once the passwords have been set, EDUchat requires the Administrator password to be given before changing either of the passwords.



Setting the Passwords

To change a password:

- 1 Click **Setup** on the EDUchat menu bar.
- 2 Select **Options** from the Setup menu and **Passwords** from the submenu. The Password dialog appears.
- 3 Click in the entry area of the password that you wish to change.

If this is not the first time that passwords have been set, you will be prompted to enter the current Administrator password before you are allowed to continue.

- 4 Type the desired password in each area and adjust the Password Timeout.

The Password Timeout is the length of time that a password will remain active after it has been entered correctly. A Password is deactivated automatically when the window in which it was given closes.

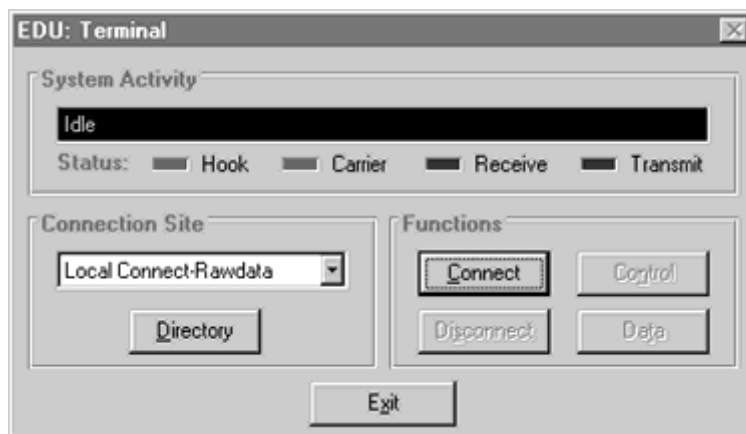
- 5 Click **Save** to save the new passwords and exit the Password setting window.

Using EDUchat

EDU hardware is responsible for recording data. EDUchat software has three basic functions:

- Collecting and storing data
- Viewing and printing data
- Programming EDU hardware

The collecting and programming functions require a communications link between EDUchat and the EDU hardware. The EDUchat terminal is responsible for this task.



Using the Terminal

To load the EDUchat Terminal:

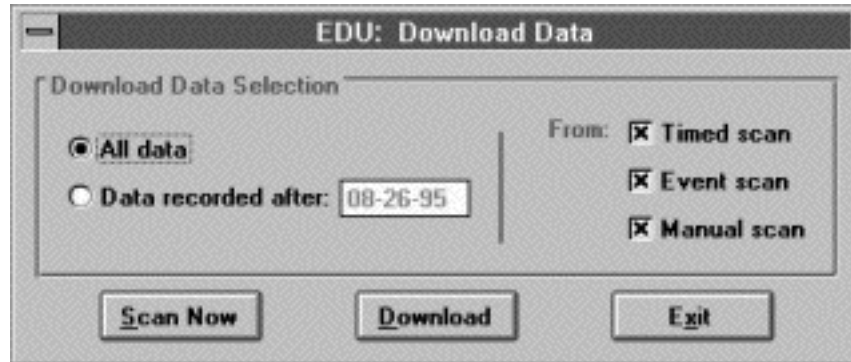
- 1 Click **Functions** on the EDUchat menu bar.
- 2 Select **Terminal** from the Functions menu. The EDUchat Terminal screen opens.
- 3 Select the site in the Connection Site area of the Terminal window. (Instructions on adding a new site can be found in the Setting Up sections of this guide.)
- 4 Click **Connect** on the Terminal window.

EDUchat will establish a connection to the EDU hardware (via modem if you are making a remote connection). Connection status and error messages are displayed in the status area of the Terminal window.

When a successful connection is made, telemetry data can be retrieved and stored to disk, and some transmitter controls can be adjusted.

Collecting Data

The EDU hardware stores telemetry data about the transmitter. To make any use of the data stored in the EDU it must be retrieved and converted into a recognizable form.



To retrieve data from the EDU:

(if EDUchat is already connected to the EDU, skip to step 5):

- 1 Click **Functions** on the EDUchat menu bar.
- 2 Select **Terminal** from the Functions menu. The Terminal window opens.
- 3 Select a Connection Site.
- 4 Click **Connect** on the Terminal window.

EDUchat will establish a connection to the EDU hardware (via modem if you are making a remote connection). Connection status and error messages are displayed in the status area of the Terminal window.

When EDUchat has successfully connected to EDU hardware, the **Data** button is enabled.

- 5 Click **Data**. The Data Retrieval window opens.
- 6 Adjust the data retrieval options as needed.
- 7 Click **Download** to begin data transfer from the EDU hardware.

When all requested data is received, a File Save dialog is presented. Select a file that already exists or enter a new name and select a directory where the data should be stored. The compressed data from the EDU will be expanded into the file you specify. If you choose a file that already exists, duplicate data will be omitted.

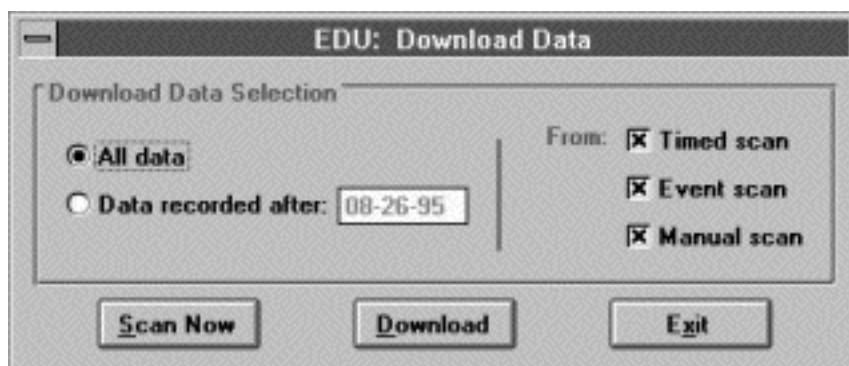
- 8 Click **Exit** when you are done retrieving data.
- 9 Click **Disconnect** to terminate the connection to the EDU.
- 10 Click **Exit** to close the Terminal window when this session is complete.

Recording Data

EDU hardware has three triggers to record a data scan:

- **Timed**--the internal clock reaches a time when the EDU has been programmed to record data
- **Event**--an out of tolerance condition triggers one of the alarms programmed in the EDU
- **Manual**--a data scan is requested by the operator

The first two items are handled by EDU hardware and they are usually sufficient. However, a manual data scan can be requested when necessary.



To request a manual data scan:

(if EDUchat is already connected to the EDU, skip to step 4):

- 1 Click **Functions** on the EDUchat menu bar.
- 2 Select **Terminal** from the Functions menu. The Terminal window opens.
- 3 Select a Connection Site.
- 4 Click **Connect** on the Terminal window.

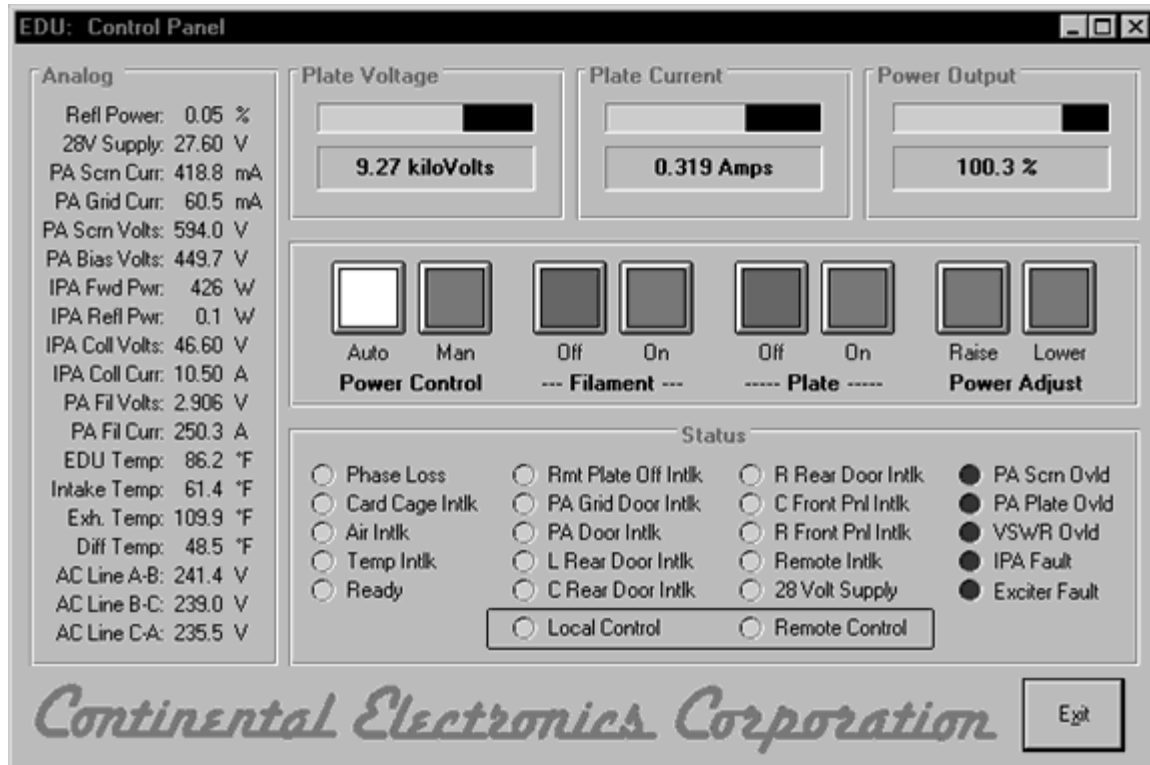
EDUchat will establish a connection to the EDU hardware (via modem if you are making a remote connection). Connection status and error messages are displayed in the status area of the Terminal window.

When EDUchat has successfully connected to EDU hardware, the **Data** button is enabled.

- 5 Click **Data**. The Data Retrieval window opens.
- 6 Click **Scan Now** to store the current transmitter state in EDU memory.
- 7 Click **Exit** to return to the Terminal window.
- 8 Click **Disconnect** to terminate the connection to the EDU.
- 9 Click **Exit** to close the Terminal window when this session is complete.

Controlling the Transmitter

In addition to its data gathering capabilities, EDUchat has the ability to instruct the EDU hardware to control certain aspects of transmitter operation. An operator can startup and shutdown the transmitter, and adjust the power output via EDUchat. These functions are accessed via the Control Panel--a graphic simulation of the control panel on the transmitter.



To access the Control Panel:

(if EDUchat is already connected to the EDU, skip to step 5):

- 1 Click **Functions** on the EDUchat menu bar.
- 2 Select **Terminal** from the Functions menu. The Terminal window opens.
- 3 Select a Connection Site.
- 4 Click **Connect** on the Terminal window.

EDUchat will establish a connection to the EDU hardware (via modem if you are making a remote connection). Connection status and error messages are displayed in the status area of the Terminal window.

When EDUchat has successfully connected to EDU hardware, the **Control** button is enabled.

Controlling the Transmitter (continued)

- 5 Click **Control**. The Control Panel window opens.

If you need to make any adjustments click the appropriate control button. The results of your changes will be visible on the display after a very short delay (usually 1 to 2 seconds).

- 6 Click the **Exit** button to close the Control Panel and return to the Terminal window.

Calibrating the Analog Meter Displays

The EDUchat Control Panel has three analog bar-type meters at the top of the window that approximate the behavior of the meters on the transmitter front panel. These displays are not exact, but they are accurate enough to provide an indication of the actual transmitter status at a glance. The readings in the recessed panels below each meter are accurate and should be considered correct in the case of a discrepancy.

Due to the variety of transmitter models in which EDU may be installed, and variations among the individual components of even a specific transmitter model, the EDUchat meters must be calibrated. This procedure is quick and easy and only needs to be performed once unless the transmitter modifications make it necessary. The procedure does not harm or permanently alter the EDU hardware or EDUchat software in any way and can be performed as many times as necessary.

To Calibrate the Analog Meter Displays:

The transmitter must be operating normally at 100% output power for the calibration to be correct.

(EDUchat should have an open connection to the transmitter and the Control Panel should be open. Follow the steps outlined above if this is not the case.)

- 1 Click **Setup** on the EDUchat menu bar.
- 2 Select **Options** from the Setup menu and **Calibrate Meters** from the sub menu.

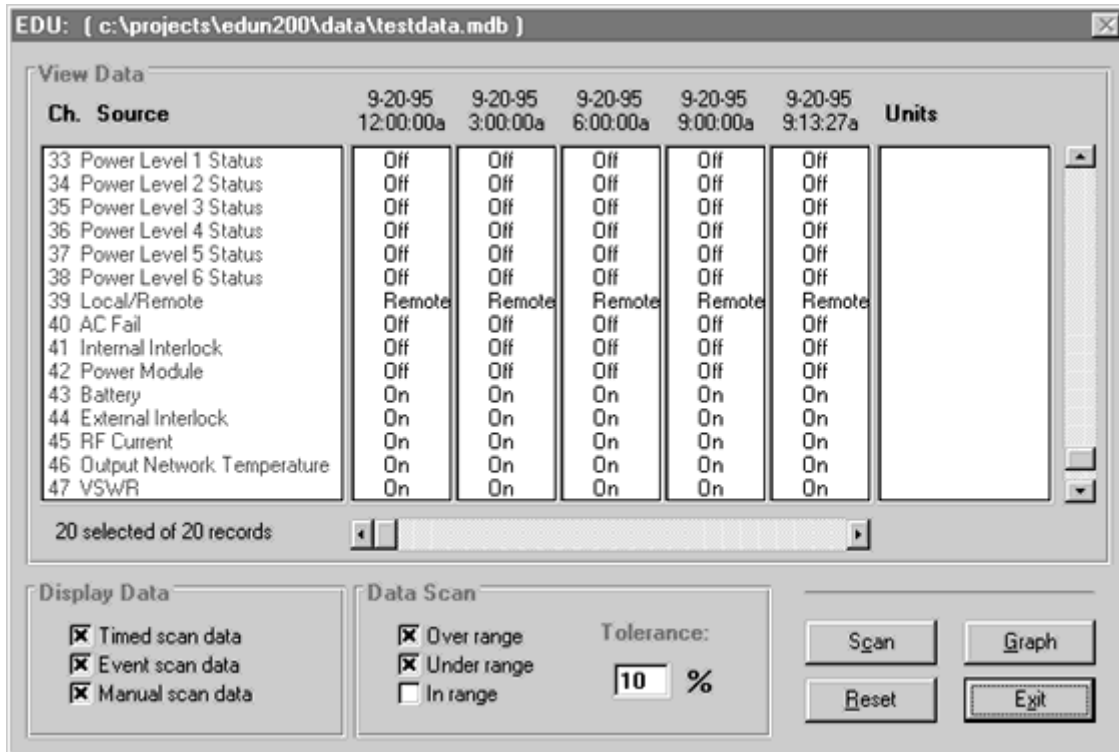
If the Calibrate Meters option is not available then EDUchat does not have a data connection to the EDU hardware.

- 3 The Power Output meter should be visible on the Control Panel behind the Calibrate Meters window. If it is not, move the Calibrate Meters window until this is so.
- 4 The Control Panel continues to be updated even while the Calibrate Meters window is open. When the reading below the Power Output meter reads 100% (or very close to 100%), click the **Calibrate** button.

The Calibrate Meters window will close and the three analog bars will become about 75% filled. This is now the display for a normal set of readings at 100% output power. The bar indicators have some extra room to display readings that go above normal.

Viewing Data

Compressed data from the EDU is expanded and stored to disk files. When a data file is opened, the Viewer is loaded to help analyze the data in those files.



To open a data file:

- 1 Click **File** on the EDUchat menu bar.
- 2 Select **Open** from the menu and **Data** from the submenu.

The Viewer loads and a dialog window opens prompting for the name of the data file to open.

- 3 Enter the name of a data file directly or via the selection controls and click **OK**.

When a file is selected, the Viewer loads the data. The data will be translated before loading if necessary.

- 4 Click **Exit** to close the file and the viewer when you are done.

Viewing Data (continued)

Here are some useful viewing tips:

- When a file is loaded, the contents can be viewed by moving the scrollbars below and to the right of the data windows. While dragging the lower scrollbar, notice that the date and time labels are updated even though the data windows do not change until the bar is released. This can save time when navigating large data files.
- If a portion of a reading or its description is hidden, double-click the reading to get a display of the entire text.
- Deselecting any of the check boxes in the Display Data area will make all data that is recorded as a result of that scan type invisible.
- The **File** option on the EDUchat menu bar can be used to close the current file and open a new one. When a file is opened, the viewer checks for data that has not been translated by the formulae in the specified profile. If “raw” data is found, a brief data translation sequence occurs. This only happens when new data is added to a file or when a retranslation is requested.
- If the profile is altered, all data in the file should be translated again to reflect the changes in the profile. The **File** menu on the EDU menu bar has a **Translate** command that will force an entire file to be translated.

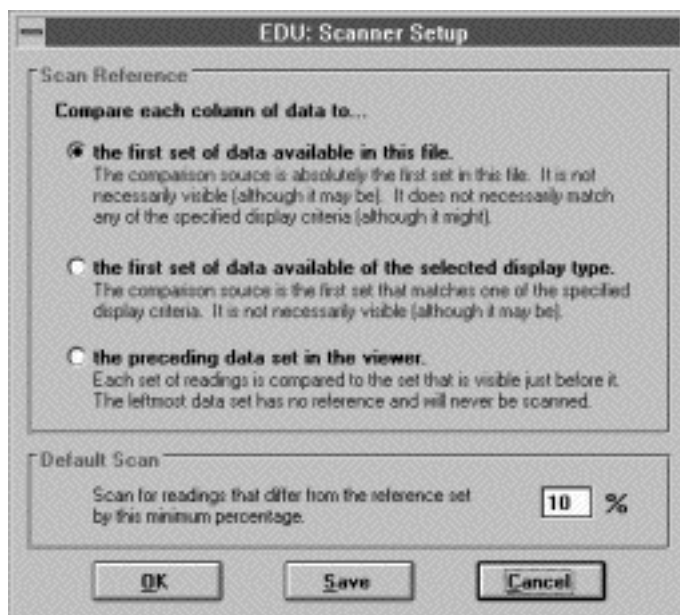
Scanning Data

The data Scanner is a Viewer function that helps locate out of tolerance data. It highlights data that meets or exceeds the criteria set in the Data Scan area of the Viewer window. Highlighted data is marked with a red arrow pointing either up or down to designate above or below tolerance, respectively. Data that is within limits will be marked by a green diamond.

- 1 Click **Scan**. A data scan will occur automatically when the scanner is activated.

Unlike most buttons, the **Scan** button acts as a toggle switch instead of a push button. The scanner will remain active until the **Scan** button is clicked again. If the scanner is active, the options in the Data Scan area of the window are enabled. The options are disabled and appear faded when the scanner is inactive.

The scanner searches for data that differs from the reference data by a minimum percentage known as the tolerance. It can also be adjusted to scan for data that is above, below, or within acceptable limits. These options can be changed in the Data Scan area of the viewer window.



Options for selecting Reference Data are located in a special setup window.

- 1 Click **Setup** on the EDUchat menu bar.
- 2 Select **Options** from the Setup menu and **Scanner** from the submenu.

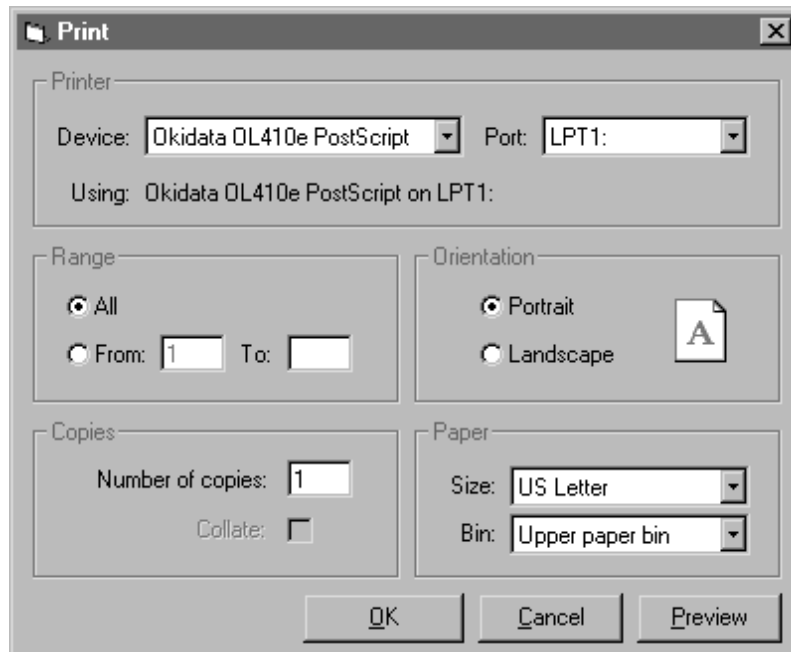
You will be presented with a menu of options for selecting the reference data set. The choices are described in detail in the menu.

- 3 Choose the appropriate options from the menu.
- 4 Click **Save** if you would like to make these options the default options for the scanner or, click **OK** to activate the options for this session. The Scanner Setup window closes.

Printing Data

EDUchat can print a data file in tabular form similar to the Viewer display to most any Windows compatible printer. Also from this dialog the print device may be changed, specific pages may be selected to print and the number of copies to print may be changed.

A preview of the document can be generated before printing. The preview shows how the final printed output will appear without actually sending data to the printer. Previewing can save considerable time and paper when adjusting fonts and margins to maximize page use.



To write a data file to the printer:

- 1 Click **File** on the EDUchat menu bar.
- 2 Select the **Print** option from the menu File menu.

The Print Data window opens and a dialog window opens prompting for the name of the data file to print.

- 3 Enter the name of a data file directly or via the selection controls and click **OK**.

The data file must have been translated prior to printing. If this is not the case, an error will occur and you will be given the option to translate the file.

- 4 Select the print device and adjust printer specific settings as necessary.

The default settings will appropriately fill a letter sized page with the channel descriptions, unit descriptions, and five columns of data. using an 8 point fixed pitch font for the data table and an 8 point adjustable font for the header and footer

Printing Data (continued)

- 5 Click the **Preview** button if you would like to check the appearance of the output before it is sent to the printer.

You will have the option to cancel the preview as it is composing if necessary.

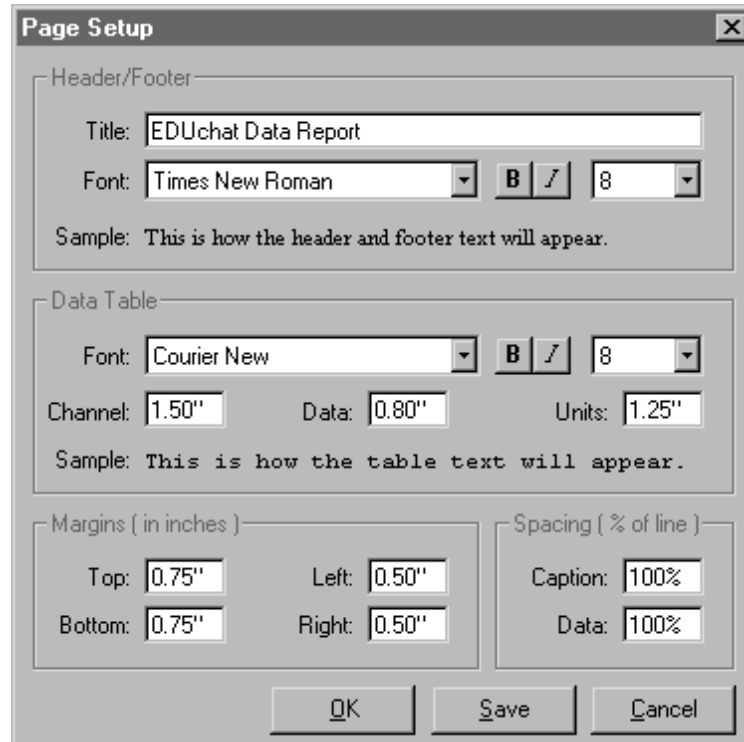
- 6 Click **Print**. Data will be written to the printer via the Print Manager.

You will have the option to cancel the print job as it is in progress if necessary.

- 7 Click **Cancel** to close the data file and the Print Data window.

Page Setup

In addition to the printer settings, there are several other adjustable options that control the layout of the data report on the page. All page margins can be adjusted. The font attributes of the header, footer and data table can all be changed. And, the vertical spacing between items in the data table is variable (as a percentage of font size). The default settings in this dialog will print five columns of data per page plus all channel descriptions and unit descriptors.



Setting up the Page

If the default page settings are not acceptable, change them via the Page Setup dialog.

- 1 Click **File** on the EDUchat menu bar.
- 2 Select the **Page Setup** option from the menu File menu.

The Page Setup dialog is displayed with margin, font and spacing options. This dialog is also available when a print preview window is open by clicking **Setup**.

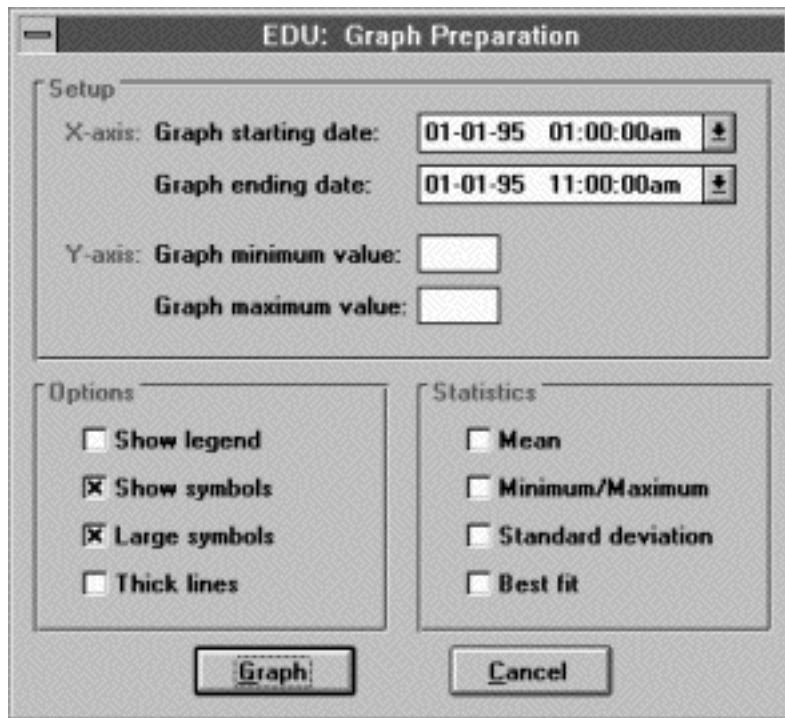
- 3 Make any necessary changes and click **OK** when done.
- 4 The new settings can be saved as the default page settings for future printing jobs by clicking **Save** instead of **OK**.

Graphing Data

The data Viewer has a graphing tool to help locate data trends and anomalies. Up to five channels of data can be placed on a single graph to show data correlations.

The graph tool can optionally plot:

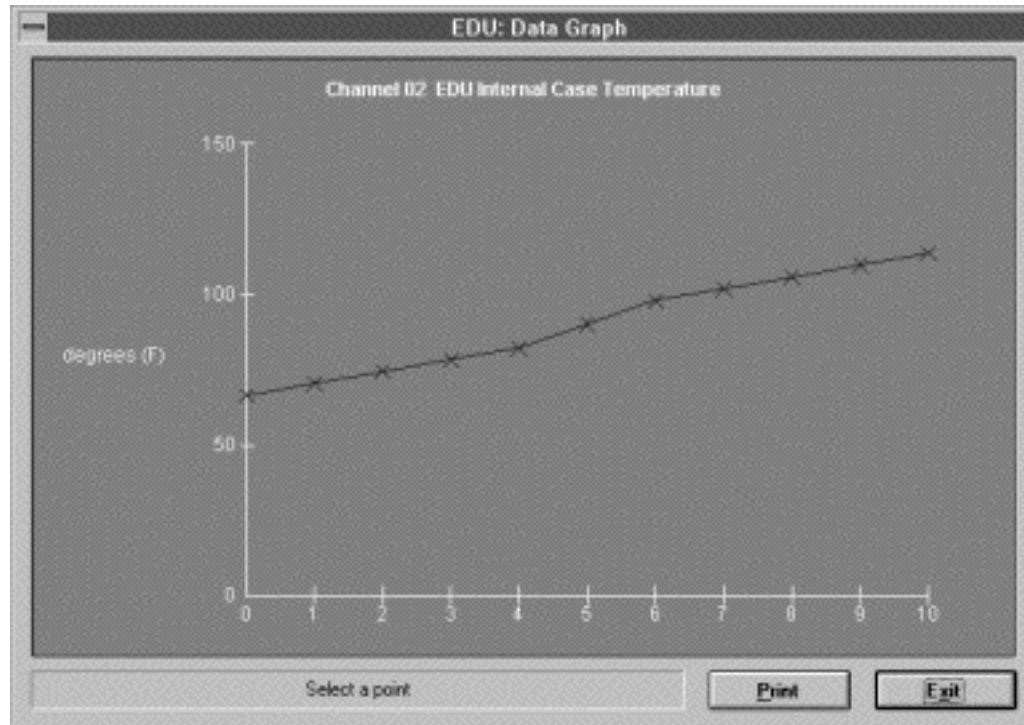
- Mean
- Minimum/Maximum
- Standard Deviation
- Best Fit Curve



To graph one or more channels of data:

- 1 Load a data file into the Viewer. See the section on viewing data for instruction on opening files with the viewer.
- 2 When the file has loaded, select up to five channels to graph by clicking on the channel description in the Source column of the viewer. If a wrong channel is selected by mistake, click the item again to deselect it.
- 3 Click **Graph**. The Graph Preparation window opens.
- 4 Select a start time and end time for the graph with the drop-down lists in the Setup area of the window. These selections determine the number of points to graph.
- 5 Click **Graph**. The Graph Data window opens with plots of the data from the channels selected in the Viewer.

Graphing Data (continued)



There are a number of graphing options available:

- **Show Legend**--generates a legend when more than one set of points will be graphed.
- **Show Symbols**--generates a marker at each data point. When the cursor is placed over data point and a mouse button is clicked, the time, date, and reading of the data point is shown in the display area at the bottom of the graph window.
- **Large Symbols**--generates slightly larger symbols and text. This increases readability on the small displays of laptop computers. Small symbols allow access to more points on the graph.
- **Thick Lines**--the data curve is drawn heavier than other items such as statistical markers on the graph. This can improve readability in some instances.

Graphing Data (continued)

Here are some graphing tips:

- Although EDUchat is capable of generating graphs with thousands of readings, the resolution of most monitors will not provide much detail with such a large number of points. It can be helpful in such situations to scale down the number of graph points with the Start and End Date selections of the Graph Preparation Window.
- To zoom in on a selected portion of the vertical axis, adjust the minimum and maximum Y-axis values in the Setup portion of the Graph Preparation window.
- Graph Options and Statics can be enabled in any combination, however, a simple graph with only a couple of options is often more lucid.

Printing a Graph

Graphs can be sent to a Windows compatible printer at the full resolution of the printing device. To do this:

- 1 Generate the graph according to the instructions previously in this section.
- 2 Click **Print**. A Print Setup dialog box opens.

Adjust the print options as necessary.

- 3 Click **OK** to begin printing. Graph information will be sent to the printer via the Print Manager.

The graph may change from color to monochrome briefly, this is normal.

Graphs can take several minutes to print. Printing status can be checked in the Windows Print Manager.

Here are some tips on printing a graph:

- The options in the printer setup dialog will vary by system. Typically the dialog will allow printer selection if more than one printer is installed. The options associated with that printer will be available when the printer is selected.
- Most printers default to a Portrait print mode but will support a Landscape mode. Graphs will usually have slightly better resolution in Landscape print mode.

Adjusting EDU Hardware

EDU hardware contains a set of parameters that control different aspects of EDU operation. Changing the values of these parameters will cause the EDU to behave in a different manner. EDUchat provides a means to program the parameters of EDU operation.



WARNING!

Use extreme care when programming memory in the EDU. Be sure to enter the correct address and leave boxes blank that are not intended for programming changes. It is possible to disable the EDU by inadvertently programming certain addresses.

Altering EDU programming requires information found only in the EDU Instruction Book. If this information is not available, do not continue! Improper programming can have adverse effects on EDU functionality!

To activate the EDUchat programming functions:

- 1 Click **Functions** on the EDUchat menu bar.
- 2 Select **Terminal** from the Functions menu. The EDUchat Terminal screen opens.
- 3 Select a site in the Connection Site area of the Terminal window.
- 4 Click **Connect** on the Terminal window.

EDUchat will establish a connection to the EDU hardware (via modem if you are making a remote connection). Connection status and error messages are displayed in the status area of the Terminal window.

- 5 Click **Setup** on the EDUchat menu bar and select **Hardware** from the Setup menu.

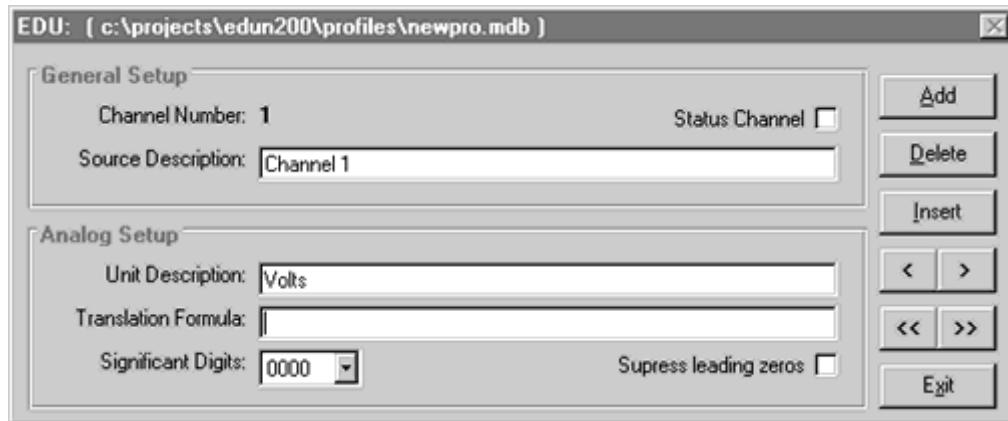
Consult the User Programming section of the EDU Instruction Book for information on how to alter system parameters. This information will vary by model and cannot be included here.

- 6 Click **Exit** when you are done programming the EDU.
- 7 Click **Disconnect** to terminate the connection to the EDU.
- 8 Click **Exit** to return to close the Terminal.

Transmitter Profiles

EDUchat uses a set of formulae to translate “raw” data from the EDU into useful transmitter readings. These formulae are stored in a file called a *profile*. The profile describes a transmitter for EDUchat so that the data it produces reflects that transmitter.

Should the transmitter be altered, it may become necessary to adjust the profile so that EDUchat data corresponds to data from panel meter readings. The Editor is used for this task.



To edit a profile:

- 1 Click **File** on the EDUchat menu bar.
- 2 Select **Open** from the menu and **Profile** from the submenu.

The Editor loads and a dialog window opens prompting for the name of the profile to open. Select an already existing file using the dialog controls or enter a unique name and a new profile will be created.

- 3 Enter the name of a data file directly or via the selection controls and click **OK**.

When a file is selected, the Editor opens the profile to the first channel. Navigate through the profile with the direction keys. Click < or > to move one entry backward or forward and << or >> move to the beginning or end of the profile, respectively.

Make changes to the profile as necessary. Each item is stored as changes are made.

- 4 Click **Exit** to close the profile and exit the Editor when all changes have been made.

Transmitter Profiles (continued)

Important notes regarding profiles:

- A single installation of EDUchat can collect data from any number of different transmitter models due to the use of transmitter profiles. *If the wrong profile is used, your data will be unreliable.* Profiles are specific to transmitter model and can vary from transmitter to transmitter. It is extremely important to use the correct profile for a transmitter.
- Before making changes to a profile, make a backup copy using the file copy commands of the Windows File Manager. As far as Windows is concerned, the profile is just another data file and can be copied, renamed, deleted, etc.
- If a profile is altered that has already been used to translate data, the data that was previously translated may be invalid because of the changes. If you want to keep the previous data “as is”, do not add any more data to that file or keep a backup copy of the data file. If, for some reason the entire file is translated again, the old data will be translated through the new formulae. Conversely, you may want all the data to be updated. In that case, do not forget to force a translation of the entire file to update the old data to the new formulae. Details on this procedure are in the Viewer instructions.
- Along with the operating profile for the transmitter, a “blank” profile is provided with EDUchat. This profile does not translate the incoming data at all--data passes through as a number usually between 1 and 1000. It is used for calibrating formulae for the operating profile. It is called rawdata.pro and it resides in the EDUchat subdirectory.
- It may seem that the Insert button on the Editor does not insert items in the correct location of the profile when a new description is added. This is only partly true. The new item is actually added to the end of the profile but it is given the correct channel number. When the profile is opened again, it will appear in the proper order.