

User's Guide

EagleEye® 2000



Anytime, Anywhere...Pumping System Solutions

Table of Contents

INTRODUCTION	3
SOFTWARE INSTALLATION.....	4
SOFTWARE SETUP	5
Communications.....	5
<i>FlexComms Wizard</i>	5
Direct Connect Setup.....	5
Windows 95/98 Dial-Up Setup.....	5
Windows NT/2000 Dial-Up Setup	7
<i>Paging Wizard</i>	7
DataBase Source Configuration	8
SOFTWARE OPERATION	9
Control Page.....	9
Status Page	10
<i>Normal</i>	10
<i>Small</i>	11
Trends Page.....	11
<i>Tool Bar Orientation</i>	12
Alarms Page	13
Settings Page	14
Comms Page.....	15
<i>PLC Communications Statistics</i>	16
<i>Paging Display</i>	17
ALARM PAGING MODULE	17
Pump Station Alarms.....	17
Access To Paging Service Providers.....	18
APPENDIX A	20
APPENDIX B.....	21

INTRODUCTION

Welcome to EagleEye 2000.

This document explains how you can install, configure and operate you EagleEye 2000 monitoring and control software. EagleEye has been designed with flexibility in mind so that you can monitor and control your pump station and share that information with practically any application. It has also been built using the powerful Citect driver engine, the world's most powerful communications and OPC server software. The answers to the most commonly asked questions about EagleEye can usually be found right here. Use the table of contents as a guide to finding what you are interested in. Please read on! It will be worth the time you spend.

With EagleEye 2000 you can...

- Provide your operators with remote control of the pump station using graphical pages.
- Monitor, control and log pump station alarms.
- Produce alarm history reports.
- Adjust pump station setpoints.
- Adjust and schedule pump station modes.
- Provide your operators with alarm notifications using the optional Alarm Paging Module.
- Provide historical and realtime trending in a graphical format with adjustable sampling rates.
- Exchange pump station data with other applications.

SOFTWARE INSTALLATION

Your EagleEye software should have come in the software package on one CD. Installation of the software is very simple and can be completed in a matter of minutes with a few short steps.

Minimum Hardware Requirements

- A personal computer with a 166MHz Pentium processor.
- A minimum of 32Mb of memory for Windows 95 and 64Mb for Windows NT.
- A CD-ROM drive.
- At least 365Mb of free hard disk space.
- A PC-compatible standard or enhanced keyboard.
- A PC-compatible serial or bus mouse.
- A windows supported graphics adapter card (SVGA 800x600x256).
- A PC-compatible color monitor. (SVGA 800x600x256).
- One available serial communications port.

To install EagleEye 2000 on your computer system:

1. Insert the EagleEye 2000 CD into your CD-ROM drive. If you have Windows Autorun enabled, the install program will automatically start at this point (proceed to step 5).
2. From the Windows Start Menu, select Run.
3. Type *d:setup*, or if your CD is in another drive, type *<path>:setup*.
4. Click on the *OK* button or press the Enter key to start the installation.
5. The Citect install screen will open and you will first get the Welcome screen to appear. At this point the software will guide you as you click your way through the installation.
6. After the installation has finished, you will be asked to re-boot your computer before proceeding. This is always a good idea, as EagleEye needs to update the registry files on your computer.
7. Once your computer has rebooted you should immediately launch into EagleEye where you can begin the communications setup. Keep in mind, it is always a good idea to go back and read the readme.doc file. As it contains important information concerning your EagleEye software.

Software Requirements

- Microsoft Windows 95 or Microsoft NT Version 4.00 or higher.
- EagleEye 2000 on installation CD.

Software Protection

A **Hardware Key** has been provided with your EagleEye software package. This key is a physical “dongle” that should be installed onto your computer. It simply plugs into the parallel port of your computer. If a printer is already connected to this port, remove the cable, connect the hardware key, and reconnect the printer cable. If you do this, EagleEye will only run if your printer is switched ON. Be sure to connect the proper end to the computer (it is clearly marked on the key). To avoid damage to your computer, you should switch it OFF while you install the hardware key. This key will allow you to use EagleEye and acts as your software license.

SOFTWARE SETUP

Communications

The first time EagleEye runs, it will automatically run the FlexComms Wizard. This will enable you to setup communications with your pump station. After the initial setup, communication settings may be changed from the Communications Status Page.

FlexComms Wizard

Click on a PLC picture (like ) on the communications status page to open the Communications Setup Wizard. This wizard allows you to define the way the PLC is connected to the EagleEye PC.

The wizard will ask you to select which operating system you are using (Windows 95, 98, NT, or 2000) as well as whether the PLC is directly connected to the EagleEye computer or if it is connected over a phone line by a modem.

When you click 'Finish' on the last page of the wizard, a Compile window and this window will appear:



After the Compile window closes, click OK on the Restart window and EagleEye will shut down and restart to allow the new communications settings to take effect.

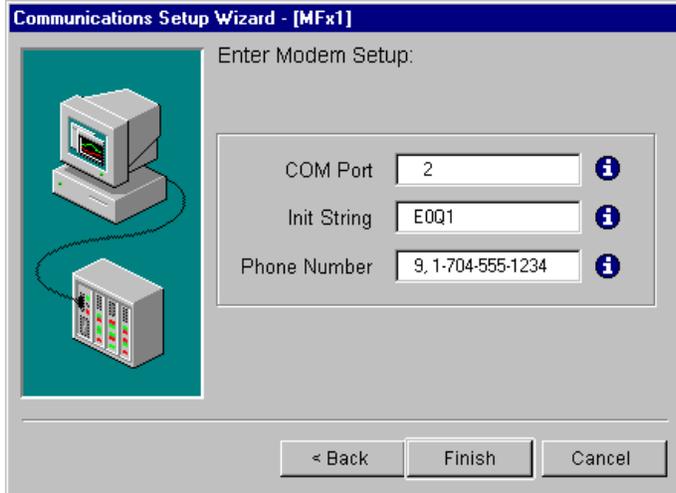
Direct Connect Setup

The Direct connect communication setup is generally the simplest method for connecting to your pump station. Be sure you have followed the wiring diagram for the connection of the short haul modems included in Appendix A. Using two short haul modems, EagleEye will be able to communicate at distances up to 2 miles at its set communication rate. If distances further than 2 miles are required an alternative communication method, such as dial-up, should be considered.

Windows 95/98 Dial-Up Setup

Make sure you have followed the wiring diagram in Appendix B for the connection of the phone modems. SyncroFlo offers a complete communications package with EagleEye and it is recommended that you purchase this package. In this package the modems come preconfigured to provide ease in setup.

If you have Windows 95 or 98 and select 'Dial-Up Connection' in the Wizard, the following screen will appear:



Enter the COM port the modem is plugged in to, the initialization string, and the PLC's phone number. Include any prefixes to reach an outside line as well as 1 plus the area code if necessary. Use a comma to cause a 1.5 second pause before the rest of the phone number is dialed. Use one of the following initialization strings:

Modems	Initialization Strings
MultiModem (provided by SyncroFlo)	<i>(None)</i>
Diamond SupraExpress 56k	E0Q1
US Robotics Sportster 56k	<i>(None)</i>

If your modem is not listed in this table, you will need to look up the AT command documentation for your modem. Look for the following parameters:

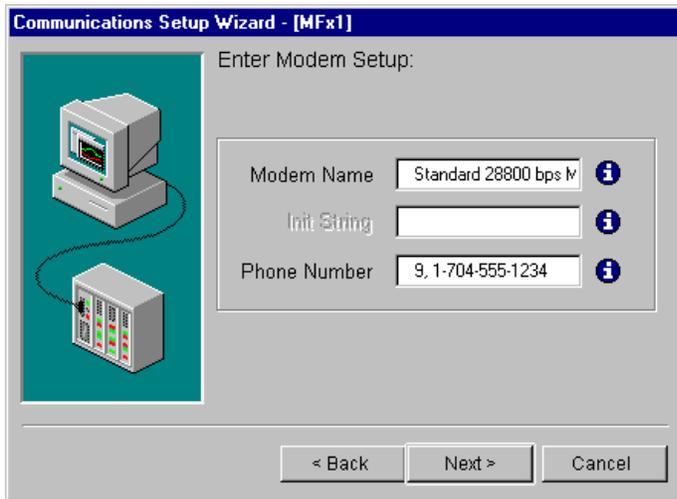
Generic Hayes Modem	Generic 3COM Modem	Your Modem	
V0	V0		Disable long-form (verbose) result codes
Q1	Q1		Result codes are not sent on the RS-232 connection
E0	E0		Commands that are sent from the computer are not echoed back to the RS-232 connection
&C1	&C1		DCD will follow carrier on the line
&K0	&H0		Handshaking OFF
%C0	&K0		Compression OFF
	&B1		Fixed serial port rate
%E0	&M0		Error control disabled
&D0	&D0		DTR always on

Add the parameters for your modem together into one string, like "V0Q1E0&C1&K0%C0%E0&D0", and enter it in the Init String field in the Wizard. Most modems allow you to use a terminal program like Windows HyperTerminal to enter these parameters and permanently save them to the modem's non-volatile memory (NVRAM). You

can then set the modem to load the parameters in the NVRAM automatically when it is turned on. In that case, it isn't necessary to enter anything in the Init String field in the Wizard. NVRAM isn't available in new Diamond Supra modems.

Windows NT/2000 Dial-Up Setup

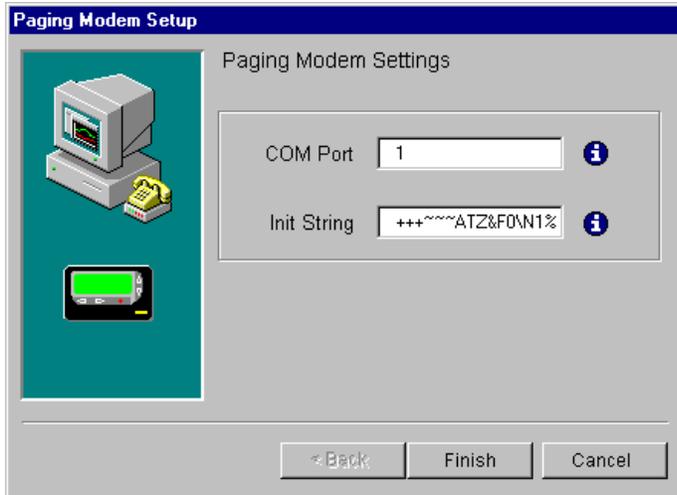
If you have Windows NT or 2000 and select 'Dial-Up Connection' in the Wizard, the following screen will appear:



It is necessary to enter the modem's name exactly as it appears in the Windows Control Panel. Also, enter the phone number to dial to reach the PLC. Include any prefixes to reach an outside line as well as 1 plus the area code if necessary. Use a comma to cause a 1.5 second pause before the rest of the number is dialed. The initialization string field is not used in this configuration. Make sure you have configured the modem and installed it in Windows as described in the modem configuration documents.

Paging Wizard

If you have the Alarm Paging feature, the pager picture  Alarm Paging will display on the communications status page. Click on it to open the Paging Setup Wizard. This allows you to set up the modem to be used for paging. If you have an internal modem it is recommended that you use this modem for your paging modem as opposed to an external one provided for your pump station communications. The main communications modem requires specific commands to be configured and does not allow flexibility of use by other applications as would your internal modem.



Enter the COM port the paging modem is connected to and the initialization string for that brand of modem.

Modems	Initialization Strings
Generic Hayes Compatible	ATF5/N0%
Diamond SupraExpress 56k	+++~ATZ&F0\N1%C0%G0
US Robotics Sportster 56k	+++~ATZ3&H2&I1&K0&M0

If your modem isn't listed in this table, you will need to look up the AT command documentation for your modem. Look for parameters to disable error correction, disable data compression, and disable data encryption. Add "+++~AT" to the beginning of the list of commands to put the modem in command mode.

When you click 'Finish', a Compile window and this window will appear:



After the Compile window closes, click OK on the Restart window and EagleEye will shut down and restart to allow the new communications settings to take effect.

Please be sure to review the information contained in the Alarm Paging Module section of this guide to clearly understand the operation of this feature.

DataBase Source Configuration

If you have the Alarm Paging feature, a database source will need to be set up on your computer. By simply following the steps below, an ODBC data base will be configured on your computer that will allow EagleEye to access system alarms data. Note: If you received an error message

after installation of EagleEye indicating an Alarm Paging ODBC error, this database source has not been configured on your computer and should be done.

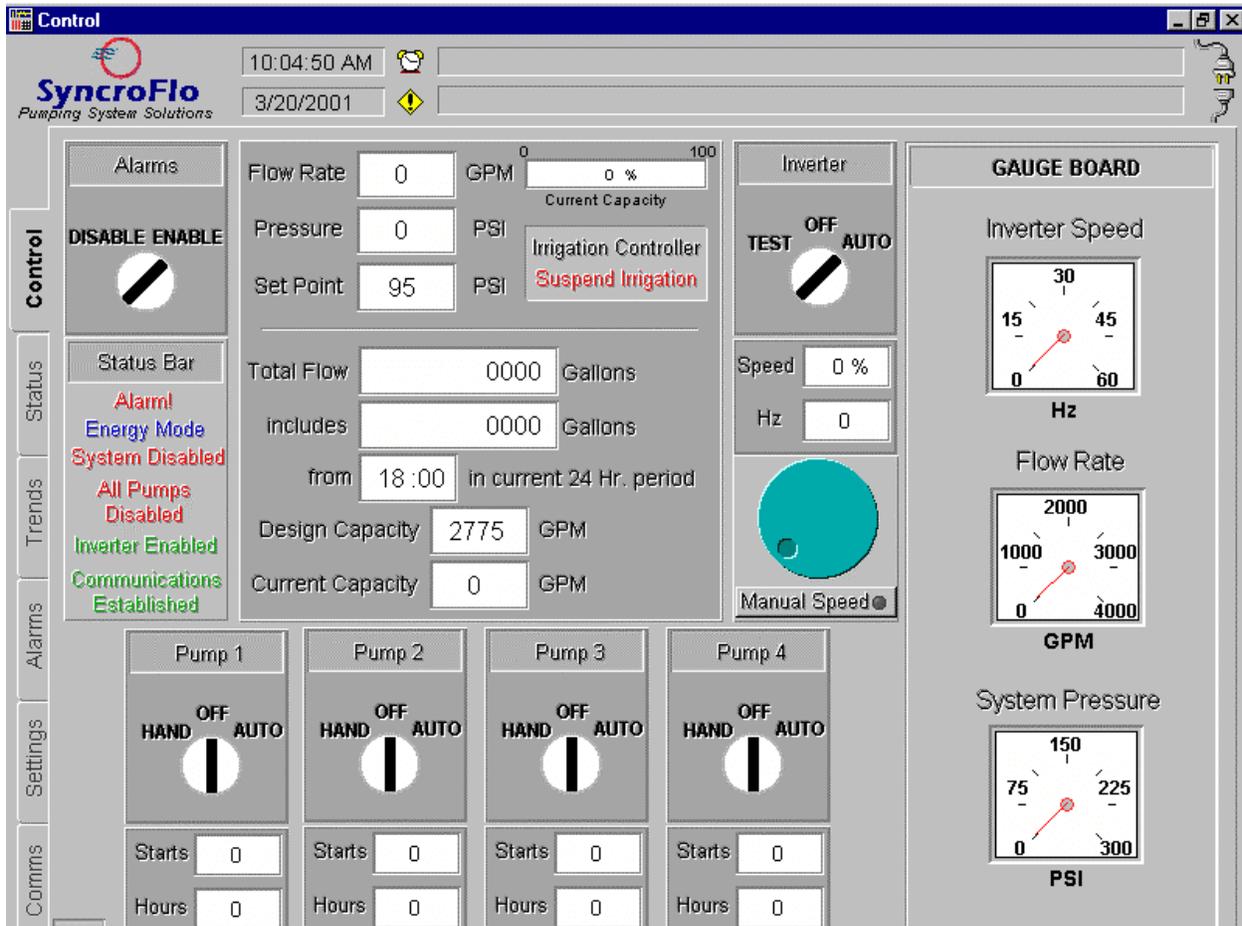
1. Create the Paging Data Source Name
 - a. For Windows 2000:
 - i. Go to the Windows Control Panel
 - ii. Select Administrative Tools
 - iii. Select ODBC
 - iv. Select System DSN
 - v. Select Add
 - vi. Select Microsoft Access
 - vii. Set Data Source Name = Paging
 - viii. Select database: browse to Citect\Data and select the MDB file.
 - b. For Windows 95/98/NT
 - i. Go to the Windows Control Panel
 - ii. Select Administrative Tools
 - iii. Select ODBC
 - iv. Select System DSN
 - v. Select Add
 - vi. Select Microsoft Access
 - vii. Set Data Source Name = Paging
 - viii. Select database: browse to Citect\Data and select the MDB file.

SOFTWARE OPERATION

EagleEye is setup as a series of graphical pages, each having an index tab for easy navigation. There are 6 primary pages that display different pump station activity. All of your primary pages contain a Main Status Strip which indicates date and time, and alarm activity. This is also where the EagleEye shutdown button  is located.

Control Page

The *Control Page* is the page that is displayed upon EagleEye startup. It is your window to the pump station, allowing you to see everything taking place. A quick glance at your status bar should answer all your general operational questions.



You should note that all control items are color coded to indicate status or mode. Green means run mode, yellow means caution mode and red means alarm mode or disabled status.

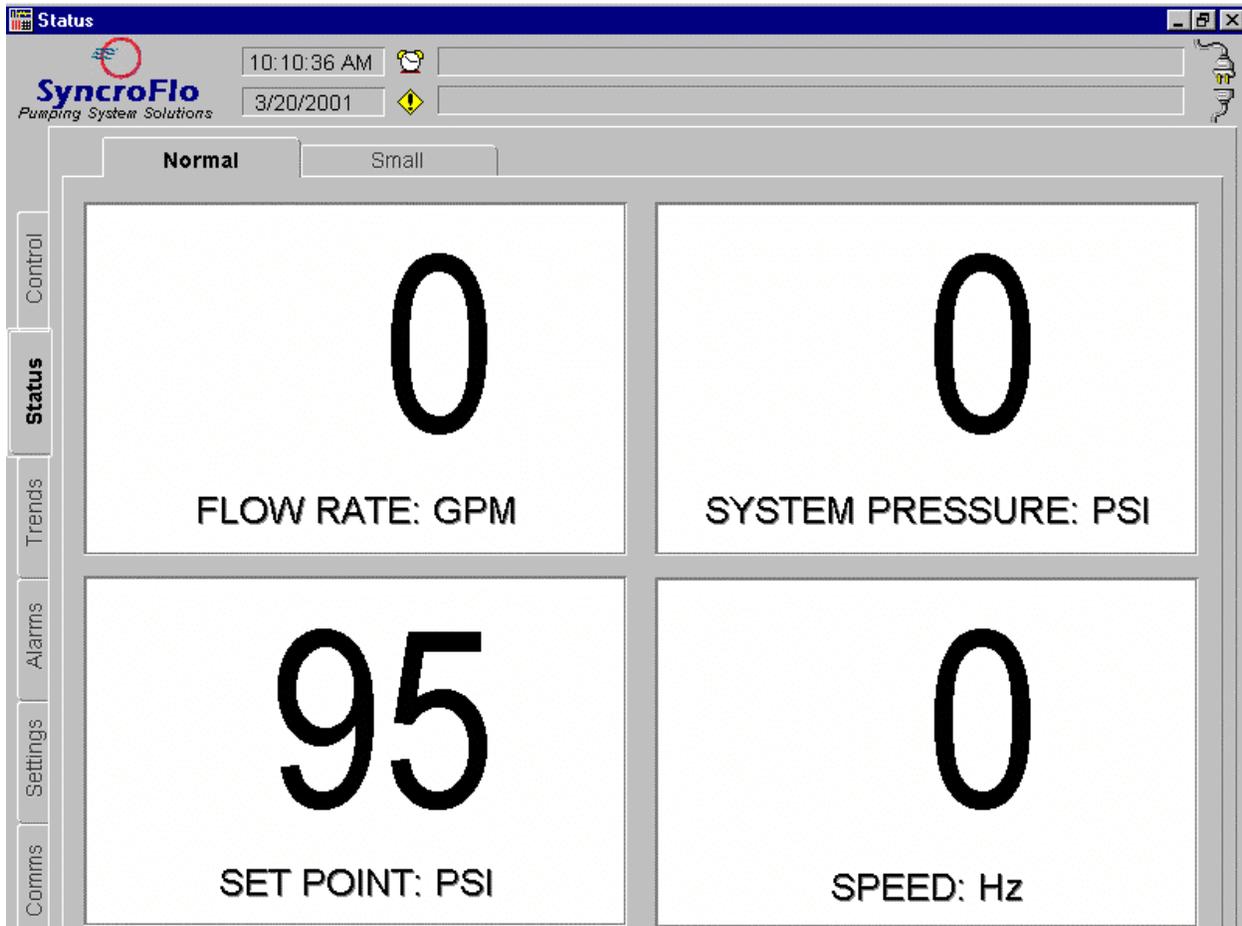
Occasionally you may have the color blue as an indicator. This simply means the pump station or a pump is in energy savings mode. A pump being controlled by the VFD is considered in energy savings mode.

The gauge board is a representation of a group of analog gauges that might be found on your pump station. Manual speed control allows you to control the speed of the VFD right there from your desktop. Simply click the manual speed button to engage and disengage manual speed control. A green indicator light on the button reveals that you are in manual speed control mode. The dial above the button works like a speed potentiometer that you would actually find on the face of some VFDs.

Status Page

Normal

The “*Normal*” *Status Page* is designed so that you may see at a glance the status of your pump station.



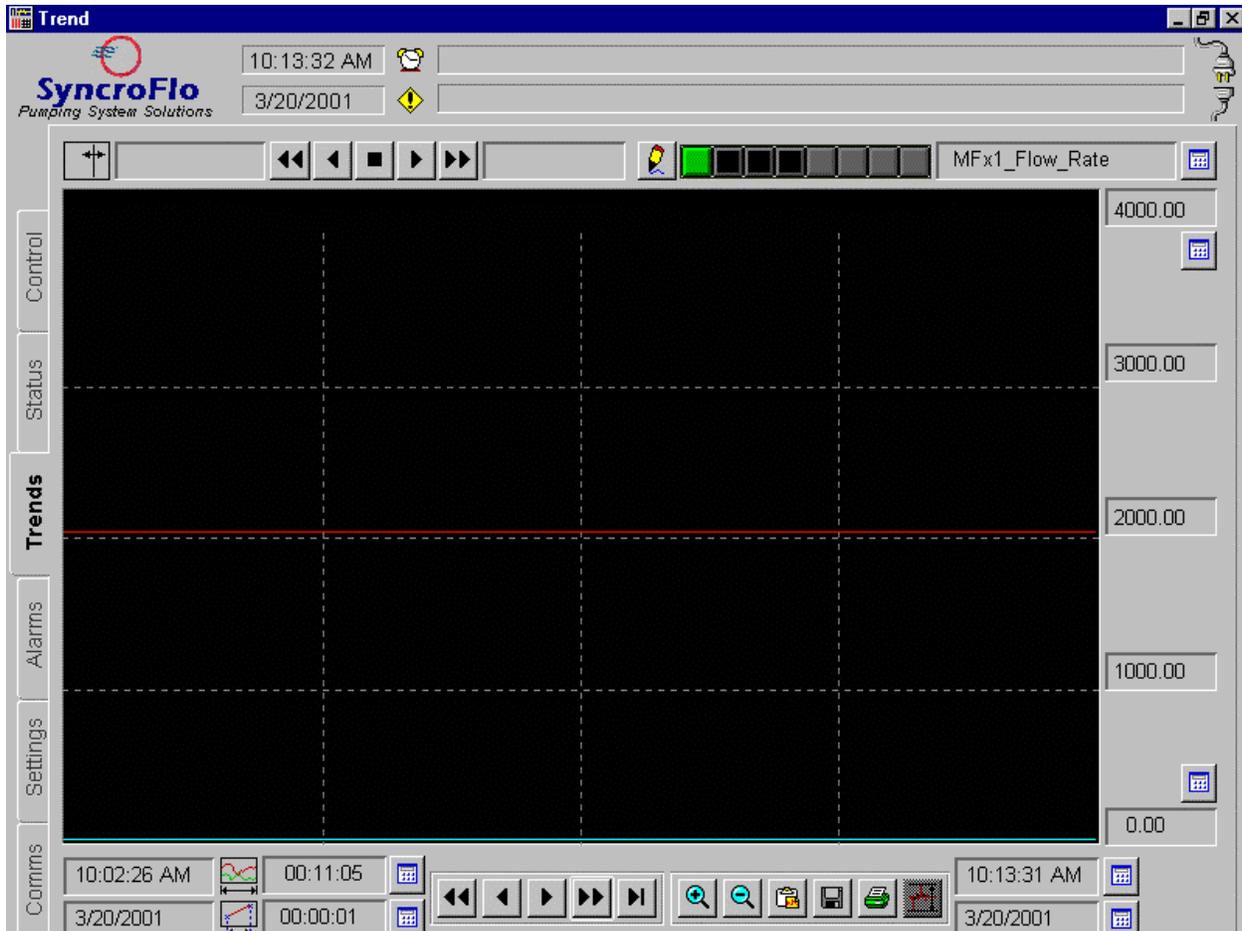
Small

The “*Small*” Status Page allows you to move EagleEye out of the way to use other PC applications and still monitor you pump station. To return to the “*Normal*” Status Page, click anywhere on the face of the status window.



Trends Page

The *Trends Page* displays the recorded information about your pump station, such as flow rate, pressure, setpoint and VFD speed. You can view both real time trending information or return to historical trend information.



Each trend variable has a selectable pen associated with it that records its activity. The variable name is shown to the right of the pen selection tool bar. The trend information shown on the screen is defined by the period and span (shown on the tool bar at the bottom left of screen) for each trend pen shown. The range for the selected pen is shown vertically on the right side of the screen. Once you navigate around the screen for the first time you will find yourself quite comfortable with this powerful device. Most items on the screen are adjustable including period and span.

Tool Bar Orientation

Navigating around to view, list or print the information can be easy once acquainted with the page layout. Here is just a brief orientation to the arrangement of all the toolbar devices.

Starting at the top left, below the Main Status Strip, you will find your cursor control. The cursor can be used to examine specific information about points on the trend graph. The cursor will intersect a specific trend plot at the location you wish to examine and the value of that point is displayed in the information box to the right of the cursor control buttons. You can adjust the cursor location by simply clicking on the trend graph, clicking and dragging the cursor, or using the cursor control buttons to scroll across the graph. The trend variable you wish to examine can be selected by selecting the corresponding pen, which leads us to our next section.

Moving clockwise around the trend graph screen, we get to the trend variable pen control. This is where you may select which trend variable is currently active (values being displayed on the screen). You will see which trend variable is currently active in the information box to the right of the pen selection buttons. This is also where you may add or remove variables being displayed on the graph and assign pen colors to the trend variables.

The right side of the trend graph screen displays your trend variable scale. The scale displayed changes to match the active trend variable. Default minimum and maximum values are set for each trend variable, but all may be adjusted to provide greater graph clarity if needed.

Moving to the bottom of the screen you will see a tool bar that displays times, dates, period and span. You also have your display control buttons located here that allow you to scroll through the trend graph to find a specific trend period. The time and date at each of the far sides are the beginning and end times and date being displayed, respectively. To the right of the beginning time and date is the trend span and period for the information being displayed. They are interrelated and both may be adjusted to meet your specific needs. The remaining tool bar buttons at the bottom are your auxiliary buttons that allow you to zoom in and out, print the trend graph, copy the trend graph to your Windows clipboard to paste into another application or save the trend graph information to a data or text file.

Alarms Page

The *Alarms Page* provides you with the status of all pump station alarms, access to the pump station alarm history file and access to the optional alarm paging module setup. The Alarm screen is setup into 3 primary sections consisting of the Alarm List, Current alarms and Hardware alarms.

The Alarm List page displays all pump station alarms and their current condition. This page also allows you to reset any alarms that have cleared and create an alarm history report. By simply specifying the beginning (Start) and ending (End) record and pressing the Create Report button a text report will be compiled and then displayed for your use. To select your record range click on the value box and a number pad will pop up.

The Current alarms page displays all *current* alarms that have occurred since being connected to your pump station. The alarms are each color coded to indicate the status (i.e. Acknowledge, Unacknowledged,...). An alarm on this page may be acknowledged by clicking on that specific alarm. It is important that an alarm be acknowledged as soon as possible, as the alarm paging module uses this list to generate alarm notifications.

The Hardware alarms page displays all *current* hardware alarms that have occurred since being connected to your pump station. Like the Current alarms page, the alarms are each color coded to indicate the status (i.e. Acknowledge, Unacknowledged,...). An alarm on this page may be acknowledged by clicking on that specific alarm. The alarms listed on this page indicate hardware specific alarms that have occurred such as communications failure and PC faults.



Settings Page

The *Settings Page* allows you to view and adjust the primary settings of your pump station. It also allows you to schedule Lockout Mode, 24 Hour Totalization period, and restore Factory Settings if necessary. It is important to carefully consider any adjustments you make before hand, as some changes may drastically alter the pump station performance. To make a settings adjustment, simply click on the value box and a number pad will pop up. Here you can enter the desired new value and click Enter. The setting shall then be saved in the pump station PLC.

Settings

10:40:22 AM MFx1_Comm_Fail Communication Failure EagleEye-PLC Comm. Failure
 3/20/2001

SyncroFlo
 Pumping System Solutions

Mode Settings

Normal Setpoint	105	PSI	Refill Mode On	55	PSI
Energy Mode Differential	10	PSI	Refill Mode Off Differential	10	PSI
Energy Mode On	280	GPM	Refill Mode Step	5	PSI
Energy Mode Off	370	GPM	Refill Mode Step Delay	300	SEC

Pressure Settings

Pump 1 On Differential	5	PSI	Pump 2 Off	112	PSI
Pump 1 Off Differential	5	PSI	Low System Differential	20	PSI
Pump 2 On Differential	10	PSI	High System	125	PSI

Flow Settings

Pump 3 On	925	GPM
Pump 3 Off	740	GPM
Pump 4 On	1850	GPM
Pump 4 Off	1480	GPM

Mode Control

Lockout Mode: **Disabled**

Beginning at: 0 : 00 hours and
 Ending at: 0 : 00 hours each day.

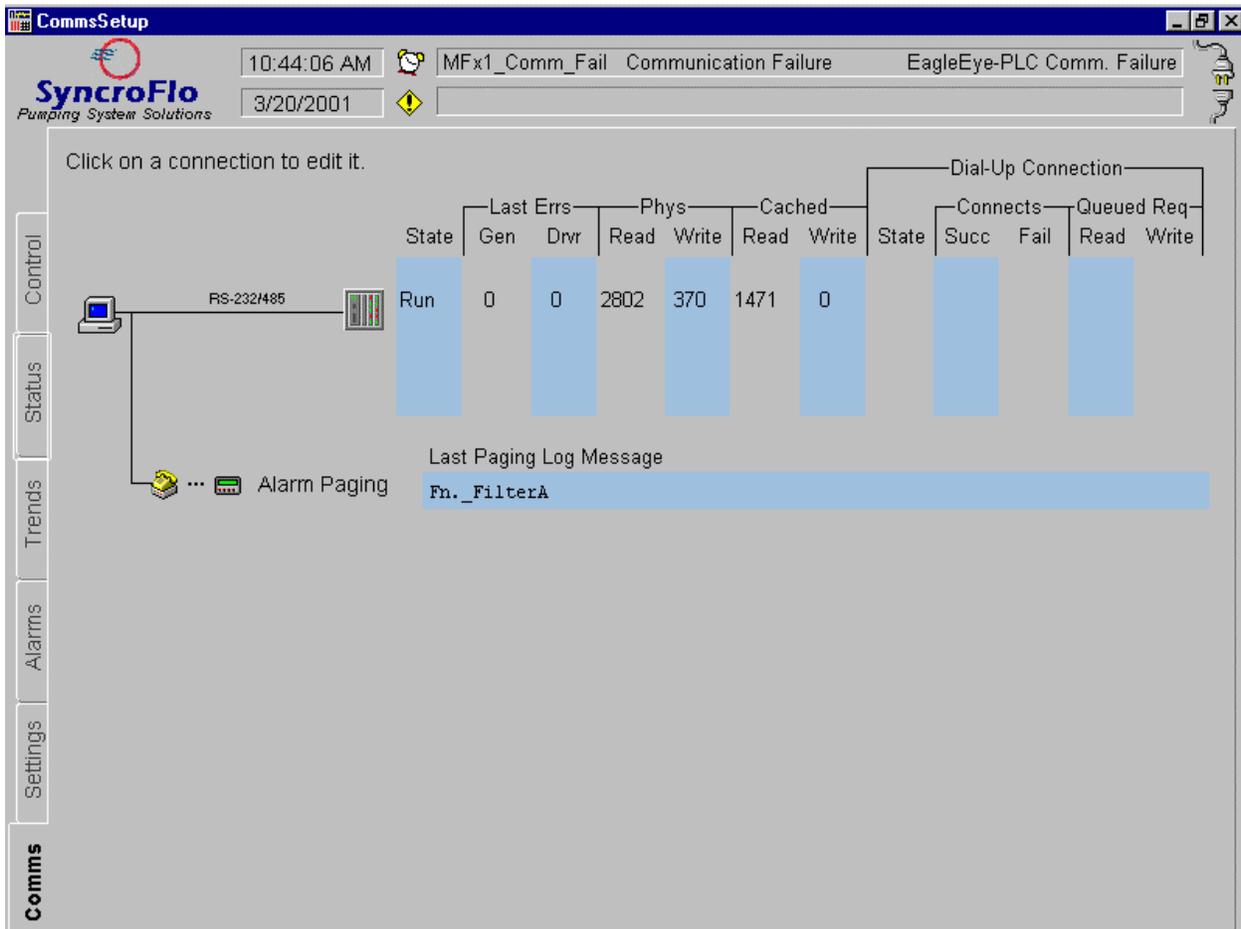
Refill Mode: **Disabled**

Job Site Settings Lost Reload Factory Settings 24 Hr. total beginning at: 18 : 00 hours

Remember, if you decide to restore factory setting, all settings modifications you have made will be overwritten.

Comms Page

This is the communications status and setup page. This page displays the current state of communications to PLCs and pagers as configured in your system.



PLC Communications Statistics

Each PLC that is configured will be displayed as either serial RS232/485  if it is connected directly, or as a dial-up connection  if using a modem.

Next, the state of that connection is listed:

- Run Communications OK
- Offln Communications failed (offline)

If communications fail, a generic and driver error code will be listed. Contact the SyncroFlo factory for assistance with communications failure codes.

The physical read and write values show how many requests were successfully sent to the PLC to read or write values. Reads should constantly increase unless the PLC is disconnected.

The cached read and write values show how many requests were serviced from Citect's variable tag cache and did not need to be sent to the PLC. If scheduled communications are used, all reads and writes will use the cache until the modem connects to the PLC.

If dial-up communications are enabled, additional statistics will be displayed:

Dial-up state will be one of the following:

- Disc The modem is not currently connected to that PLC
- Onln The modem is connected and the PLC is online
- Qued The PLC is queued, in line, to be dialed
- Ofln The modem is connected but the PLC is offline

Disc/Disab The PLC is disconnected and has been disabled by the IODeviceControl() command

The number of successful and failed dial-up connection attempts are listed. Finally, the number of queued read and write requests are listed. When the modem connects to the PLC, all these queued requests will occur.

Paging Display

If the Alarm Paging module is installed, the paging connection picture  ...  Alarm Paging will be displayed. Next to this display, Paging log messages will be displayed. See the Alarm Paging Module section for more details on setting up alarm paging.

ALARM PAGING MODULE

The EagleEye® 2000 Alarm Paging Module provides a facility to channel important system information to the right people simply and efficiently. Powered by the Citect Alarm Paging System, EagleEye alarm information can be easily set up to be directed to alphanumeric pagers, and even be forwarded to digital mobile phones.

The EagleEye Alarm Paging Module has been designed to complement the alarm monitoring and alarm reporting features provided within the standard EagleEye® 2000 product. The paging module can be configured to operate in a number of ways to suit various paging requirements and supports 8 services. They are:

- PageMart TAP paging service
- Telstra (Telecom) PET paging service
- Telstra MobileNet Digital GSM network
- Hutchison Telecoms PET paging service
- Link Communications PET paging service
- MivaIVR voice response system
- General Communications In-house Radio Paging
- Ring Phone (rings phone at number configured)

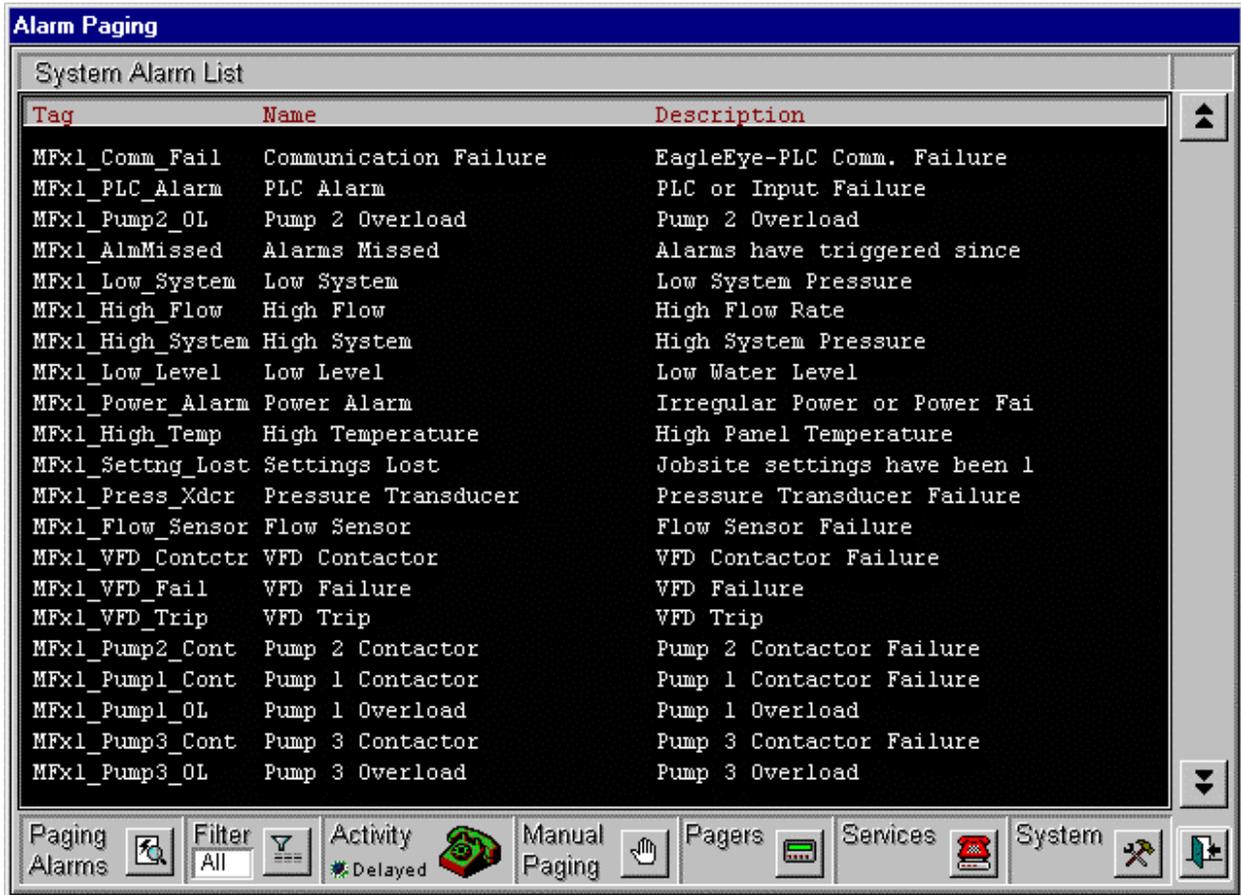
The PageMart TAP paging service is about the most common paging provider in the U.S.A. Service can easily be obtained at your local PageMart retailer and set up for many different regional options.

Pump Station Alarms

All pump station alarms displayed on the *Alarm List* page can be setup as a paging alarm. The Paging Alarms icon at the bottom left can be pressed to display all currently configured pump station paging alarms. By clicking on one of these configured alarms the alarm information can be viewed and the paging sequence can be selected.

By highlighting and selecting a specific pump station alarm displayed on the System Alarm List, the Alarm Paging Selection window will be displayed. This will enable you to add, modify or delete this alarm to/from the Alarm List.

Pagers may be setup for different individuals and then used in the Alarm Paging Sequence for any alarms desired. To edit the pagers configured, or add/delete pagers to your list, click on the Pagers icon at the bottom of the Alarm Paging window. This will pop up a window that will allow pagers to be modified. When adding a pager to your setup, a paging service provider must be selected. This is the service from which you have setup to receive pages. More detail is given



below concerning Paging Service Providers. Once a paging service provider has been established you will need to configure this service provider in EagleEye. By clicking the Services icon at the bottom of the Alarm Paging window, you will be able to configure your paging services through the edit window.

Alarm paging activity can be monitored from the Activity icon at the bottom of the Alarm Paging window. As a page is sent from EagleEye the Activity icon will indicate so by movement of the phone handset (symbolizing a ringing phone). This can be tested by sending a manual page using the Manual Paging icon at the bottom of the Alarm Paging window.

Access To Paging Service Providers

To be able to access the paging services it will be necessary to make contact with a service provider, such as PageMart or Hutchison Telecoms, to establish connection details. For example, to make use of PageMart's TAP or Hutchison's PET paging service it is necessary to obtain both the correct connection phone number and to register a user password with PageMart, or

Hutchison Telecoms, respectively. These details will also need to be configured within the paging module once EagleEye is installed and you have established the connection details.

APPENDIX A

Below is an illustration of direct connect communications setup using short haul modems. Please follow this diagram when setting up your direct connection.

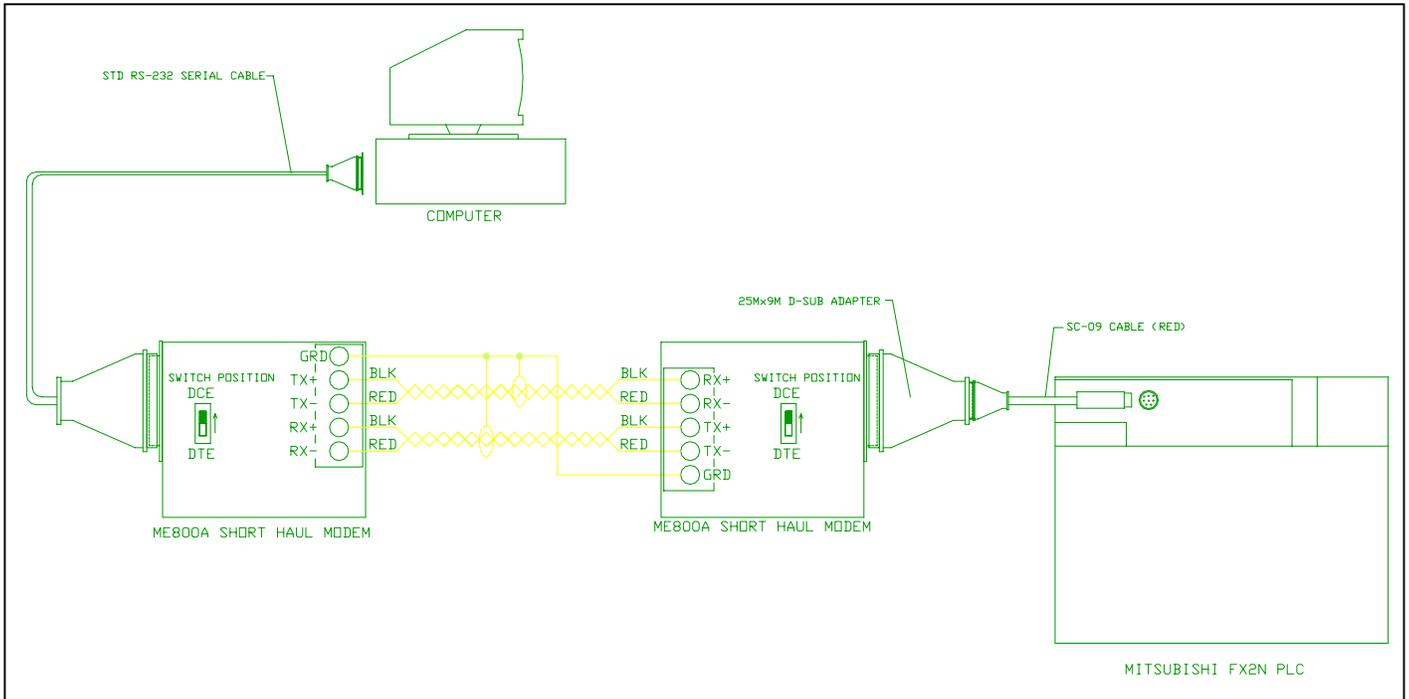
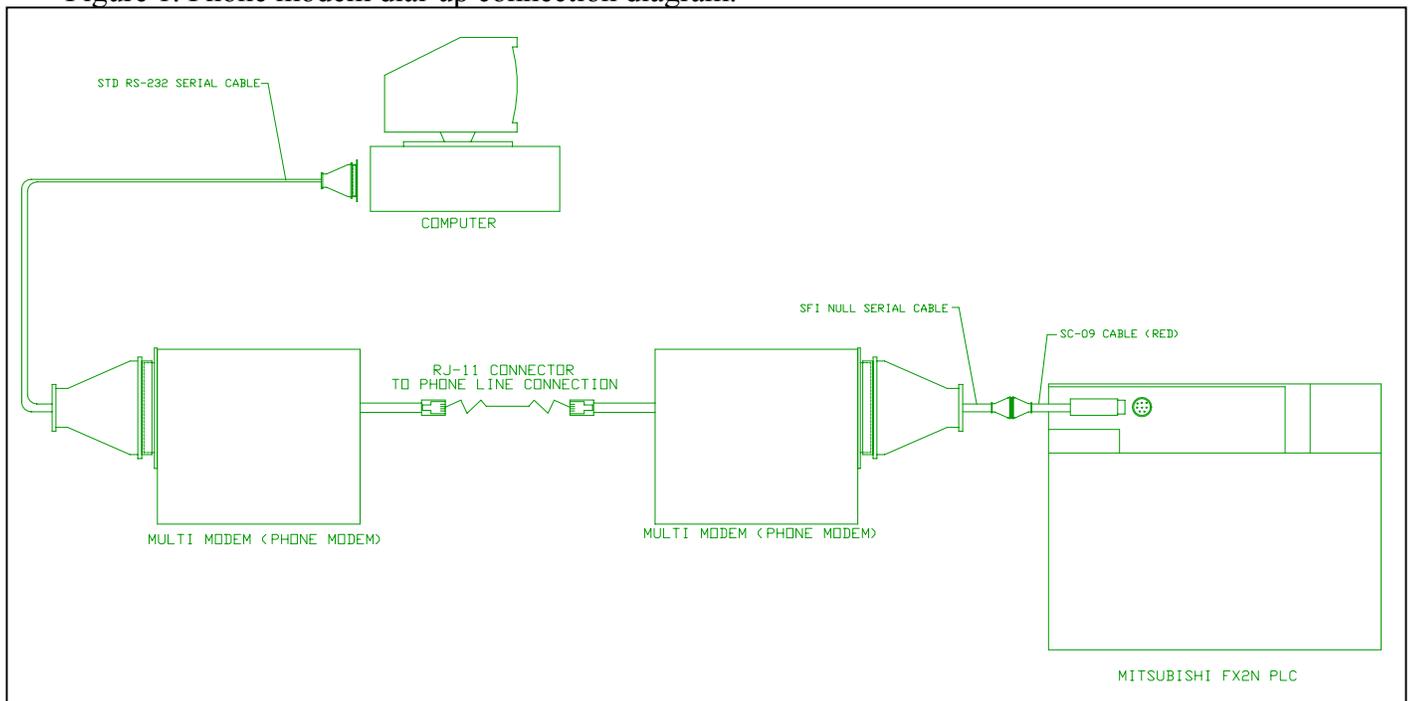


Figure 1. Short haul modem direct connection diagram.

APPENDIX B

Below is an illustration of dial-up communications setup using phone modems. Please follow this diagram when setting up your dial-up connection.

Figure 1. Phone modem dial-up connection diagram.



DISCLAIMER

SyncroFlo, Inc. makes no representations or warranties with respect to this manual and, to the maximum extent permitted by law, expressly limits its liability for breach of any warranty that may be implied to the replacement of this manual with another. Furthermore, SyncroFlo, Inc. reserves the right to revise this publication at any time without incurring an obligation to notify any person of the revision.

COPYRIGHT

© Copyright 2003 SyncroFlo, Inc. All rights reserved.

TRADEMARKS

SyncroFlo, Inc. has made every effort to supply trademark information about company names, products and services mentioned in this manual. Trademarks shown below were derived from various sources.

CITECT is a registered trademark of Ci Technologies Inc.

Windows, Windows 95, Windows 98, Windows NT, Windows 2000 are trademarks of Microsoft Corporation.

dBASE is a trademark of Borland Inc.

General Notice:

Some product names used in this manual are used for identification purposes only and may be trademarks of their respective companies.



March 2001 Edition for EagleEye® 2000 version 1.0

Document: EESEQ1-00

Effective: 3/3/01

Supersedes:

Printed in USA.