



ProLinX[®]

Reference Manual

ProLinX Gateways

Configuration and Troubleshooting

April 14, 2011

Your Feedback Please

We always want you to feel that you made the right decision to use our products. If you have suggestions, comments, compliments or complaints about the product, documentation or support, please write or call us.

ProSoft Technology

1675 Chester Avenue, Fourth Floor

Bakersfield, CA 93301

+1 (661) 716-5100

+1 (661) 716-5101 (Fax)

<http://www.prosoft-technology.com>

Copyright © ProSoft Technology, Inc. 2000 - 2011. All Rights Reserved.

ProLinx Reference Guide

April 14, 2011

ProSoft Technology ®, ProLinx ®, inRAx ®, ProTalk® and RadioLinx ® are Registered Trademarks of ProSoft Technology, Inc.

Please Read This Notice

Successful application of this module requires a reasonable working knowledge of the ProLinx Module, its connected devices, and the application in which the combination is to be used. For this reason, it is important that those responsible for implementation satisfy themselves that the combination will meet the needs of the application without exposing personnel or equipment to unsafe or inappropriate working conditions.

This manual is provided to assist the user. Every attempt has been made to assure that the information provided is accurate and a true reflection of the product's installation requirements. In order to assure a complete understanding of the operation of the product, the user should read all applicable documentation on the operation of the connected devices.

Under no conditions will ProSoft Technology be responsible or liable for indirect or consequential damages resulting from the use or application of the product.

Reproduction of the contents of this manual, in whole or in part, without written permission from ProSoft Technology is prohibited.

Information in this manual is subject to change without notice and does not represent a commitment on the part of ProSoft Technology. Improvements and/or changes in this manual or the product may be made at any time. These changes will be made periodically to correct technical inaccuracies or typographical errors.

Important Installation Instructions

Power, Input and Output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods, Article 501-4 (b) of the National Electrical Code, NFPA 70 for installation in the U.S., or as specified in Section 18-1J2 of the Canadian Electrical Code for installations in Canada, and in accordance with the authority having jurisdiction. The following warnings must be heeded:

- A** WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIV. 2;
- B** WARNING - EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES, and
- C** WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.
- D** "THIS DEVICE SHALL BE POWERED BY CLASS 2 OUTPUTS ONLY.

All ProLinx® Products

WARNING – EXPLOSION HAZARD – DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

AVERTISSEMENT – RISQUE D'EXPLOSION – AVANT DE DÉCONNECTER L'EQUIPMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DÉSIGNÉ NON DANGEREUX.



CL I Div 2 GP A, B, C, D

Temp Code T5

II 3 G

Ex nA nL IIC T4 X

0° C ≤ Ta ≤ 60° C

II – Equipment intended for above ground use (not for use in mines).

3 – Category 3 equipment, investigated for normal operation only.

G – Equipment protected against explosive gasses.

ProLinx Modules with Ethernet Ports

Series C ProLinx™ modules with Ethernet ports do **NOT** include the HTML Web Server. The HTML Web Server must be ordered as an option. This option requires a factory-installed hardware addition. The HTML Web Server now supports:

- 8 MB file storage for HTML files and associated graphics files (previously limited to 384K)
- 32K maximum HTML page size (previously limited to 16K)

To upgrade a previously purchased Series C model:

Contact your ProSoft Technology distributor to order the upgrade and obtain a Returned Merchandise Authorization (RMA) to return the unit to ProSoft Technology.

To Order a Series C mode with the -WEB option:

Add **-WEB** to the standard ProLinx part number. For example, **5201-MNET-MCM-WEB**.

ProLinx Plus with Radio

The following Information and warnings pertaining to the radio module must be heeded:

- A** "THIS DEVICE CONTAINS A TRANSMITTER MODULE, FCC ID: SDZ-WA-1. PLEASE SEE FCC ID LABEL ON BACK OF DEVICE."
- B** "THIS DEVICE USES AN INTERNAL COMPACT FLASH RADIO MODULE AS THE PRIMARY RADIO COMPONENT. THE COMPACT FLASH RADIO MODULE DOES NOT HAVE AN FCC ID LABEL. THE COMPACT FLASH RADIO MODULE HAS NO USER SERVICABLE PARTS."
- C** "THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION."
- D** "THIS DEVICE AND ANY RADIO ACCESSORY SOLD BY PROSOFT MUST BE INSTALLED BY AN AUTHORIZED PROFESSIONAL INDUSTRIAL RADIO SYSTEM INTEGRATOR. FURTHER, ONLY RADIO ACCESSORIES SOLD BY PROSOFT AND SPECIFICALLY TESTED FOR USE WITH THIS DEVICE MAY BE USED WITH THIS DEVICE."
- E** "THE USER OF THIS EQUIPMENT CANNOT BE WITHIN 20 cm. FROM THE RADIATING ELEMENT DEVICE."
- F** "CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT."

Industry Canada Requirements:

- A** "THIS DEVICE HAS BEEN DESIGNED TO OPERATE WITH AN ANTENNA HAVING A MAXIMUM GAIN OF 24 dB. AN ANTENNA HAVING A HIGHER GAIN IS STRICTLY PROHIBITED PER REGULATIONS OF INDUSTRY CANADA. THE REQUIRED ANTENNA IMPEDANCE IS 50 OHMS."
- B** "TO REDUCE POTENTIAL RADIO INTERFERENCE TO OTHER USERS, THE ANTENNA TYPE AND ITS GAIN SHOULD BE CHOSEN SUCH THAT THE EQUIVALENT ISOTROPICALLY RADIATED POWER (EIRP) IS NOT MORE THAN THAT REQUIRED FOR SUCCESSFUL COMMUNICATION."
- C** "THE INSTALLER OF THIS RADIO EQUIPMENT MUST INSURE THAT THE ANTENNA IS LOCATED OR POINTED SUCH THAT IT DOES NOT EMIT RF FIELD IN EXCESS OF HEALTH CANADA LIMITS FOR THE GENERAL POPULATION; CONSULT SAFETY CODE 6, OBTAINABLE FROM HEALTH CANADA."

WARNING:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Contents

Your Feedback Please.....	2
ProSoft Technology ®, ProLinx ®, inRAx ®, ProTalk® and RadioLinx ® are Registered Trademarks of ProSoft Technology, Inc.	2
Please Read This Notice	3
Important Installation Instructions	3
ProLinx Plus with Radio	4

Guide to the ProLinx Reference Guide 7

1 Start Here 9

1.1	System Requirements	9
1.2	Package Contents	10
1.3	Setting Port 0 Configuration Jumpers	11
1.4	Mounting the Module on the DIN Rail	12
1.5	Connecting Power to the Unit	12
1.6	RS-232 Serial Connection.....	13
1.7	Install ProSoft Configuration Builder Software.....	14
1.8	Configure the Module	16

2 ProSoft Configuration Builder 19

2.1	About ProSoft Configuration Builder	19
2.2	Views	24
2.3	User Interface	26
2.4	Common Tasks	30
2.5	Support.....	36

3 Application Ports 39

3.1	Serial Port Cable Connections: Config/Debug and Port 0	39
3.2	Serial Port Cable Connections: Multiple Port Units.....	39
3.3	Configuration/Debug Port.....	43
3.4	DB9 to Mini-DIN Adaptor (Cable 09).....	43
3.5	Ethernet Port	44
3.6	Special Ports	44

4 Diagnostics and Troubleshooting 59

4.1	Requirements	59
4.2	LED Indicators.....	75

5 Error and Status Data 81

5.1	Fixed Error and Status Data Register Locations.....	82
-----	---	----

6	Functional Overview	85
6.1	Internal Database	85
7	Reference	89
7.1	Product Specifications	89
7.2	Editing and Downloading CFG Files using NotePad and HyperTerminal	94
8	Support, Service & Warranty	113
8.1	How to Contact Us: Technical Support.....	114
8.2	Return Material Authorization (RMA) Policies and Conditions	114
8.3	LIMITED WARRANTY	116
Index		121

Guide to the ProLinx Reference Guide

Function		Section to Read	Details
Introduction (Must Do)	→	Start Here (page 9)	This Section introduces the customer to the module. Included are: package contents, system requirements, hardware installation, and basic configuration.
Verify Communication, Diagnostic and Troubleshooting	→	Verifying Communication (page 75) Diagnostics and Troubleshooting (page 59)	This section describes how to verify communications with the network. Diagnostic and Troubleshooting procedures.
Reference Product Specifications Functional Overview Glossary	→	Reference (page 89) Functional Overview (page 85) Product Specifications (page 89)	These sections contain general references associated with this product, Specifications, and the Functional Overview.
Support, Service, and Warranty Index	→	Support, Service and Warranty (page 112)	This section contains Support, Service and Warranty information. Index of chapters.

1 Start Here

In This Chapter

❖ System Requirements	9
❖ Package Contents	10
❖ Setting Port 0 Configuration Jumpers.....	11
❖ Mounting the Module on the DIN Rail.....	12
❖ Connecting Power to the Unit.....	12
❖ RS-232 Serial Connection	13
❖ Install ProSoft Configuration Builder Software.....	14
❖ Configure the Module	16

1.1 System Requirements

The ProSoft Configuration Builder for the ProLinx module requires the following minimum hardware and software components:

- Pentium® II 450 MHz minimum. Pentium III 733 MHz (or better) recommended
- Supported operating systems:
 - Microsoft Windows XP Professional with Service Pack 1 or 2
 - Microsoft Windows 2000 Professional with Service Pack 1, 2, or 3
 - Microsoft Windows Server 2003
- 128 Megabytes of RAM minimum, 256 Megabytes of RAM recommended
- 100 Megabytes of free hard disk space (or more based on application requirements)
- 256-color VGA graphics adapter, 800 x 600 minimum resolution (True Color 1024 × 768 recommended)
- CD-ROM drive

1.2 Package Contents

The following components are included with your ProLinx module, and are all required for installation and configuration.

Important: Before beginning the installation, please verify that all of the following items are present.

Qty.	Part Name	Part Number	Part Description
1	ProLinx Module	PLX-####	ProLinx communication gateway module
1	Cable	Cable #15, RS232 Null Modem	For RS232 Connection to the CFG Port
Varies	Cable	Cable #9, Mini-DIN8 to DB9 Male Adapter	For DB9 Connection to Module's Port. One DIN to DB-9M cable included per configurable serial port
Varies	Adapter	1454-9F	Adapters, DB9 Female to Screw Terminal. For RS422 or RS485 Connections to each serial application port of the Module
1	ProSoft Solutions CD		Contains sample programs, utilities and documentation for the ProLinx module.

If any of these components are missing, please contact ProSoft Technology Support for replacement parts.

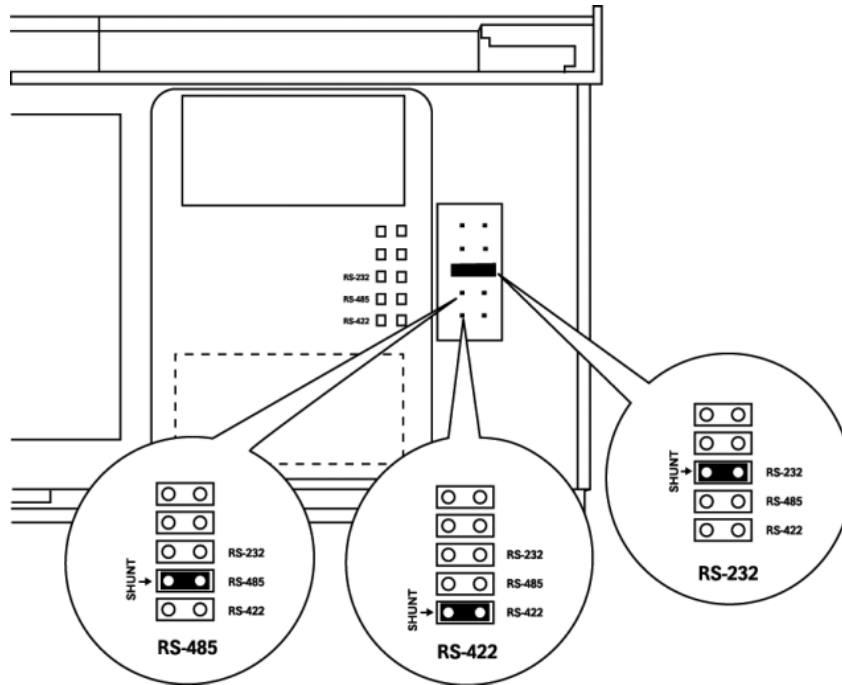
1.3 Setting Port 0 Configuration Jumpers

Before installing the module on the DIN rail, you must set the jumpers for the Port 0 application port.

Note: Ethernet-only ProLinx modules do not use the serial port jumper settings. The serial configuration jumper settings on an Ethernet-only module have no effect.
 Note: The presence of Port 0 depends on the specific combination of protocols in your ProLinx module. If your module does not have a Port 0, the following jumper settings do not apply.

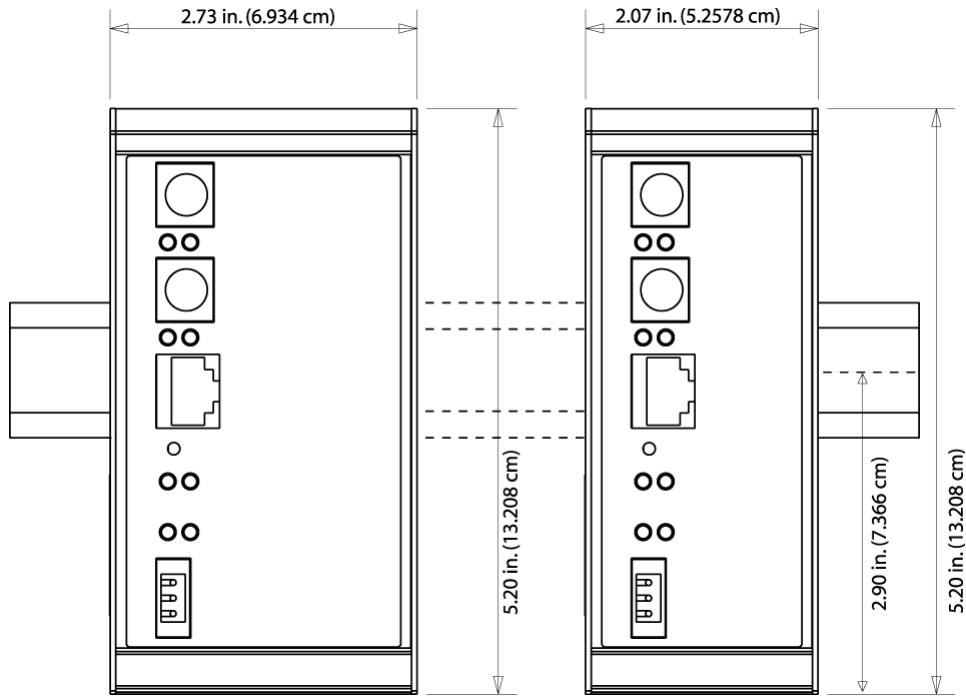
Port 0 is preconfigured for RS-232. You can move the port configuration jumper on the back of the module to select RS-485 or RS-422.

The following illustration shows the jumper positions for Port 0:



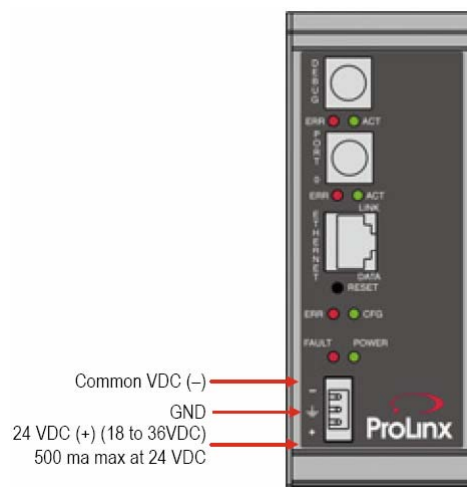
ProLinx 5000/6000 Series Module

1.4 Mounting the Module on the DIN Rail



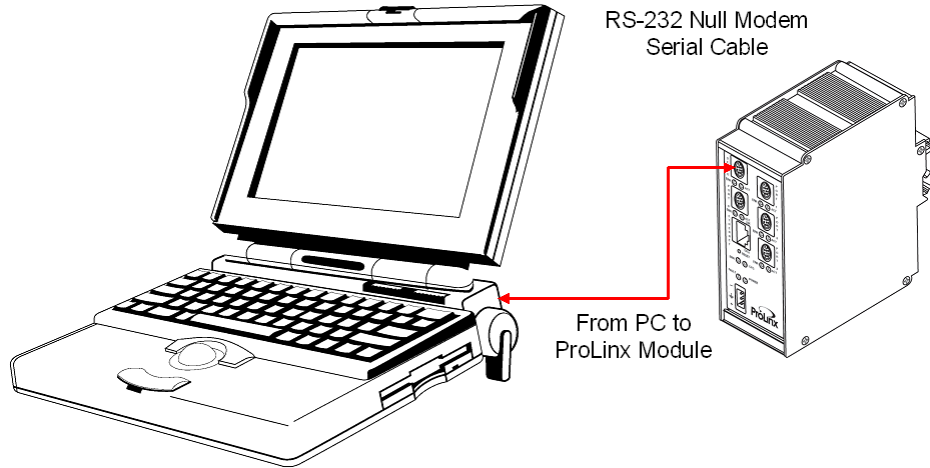
ProLinx 5000/6000 Series Module

1.5 Connecting Power to the Unit

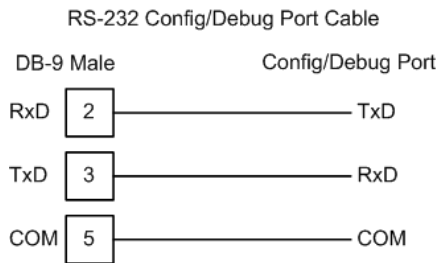


WARNING: Ensure that you do not reverse polarity when applying power to the module. This will cause damage to the module's power supply.

1.6 RS-232 Serial Connection



This port is physically a Mini-DIN connection. A Mini-DIN to DB-9 adapter cable is included with the module. This port permits a PC based terminal emulation program to view configuration and status data in the module and to control the module. The cable for communications on this port is shown in the following diagram:

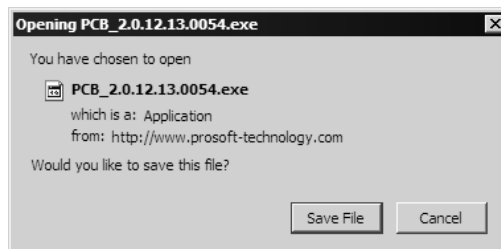


1.7 Install ProSoft Configuration Builder Software

You must install the ProSoft Configuration Builder (PCB) software in order to configure the ProLinx module. You can always get the newest version of ProSoft Configuration Builder from the ProSoft Technology web site.

To install ProSoft Configuration Builder from the ProSoft Web Site

- 1 Open your web browser and navigate to <http://www.prosoft-technology.com/pcb>
- 2 Click the **Download Here** link to download the latest version of ProSoft Configuration Builder.
- 3 Choose "Save" or "Save File" when prompted. The following illustrations show the file download prompt for two of the most common web browsers.



- 4 Make a note of the location where you saved the file, for example "Desktop", or "My Documents", so you can start the installation program.
- 5 When the download is complete, locate and open the file, and then follow the instructions on your screen to install the program.

If you do not have access to the Internet, you can install ProSoft Configuration Builder from the ProSoft Solutions CD-ROM, included in the package with your ProLinx module.

To install ProSoft Configuration Builder from the CD-ROM

- 1 Insert the ProSoft Solutions CD-ROM into the CD drive of your PC. Wait for the startup screen to appear.
- 2 On the startup screen, click *Product Documentation*. This action opens an explorer window.
- 3 Click to open the *Utilities* folder. This folder contains all of the applications and files you will need to set up and configure your module.
- 4 Double-click the *ProSoft Configuration Builder Setup* program and follow the instructions on your screen to install the software on your PC.

Note: Many of the configuration and maintenance procedures use files and other utilities on the CD-ROM. You may wish to copy the files from the Utilities folder on the CD-ROM to a convenient location on your hard drive.

1.7.1 Using the help system

Most of the information needed to help you use ProSoft Configuration Builder is provided in a help system that is always available whenever you are running ProSoft Configuration Builder. The help system does not require an Internet connection.

To view the help pages, start ProSoft Configuration Builder, open the Help menu, and then choose Contents.

1.8 Configure the Module

1.8.1 Adding a Location

To add a location to an existing project file:

- 1 Right-click the Project icon and select Add Location. A new Location icon appears.
or
Select the Project icon.
- 2 Choose Project from the Project menu, then choose Add Location. A new Location icon appears.
or
If the Default Location has not been named (is not already an existing project), right-click the folder and choose Rename.
- 3 Type in the Location name.

1.8.2 Adding a Project

To add a project to an existing project file:

- 1 Select the Default Project icon.
- 2 Choose Project from the Project menu, then choose Add Project. A new project folder appears.

1.8.3 Adding a Module

To add a module to your project:



- 1 Double-click the Default Module icon to open the Choose Module Type dialog box.
 - 2 On the Choose Module Type dialog box, select the module type.
- Or
- 1 Open the Project menu and choose Location.
 - 2 On the Location menu, choose Add Module.

To add a module to a different location:

- 1 Right-click the Location folder and choose Add Module. A new module icon appears.
- Or
- 1 Select the Location icon.
 - 2 From the Project menu, select Location, then select Add Module.



1.8.4 Module Entries

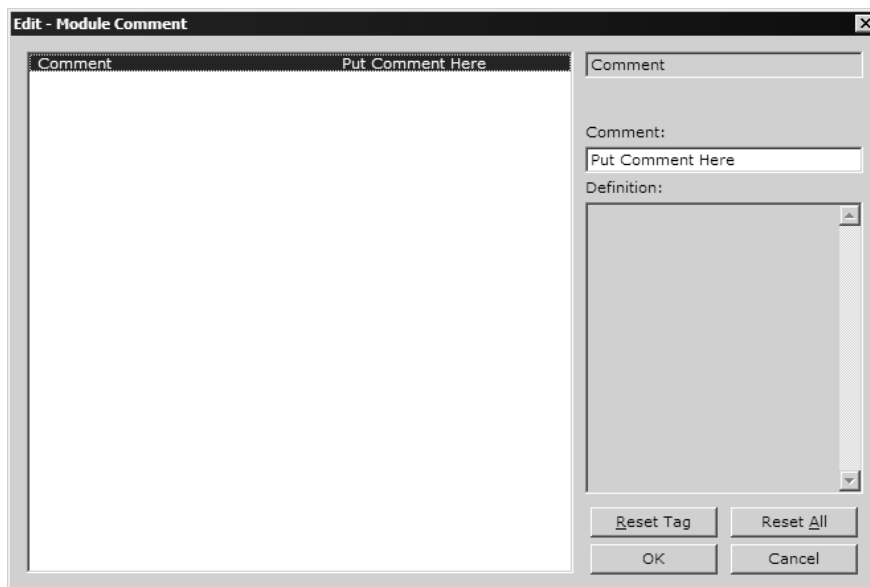
To configure module parameters

- 1 Click on the plus sign next to the icon  Comment to expand module information.
- 2 Double-click the  Module Comment icon to open the Edit dialog box.
- 3 To edit a parameter, select the parameter in the left pane and make your changes in the right pane.
- 4 Click OK to save your changes.

1.8.5 Comment Entries

To add comments to your configuration file:

- 1 Click the plus sign to the left of the  Comment icon to expand the Module Comments.
- 2 Double-click the  Module Comment icon. The Edit - Module Comment dialog appears.



- 3 Enter your comment and click OK to save your changes.

1.8.6 Printing a Configuration File

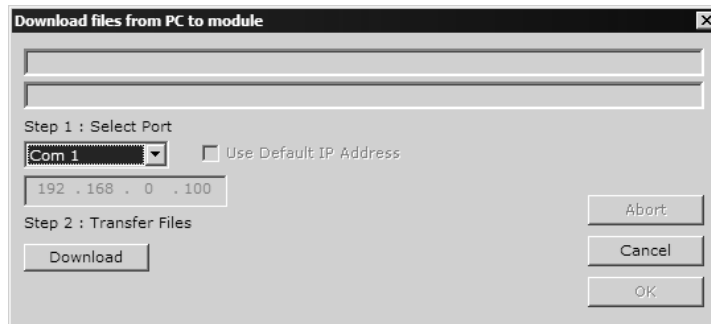
To print a configuration file:

- 1 Select the Module icon, and then click the right mouse button to open a shortcut menu.
- 2 On the shortcut menu, choose View Configuration. This action opens the View Configuration window.
- 3 On the View Configuration window, open the File menu, and choose Print. This action opens the Print dialog box.
- 4 On the Print dialog box, choose the printer to use from the dropdown list, select printing options, and then click OK.

1.8.7 Downloading a File from PC to the Module

To download a file from the Configuration Builder to the module:

- 1 Verify that your PC is connected to the module with a null-modem serial cable connected to the serial port on your PC and the serial port on the module
- 2 Open the Project Menu, and then choose Module.
- 3 On the Module menu, choose Download. Wait while ProSoft Configuration scans for communication ports on your PC. When the scan is complete, the Download dialog box opens.



- 4 Select the port to use for the download.
- 5 Click the **Download** button.

2 ProSoft Configuration Builder

In This Chapter

❖ About ProSoft Configuration Builder.....	19
❖ Views.....	24
❖ User Interface.....	26
❖ Common Tasks	30
❖ Support.....	36

ProSoft Configuration Builder is an application (computer program) that simplifies the task of managing the configuration files that control how your ProSoft module operates.

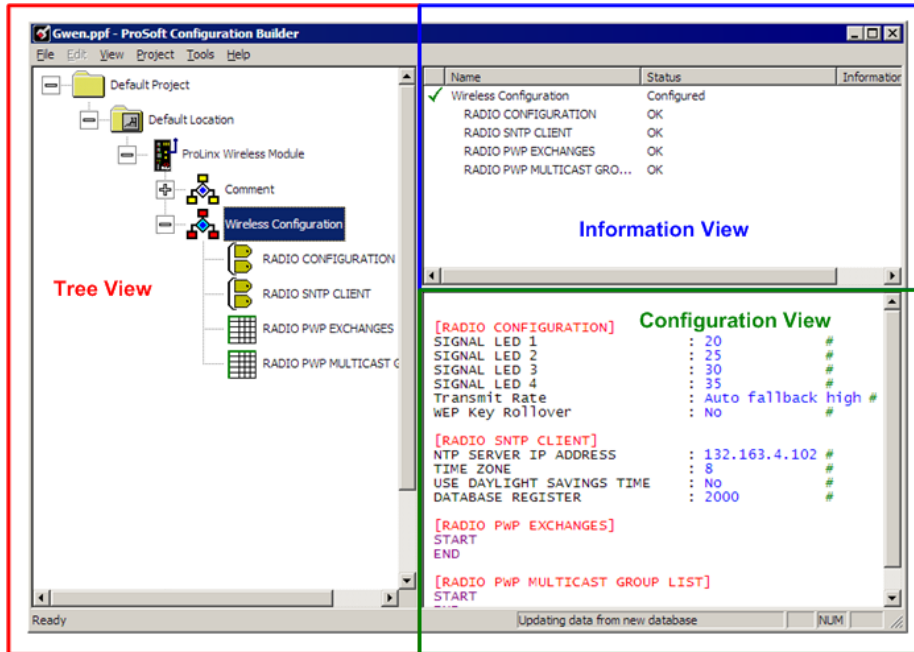
The following topics describe some of the features of ProSoft Configuration Builder. For complete online documentation, please use the ProSoft Configuration Builder online help.

2.1 About ProSoft Configuration Builder

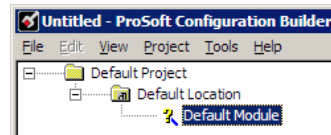
ProSoft Configuration Builder helps you create a configuration project and download the project to your ProSoft Module.

The Configuration Builder consists of the following views:

- Tree View (page 25)
- Information View (page 24)
- Configuration View (page 24)



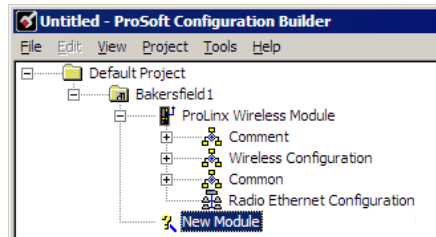
Each view provides different types of information about your project. When you first open ProSoft Configuration Builder, you are presented with a clean file that contains a Default Project Folder, a Default Location Folder, and a Default Module Folder displayed in the Tree View (page 25) portion of the window.




Here you can...

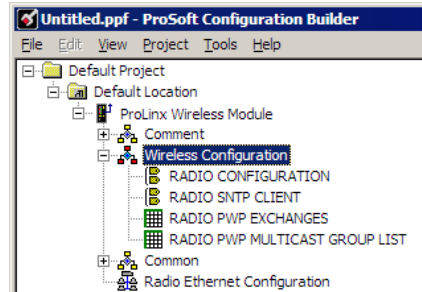
- Name the Project
- Name the Default Location (page 16)
- Choose the Module Type (page 16)

The tree expands to show information in a tree view. You can have multiple locations within a project and multiple modules at a location.



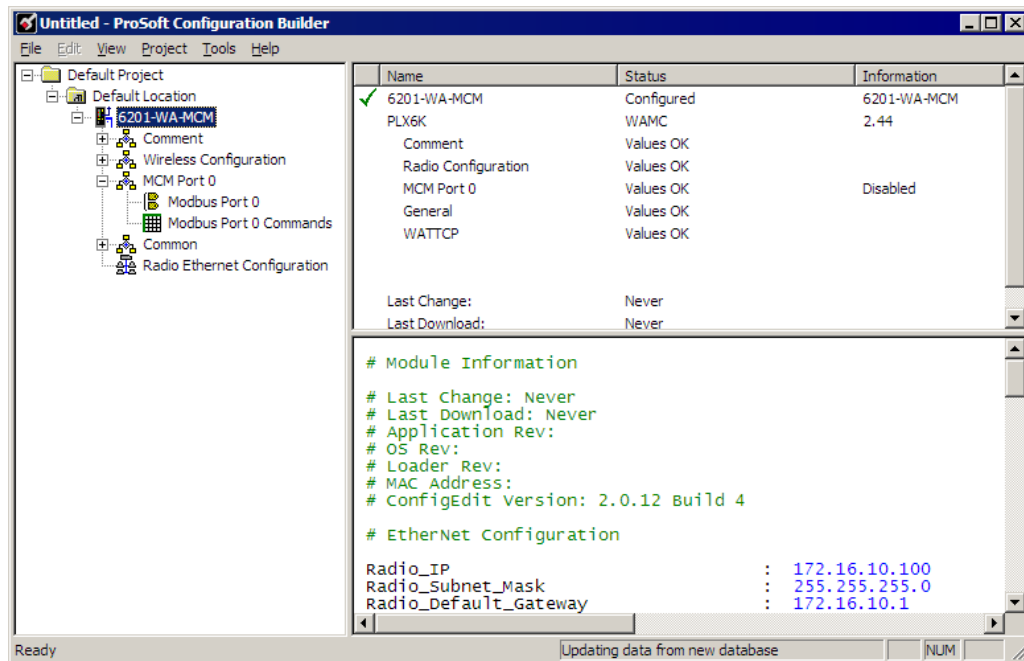
Clicking on the  of the module icon provides specific information about the module. Information types are designated by icons.

Click  on each icon for more information.



Selecting any of the icons provides you with information in the Information View and the Configuration View.

Both the Information View and the Configuration View contain information specific to the selected icon.

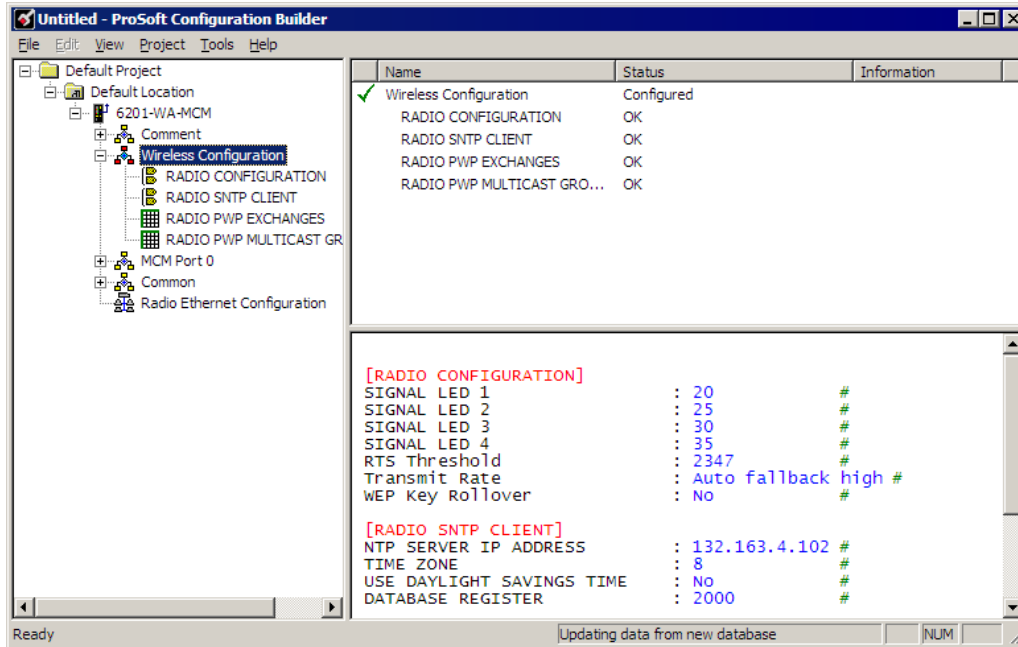


In this example, both views are showing information pertaining to the Modbus Master/Slave protocol (selected in the tree view). With this type of selection, the Configuration View shows all configuration sections that pertain to the selected protocol. That is, [Modbus Port 0], and [Modbus Port 0 Commands].

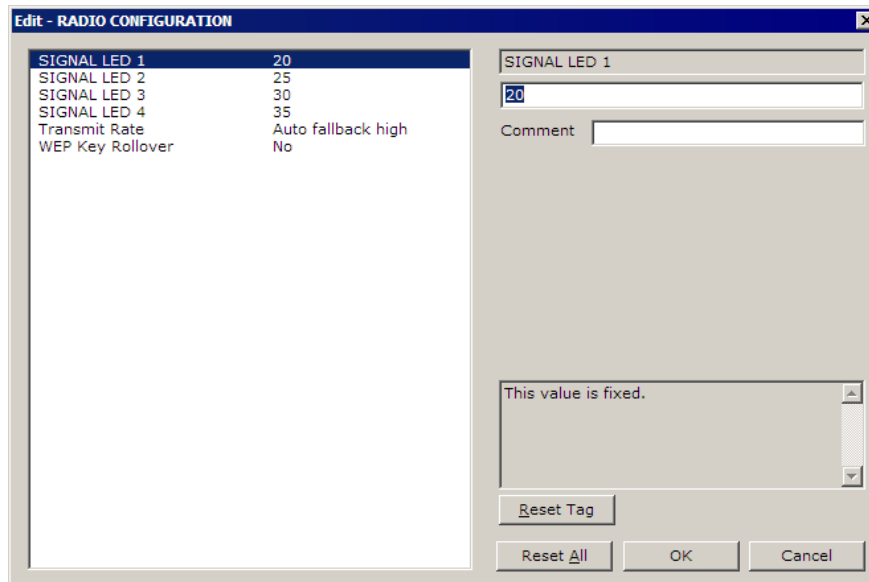
As you can see in the Tree View, the subsections under the MCM Port 0 protocol icon have a direct correlation to the configuration sections shown in the Configuration View.

Please note that some parameters in the Configuration View contain default settings, while others do not.

To focus on one section at a time, click the desired section in the tree view.

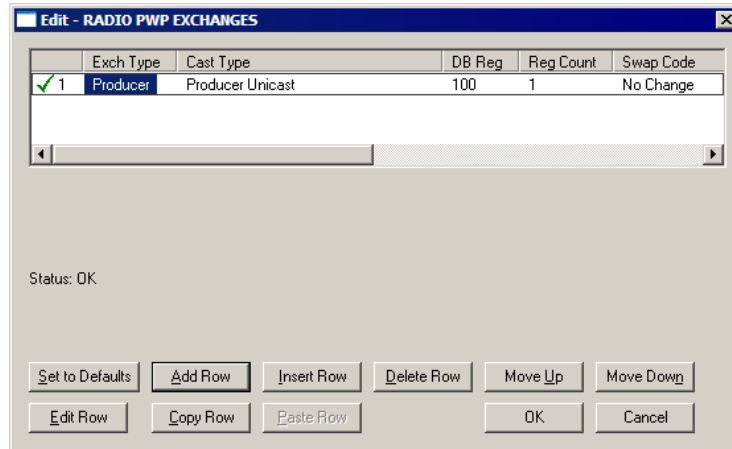


You can edit any of the default parameters as well as define other configurable parameters as required. Double-clicking any of the icons brings you into edit mode. For example, double-clicking on the Radio Configuration tag group icon brings you to the Edit - RADIO CONFIGURATION window.



This window lets you edit and add comments to each of the default parameters. You select the parameter you want to edit and change the values.

To enter values in sections that do not contain default values, double-click the appropriate icon. For example, if you double-click the Radio PWP Exchanges icon, the Edit - RADIO PWP EXCHANGES window appears.



The edit windows guide you through the module configuration process. All windows contain context-sensitive online help to answer questions you may have during the configuration process.

In addition to creating configuration files for your module, ProSoft Configuration Builder also lets you...

- Transfer and modify existing configuration files from the module
- Set up External File Locations
- Export the configuration to text files
- Get email support that packages and sends the Diagnostics log file to technical support
- Run Diagnostics

After you are happy with your configuration, you can download it directly to the module through a simple menu selection.

2.2 Views

2.2.1 Configuration View

The configuration view is located in the lower right-hand pane of the display. This view shows the configuration file as it is created with current values displayed.

```
[Modbus Port 0]
Enabled           : No           #
Type             : Slave        #
Float Flag       : No           #
Float Start      : 7000         #
Float Offset     : 2000         #
Protocol         : RTU          #
Baud Rate        : 19200        #
Parity           : None         #
Data Bits        : 8            #
Stop Bits        : 1            #
RTS On           : 0            #
RTS Off          : 0            #
Minimum Response Delay : 1      #
Use CTS Line     : No           #
Response Timeout : 1000        #
Retry Count      : 3            #
Internal Slave ID : 1          #
Bit Input Offset : 0            #
Word Input Offset : 0           #
Output Offset    : 0            #
Holding Register Offset : 0     #
Use Guard Band Timer : No      #
Guard Band Timeout : 0         #
Minimum Command Delay : 0      #
Error Delay Counter : 0        #
Command Control Reg : -1       #

[Modbus Port 0 Commands]
START
END
```

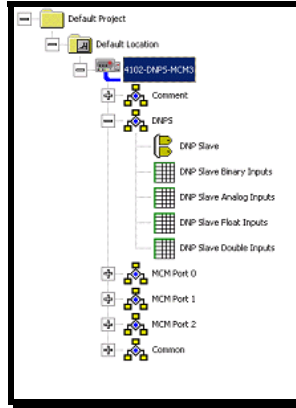
2.2.2 Information View



The information view is located in the upper right-hand pane of the display. This view provides information relating to the selections made in the tree view.

Name	Status	Information
✓ MCM Port 0	Configured	
Modbus Port 0	OK	
Modbus Port 0 Commands	OK	

2.2.3 Tree View

The Tree View pane of the Configuration Builder provides a tree-like view of your project. The following is an example tree view.



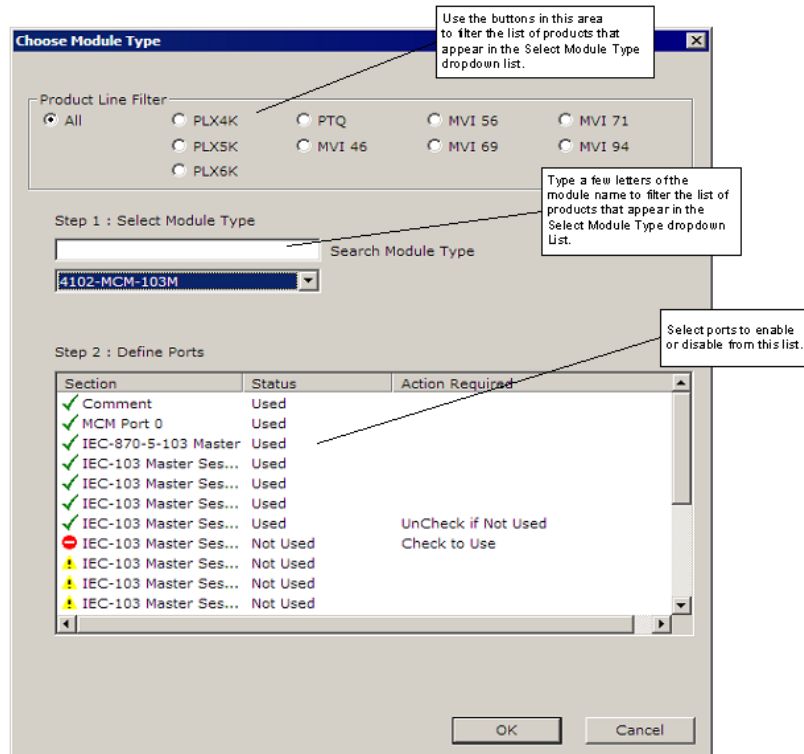
Clicking the  or  icons to expand or collapse sections of the tree view.

2.3 User Interface

2.3.1 Choose Module Type dialog box

This dialog box opens when you select a module, and then choose "Choose Module Type" from the shortcut menu.

Use this dialog box to select the type of module to configure, and define some basic configuration for the ports on the module.



Product Line Filter

Select Module Type

Define Ports Area

Enabled ports are shown on the Choose Module Type dialog box with a checkmark ✓.

To enable or disable a port, click the port to select it, then click the icon.

✓ Shows that the port is Enabled. To switch to Disabled, click the icon.

⚠ Shows that the port is currently disabled but can be changed to Enabled. To switch to enabled, click the icon.

⊖ Shows that the port is not configured. This port cannot be set to "Enabled" unless the port before it is enabled.

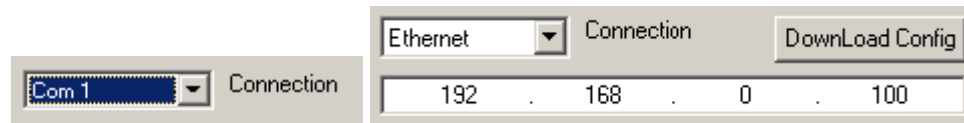
2.3.2 Diagnostics dialog box

This dialog box opens when you select a module in the Tree View, and then choose Diagnostics from the shortcut menu.

The Diagnostics dialog box is a simple terminal window that allows you to connect to the module's configuration/debug menu to view module status and configuration. The Diagnostics dialog box also has other functions to help you manage your module:

- You can download the configuration (created and saved in ProSoft Configuration Builder) to the module, to customize the module for your application.
- You can save the data from your terminal session to a text file. This text file can be helpful for support and debugging purposes.
- The Diagnostics dialog box has a COM port selector dropdown list for choosing the connection to the module.

Choose the connection type from the dropdown list.



Download Config - Click this button to send the current configuration file to the module.

Log to File - Click this button to specify a location on your hard drive where you can save diagnostic information to a file. You can later use this file for analysis and troubleshooting.

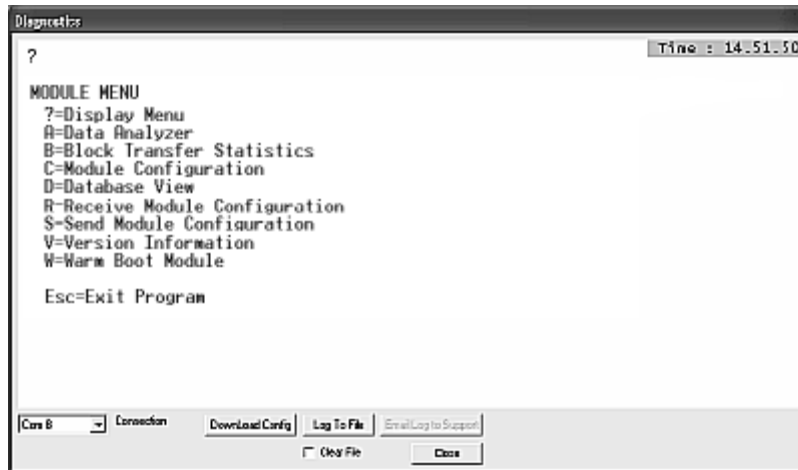
Email Log to Support - Click this button to sends configuration information in an email message to ProSoft Technical Support for analysis and troubleshooting.

Clear File - Select (check) this box to clear the contents of the Log file and start a new session.

Click **Close** to return to the ProSoft Configuration window.

Terminal Window - Press [?] to display the module's Main Menu.

Because this is a text-based menu system, you enter commands by typing the command letter from your computer keyboard in the diagnostic window in ProSoft Configuration Builder (PCB). The module does not respond to mouse movements or clicks. The command executes as soon as you press the command letter — you do not need to press **[Enter]**. When you type a command letter, a new screen will be displayed in your terminal application.



If there is no response from the module, follow these steps:

- 1 Verify that the cable is connected properly between your computer and the module. A null modem serial cable is required.
- 2 On computers with more than one serial port, verify that ProSoft Configuration Builder is connected to the same port that is connected to the module.

2.3.3 Edit dialog box

This dialog box opens when you double-click an object associated with a module.

The left pane in this dialog box displays the parameters you can configure for the tag (object) you are editing. The list of parameters changes, depending on the type of object.

On the right pane, the top field, displays the name of the parameter you are currently editing. This field is for your information only, and cannot be modified.

The **value** field is where you type the value for the parameter you are editing. Refer to the helper text below the data entry areas for helpful information.

Click **Reset Tag** to discard your edits, and restore the default value to the tag you are editing.

Click **Reset All** to discard all the edits for the parameters in this group, and restore the default values.

Click **OK** to save your edits and close the dialog box.

Click **Cancel** to discard your edits and close the dialog box.

2.3.4 Upload/Download dialog box

This dialog box opens when you select a module in the Tree View, and then choose Download or Upload from the shortcut menu.

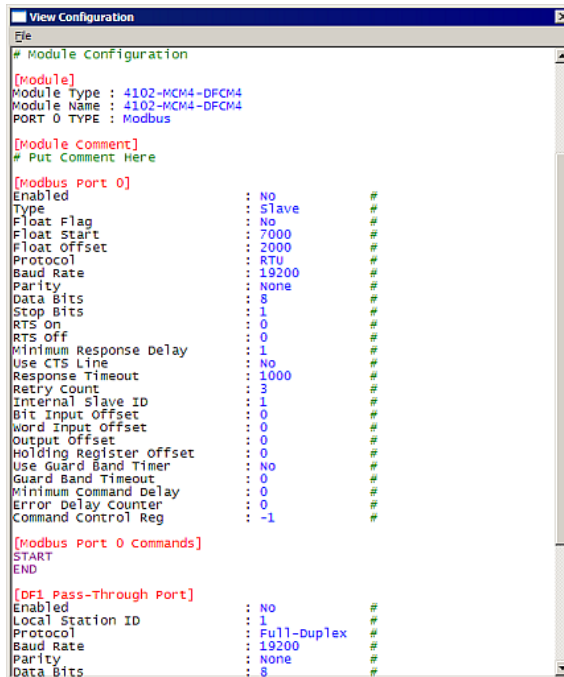
The Upload/Download dialog box is used to download files from your PC to the module or Upload files from the module to your PC for editing.

This dialog box contains a status display and a progress bar. It also lets you choose the Com port to use. When you are ready, click the **Download** button.

2.3.5 View Configuration dialog box

This dialog box opens when you select a module in the Tree View, and then choose View Configuration from the shortcut menu.

The View Configuration Dialog lets you view the current configuration settings of the module you selected. When using the View Configuration menu selection, the following dialog appears:



```

View Configuration
File
# Module Configuration
[Module]
Module Type : 4102-MCM4-DFCM4
Module Name : 4102-MCM4-DFCM4
PORT 0 TYPE : Modbus
[Module comment]
# Put Comment Here
[Modbus Port 0]
Enabled : No #
Type : Slave #
Float Flag : No #
Float Start : 7000 #
Float Offset : 2000 #
Protocol : RTU #
Baud Rate : 19200 #
Parity : None #
Data Bits : 8 #
Stop Bits : 1 #
RTS On : 0 #
RTS Off : 0 #
Minimum Response Delay : 1 #
Use CTS Line : No #
Response Timeout : 1000 #
Retry Count : 3 #
Internal Slave ID : 1 #
Bit Input Offset : 0 #
Word Input Offset : 0 #
Output Offset : 0 #
Holding Register offset : 0 #
Use Guard Band Timer : No #
Guard Band Timeout : 0 #
Minimum Command Delay : 0 #
Error Delay Counter : 0 #
Command Control Reg : -1 #
[Modbus Port 0 Commands]
START
END
[DF1 Pass-Through Port]
Enabled : No #
Local Station ID : 1 #
Protocol : Full-Duplex #
Baud Rate : 19200 #
Parity : None #
Data Bits : 8 #

```

2.3.6 Select Protocol dialog box

This dialog box opens when you select a Port Icon and then choose Select Protocol from the **Project / Port** menu.

2.3.7 Data Map Edit Dialog box

This dialog box opens when you select an object with a Data Map icon and then choose "Configure" from the shortcut menu.

The Data Map Edit dialog box allows you to set up commands and parameters for each command. Use the **Add Row** button to add a new row of data. This screen also contains buttons to set a row back to its default settings, insert or delete a row, move rows up or down, and edit or copy an existing row.

OK Button: Click the OK Button to accept and save changes to the dialog.

Cancel Button: Click the Cancel button to cancel the previous changes and re-edit rows in the dialog.

2.4 Common Tasks

2.4.1 Adding External (Web) Files


On modules equipped with the -WEB hardware option, you can specify the HTML files to include with the configuration.

To add an external file:

- 1 From the Project menu, select Module
- 2 On the Module shortcut menu, choose Add External File.

2.4.2 Copying Group Information

To copy Tag group information:

- 1 Right-click on Tag Group  icon and select Copy.
or
Select the Tag Group icon.
- 2 From the Project Menu, select Group, then select Copy.

2.4.3 Copying Module Information

To copy module information:

- 1 Right-click the Module icon.
- 2 Choose Copy.
or
From the Project Menu, select Module, then select Copy.

2.4.4 Deleting a Location

To delete a Location:

- 1 Right-click the Location icon that you want to delete
- 2 On the shortcut menu, choose Delete.

or

- 1 From the Project menu, choose Location.
- 2 On the Location menu, choose Delete.

2.4.5 Deleting a Module

To delete a module from your project:

- 1 Right-click the Module to delete
- 2 On the shortcut menu, choose Delete.

or

- 1 From the Project menu, select Module.
- 2 On the Module menu, choose Delete.

2.4.6 Deleting a Project

To delete a project:

- 1 Right-click the Project icon.
- 2 On the shortcut menu, choose Delete.

or

- 1 From the Project menu, choose Project
- 2 On the Project menu, choose Delete.

2.4.7 Enable Configurable Items

Available configuration items (for example, ports or data types) are shown on the Choose Module Type dialog box. Enabled items are shown with a check mark ✓.

In order to select whether an item is enabled or disabled, click the port to select it, then click the icon to enable or disable the port. Clicking on the port will provide you with one of the following icons.

✓ Shows that the item is associated with a protocol and available for configuration.

⚠ Shows that the item is not associated with a protocol.

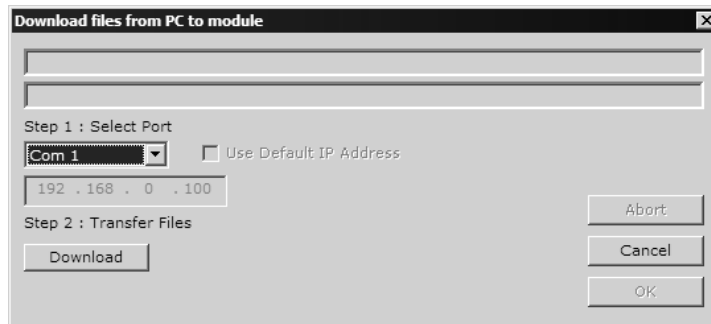
⊖ Shows that the item is not configured.

Use the Chose Module Type dialog box to select and change these options.

2.4.8 Downloading a File from PC to the Module

To download a file from the Configuration Builder to the module:

- 1 Verify that your PC is connected to the module with a null-modem serial cable connected to the serial port on your PC and the serial port on the module
- 2 Open the Project Menu, and then choose Module.
- 3 On the Module menu, choose Download. Wait while ProSoft Configuration scans for communication ports on your PC. When the scan is complete, the Download dialog box opens.



- 4 Select the port to use for the download.
- 5 Click the **Download** button.

2.4.9 Exporting Configuration Files

Modules get their configuration information from one or more configuration files (CFG Files). ProSoft Configuration Builder creates the necessary configuration files with the appropriate sections. When you are satisfied with your configuration project, you can export the configuration information that you created with Configuration Builder, and then download the files to the module or import them into other applications, depending on the protocol requirements.


Perform the following steps to export your configuration files.

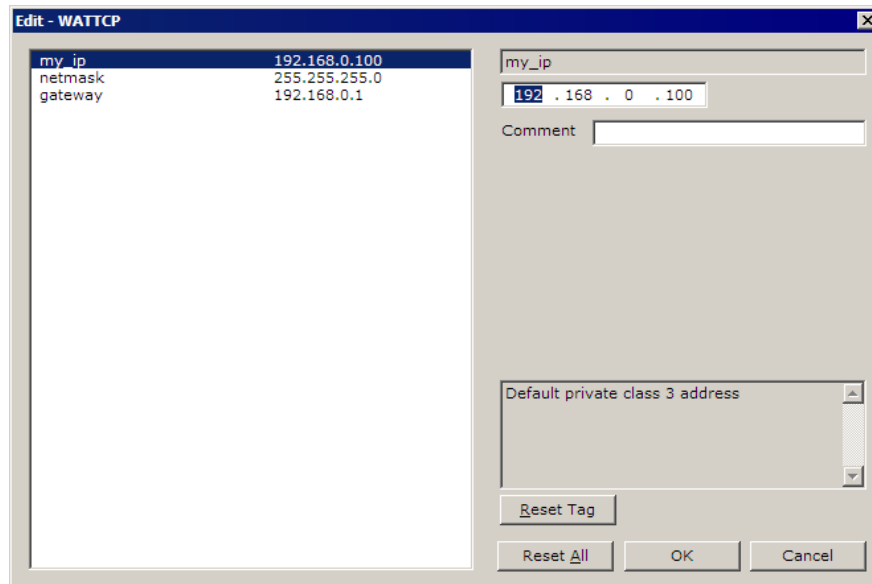
- 1 From the Project menu, select Module, then select Export Configuration Files. ProSoft Configuration Builder prompts you for a Location to store the files.
- 2 Select a location and choose OK.

If you are satisfied with your configuration, you can then download the configuration to the module.

2.4.10 Ethernet Configuration Entries

To change default Ethernet configuration parameters ...



- 1 Double click on the  Ethernet Configuration icon. This action opens the Edit - WATTCP dialog box.



- 2 Select each parameter on the left pane of the window, and then edit or select the value to use in the text window in the right pane.
- 3 Click OK to save your changes and close the dialog box.

2.4.11 Module Entries

To configure module parameters

- 1 Click on the plus sign next to the icon  Comment to expand module information.
- 2 Double-click the  Module Comment icon to open the Edit dialog box.
- 3 To edit a parameter, select the parameter in the left pane and make your changes in the right pane.
- 4 Click OK to save your changes.

2.4.12 Pasting Group Information

To paste Tag Group information into your project, first select the information and copy (page 30) it to the clipboard.

To paste group information:

- 1 Right-click the tag group where you want to paste the copied group information.
 - 2 On the shortcut menu, choose Paste Group.
- or
- 1 Open the Project Menu and choose Group.
 - 2 On the Group menu, choose Paste Group.

2.4.13 Pasting Module Information

To paste module information into your project, first select the information and copy (page 30) it to the clipboard.

To paste module information:

- 1 Right-click the Location where you want to paste the copied module information.
 - 2 On the shortcut menu, choose Paste Module.
- or
- 1 Open the Project Menu and choose Module
 - 2 On the Module menu, choose Paste Module.

2.4.14 Renaming a Module

To rename a module:

- 1 Right-click the Module icon and choose Rename.
 - 2 Type in the new name of the module.
- or
- 1 From the Project menu, choose Module, then choose Rename.
 - 2 Type in the new name of the module.

2.4.15 Renaming a Project

To rename a project:

- 1 Right-click the Project icon and choose Rename.
 - 2 Type in the new name of the project.
- or
- 1 From the Project menu, choose Project, then choose Rename.
 - 2 Type in the name of the Project.


2.4.16 Renaming a Location

To rename a Location:

- 1 Right-click the Location icon and choose Rename.
 - 2 Type in the new name of the Location.
- or
- 1 From the Project Menu, choose Location, then choose Rename.
 - 2 Type in the name of the Location.

2.4.17 Selecting a Protocol

To select a protocol:

- 1 From the tree view, click the protocol  icon.
- 2 Double-click the icons under the protocol to configure individual protocol options.

Tip: You can copy information from one protocol and paste it to another instance of the same protocol. For example, the same protocol using more than one port.

2.4.18 Selecting a Tag

Double-click a tag in the list view to view or edit its values.

2.4.19 Setting an External (Web) File Location

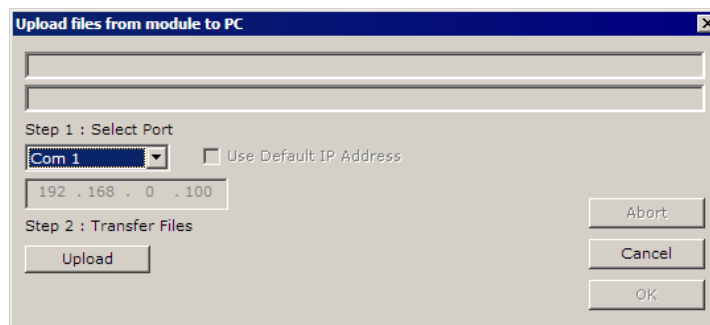
On modules equipped with the -WEB hardware option, you can specify the folder containing your HTML files to include with the configuration.

To set an external file location:

- 1 From the Project Menu, choose File.
- 2 Choose Set External File Location.

2.4.20 Transferring a File from the Module

- 1 To transfer a project file from the module to the Configuration Builder:
- 2 From the Project menu, choose Module, then choose Upload. The Upload Dialog appears.



- 3 Select the port (serial or Ethernet) to connect to the module.
- 4 Click on the **Upload** button.

2.5 Support

2.5.1 Exporting Configuration Files

Modules get their configuration information from one or more configuration files (CFG Files). ProSoft Configuration Builder creates the necessary configuration files with the appropriate sections. When you are satisfied with your configuration project, you can export the configuration information that you created with Configuration Builder, and then download the files to the module or import them into other applications, depending on the protocol requirements.

Perform the following steps to export your configuration files.

- 1 From the Project menu, select Module, then select Export Configuration Files. ProSoft Configuration Builder prompts you for a Location to store the files.
- 2 Select a location and choose OK.

If you are satisfied with your configuration, you can then download the configuration to the module.

2.5.2 Getting Email Support

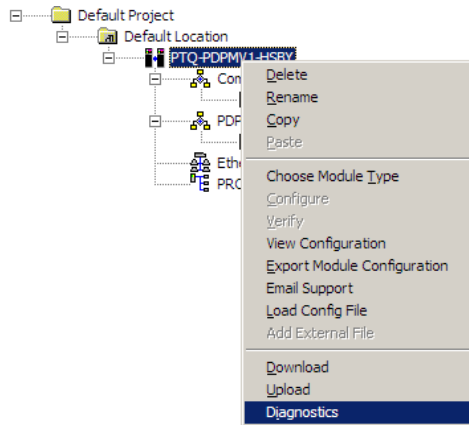
The Configuration Builder can email your diagnostic log files to ProSoft Technical Support. Technical Support can analyze your file to help you diagnose problems with your module.

- 1 From the Diagnostics window, click the Log to File button. This action creates a text file containing a log of your diagnostics section.
- 2 When you have finished recording, click the Stop Logging button. This action closes the text file.
- 3 To send the log file by email, click the Email Log to Support button. This action launches your default email program and attaches the text file to an email message addressed to support@prosoft-technology.com
- 4 In the message body, add any information you feel would be helpful to the technical support group, and then send the message.

2.5.3 Viewing Diagnostic Information

To view diagnostic information:

Right-click the module and select Diagnostics.



The Diagnostics window opens displaying the Diagnostics Menu items available for the module you selected.

Select the Connection type from the Connection drop-down list.

2.5.4 Sending the Log to a File

Click the Log to File button to record the current diagnostics session to a text file. The text file may be useful for support and troubleshooting purposes.

3 Application Ports

In This Chapter

- ❖ Serial Port Cable Connections: Config/Debug and Port 0 39
- ❖ Serial Port Cable Connections: Multiple Port Units 39
- ❖ Configuration/Debug Port 43
- ❖ DB9 to Mini-DIN Adaptor (Cable 09) 43
- ❖ Ethernet Port 44
- ❖ Special Ports 44

3.1 Serial Port Cable Connections: Config/Debug and Port 0

This section contains information on the cable and pin assignments for the ProLinx Communication Gateway module application serial ports (RS-232/422/485).

The module will come with one to five serial ports, depending on the configuration purchased. In all cases, the protocol serial ports will have the same pin-outs.

Each serial port is a Mini-DIN physical connection. A 6-inch 'Mini-DIN to DB-9M' cable is provided for each active protocol port. The DB-9M provides connections for RS-232, RS-422 and RS-485, as well as for the Debug port. The diagrams in the following topics detail the pin assignments for several possible physical connections.

The relationship between the port labeling on the front of the ProLinx module and the application is as follows:

Port Label	Function
Debug	Debug/Configuration
Port 0	Application Port 0

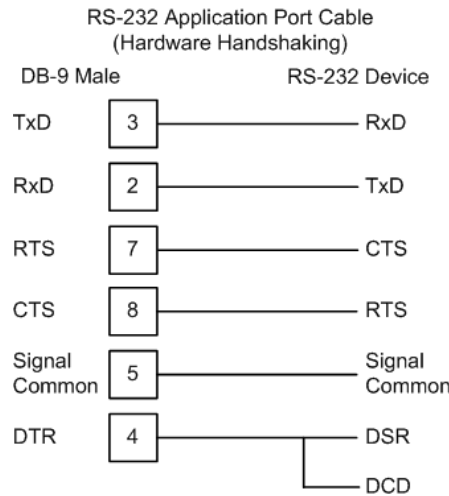
3.2 Serial Port Cable Connections: Multiple Port Units

The relationship between the port labeling on the front of the ProLinx module and the application is as follows:

The following ports only exist on multiple port units	
Port 1	Application Port 1
Port 2	Application Port 2
Port 3	Application Port 3

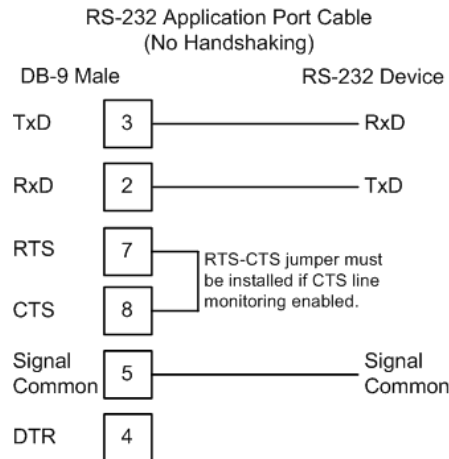
3.2.1 Port 0,1,2,3: RS-232 - Null Modem (with Hardware Handshaking)

This type of connection is used when the device connected to the module requires hardware handshaking (control and monitoring of modem signal lines).



3.2.2 Port 0,1,2,3: RS-232 - Null Modem (without Hardware Handshaking)

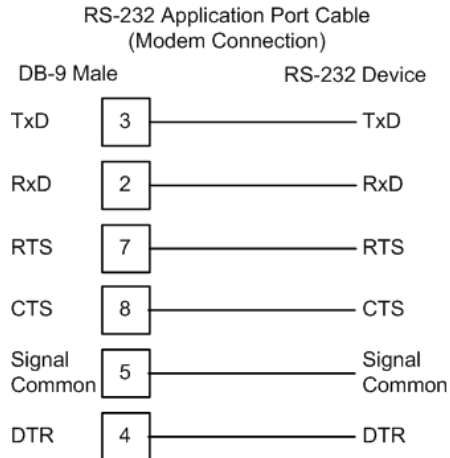
This type of connection can be used to connect the module to a computer or field device communication port.



Note: If the port is configured with the "Use CTS Line" set to 'Y', then a jumper is required between the RTS and the CTS line on the module connection.

3.2.3 Port 0,1,2,3: RS-232 - Modem Connection

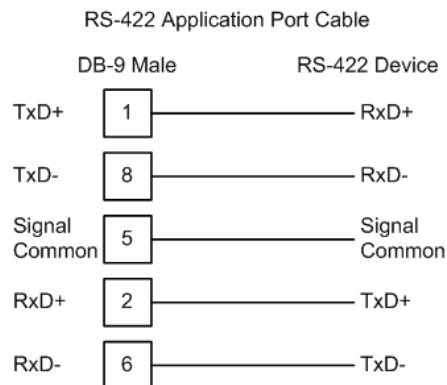
This type of connection is required between the module and a modem or other communication device.



The "Use CTS Line" parameter for the port configuration should be set to 'Y' for most modem applications.

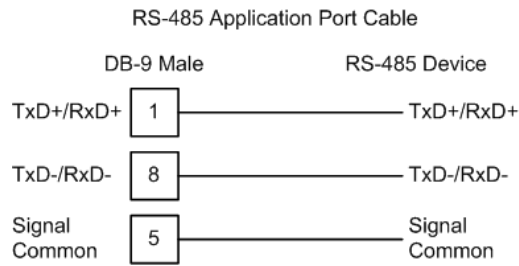
3.2.4 Port 0,1,2,3: RS-422 Interface Connections

The following illustration applies when the RS-422 interface is selected.



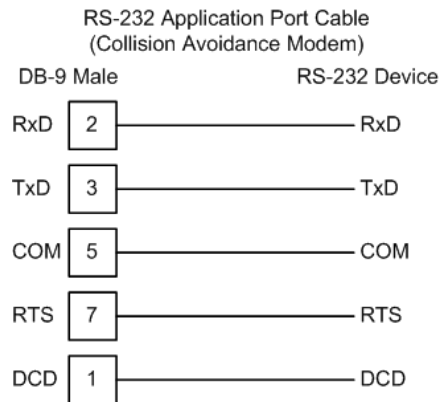
3.2.5 Port 0,1,2,3: RS-485 Interface Connections

The following illustration applies when the RS-485 interface is selected.

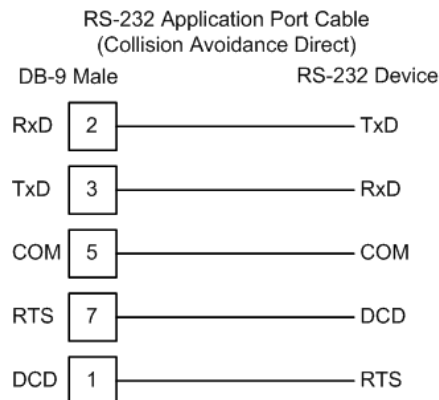


3.2.6 Collision Avoidance (DNP modules only)

The RTS line is controlled by the RTS on and off parameters set for the port. If the CTS line is used (usually only required for half-duplex modems and not defined for use in the DNPS specification), the RTS and CTS lines must either be connected together or connected to the modem. The following illustration shows the cable required when connecting the port to a modem.

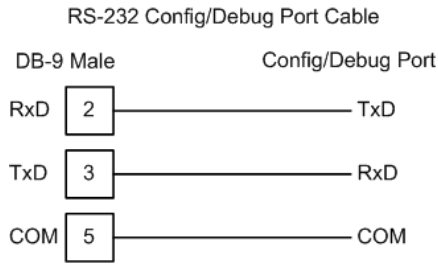


If collision avoidance is used in a point-to-point connection on the RS-232 interface, the following cable should be used.

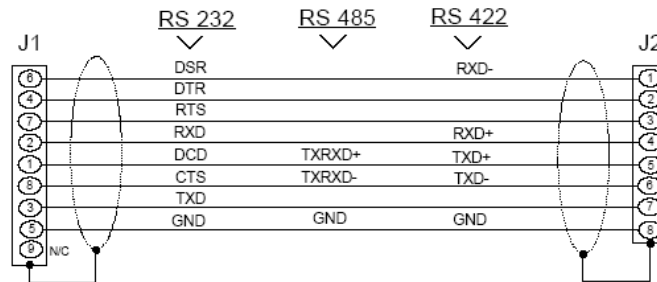
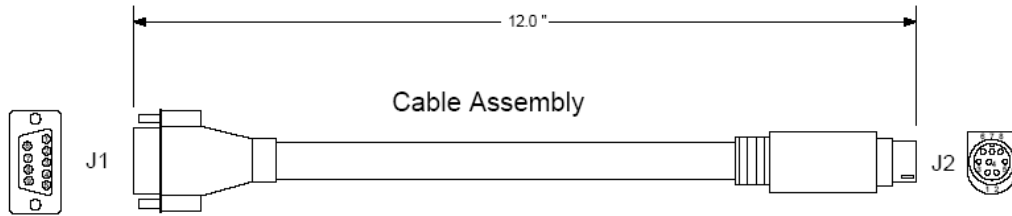


3.3 Configuration/Debug Port

This port is physically a Mini-DIN connection. A Mini-DIN to DB-9 adapter cable is included with the module. This port permits a PC based terminal emulation program to view configuration and status data in the module and to control the module. The cable for communications on this port is shown in the following diagram:



3.4 DB9 to Mini-DIN Adaptor (Cable 09)



Wiring Diagram

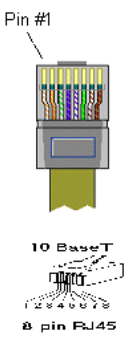
3.5 Ethernet Port

3.5.1 RJ45

Every Ethernet module includes 10base-T RJ45 port which can be used to communicate to any onboard Ethernet protocols. If both module protocols are Ethernet you must supply a hub or switch to connect both device types to the single port.

3.5.2 Ethernet Cable Configuration

Note: The standard connector view shown is color-coded for a straight-through cable.

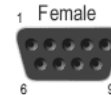
Crossover cable		Pin #1 	Straight-through cable	
RJ-45 PIN	RJ-45 PIN		RJ-45 PIN	RJ-45 PIN
1 Rx+	3 Tx+		1 Rx+	1 Tx+
2 Rx-	6 Tx-		2 Rx-	2 Tx-
3 Tx+	1 Rx+		3 Tx+	3 Rx+
6 Tx-	2 Rx-		6 Tx-	6 Rx-

3.6 Special Ports

3.6.1 PROFIBUS Master Port

The following diagram has been imported from the PROFIBUS Master documentation. Note that the signals to reference are the D-Sub signals in the table

D-Sub (male)	Board to Board	Screw Terminal	Signal
Housing	1	5	Cable shield
1	4	-	-
2	7	-	-
3	6	4	B-Line
4	3	6	RTS
5	2	2	GND_BUS
6	8	1	+5V BUS (output)
7	9	-	-
8	5	3	A-Line
9	10	-	-



Constructing a Bus Cable for PROFIBUS DP

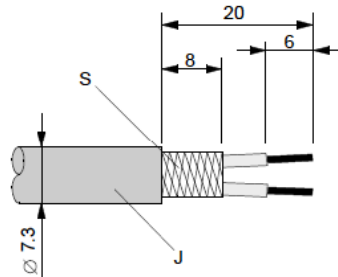
The bus cable for connecting PROFIBUS DP devices must be constructed by the user. A special PROFIBUS cable (twisted pair) is required here. This standard cable is available from various manufacturers and is a Belden part number 3079A.

If you plan to construct your own bus cable, the following part numbers are provided for your convenience.

- PROFIBUS connector: Siemens part number 6ES7972-0BA40-0XA0
- PROFIBUS cable: Belden part number 3079A.

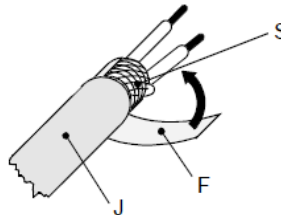
To construct the cable, proceed as follows:

- 1 Cut the cable to the required length.
- 2 Prepare the cable ends as shown in the illustration (dimensions in mm):



- J** PVC Jacket
- S** Braided shielding

- 3 Remove the PVC jacket J to the indicated length.
- 4 Wrap the provided copper shielding F around the shield braiding S:

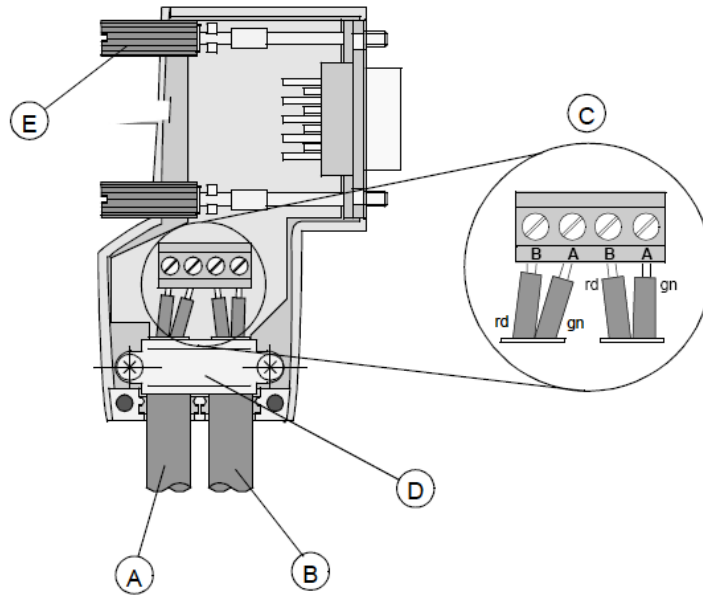


- J** PVC jacket
 - S** Braided shielding
 - F** Copper foil shielding
- Additional foil can be obtained from 3M.

- 5 Plug the leads of the corresponding cable(s) into the terminals as shown:
 - Green leads in terminal A
 - Red lead in terminal B

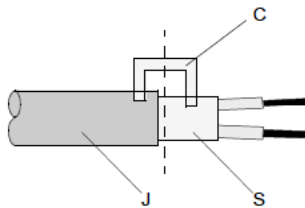
- **Note:** Do not tighten the corresponding screws yet.

Connection terminal assignment on the PROFIBUS DP:



- A** Incoming cable
- B** Outgoing cable
- C** Connection terminals (only once (B,A))
- D** Cable cleat for relieving tension
- E** Bus connector screws

6 Attach the cables with the provided cable cleat to create a robust shielded connection and to relieve any tension as shown:



- J** PVC Jacket
- S** Braided shielding with foil shielding
- C** Cable cleat

▪ Note: Half of the cable jacket must lie under the cable cleat!

Pay attention to the cable cleat installation instructions.

- 7** Fasten the individual wires of the PROFIBUS cable to the terminals
- 8** Close the connector housing.

▪ Note: The shielding of both cables is connected internally with the metal housing of the connector.

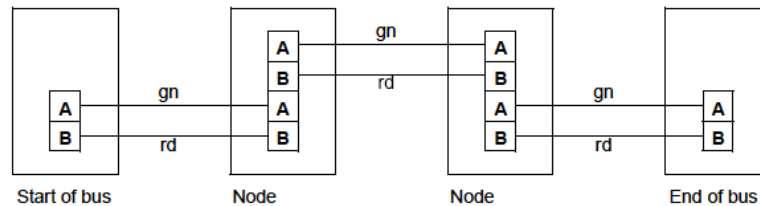
- 9 Complete the Central Shielding Measures (below) and grounding operations for the shielding before you connect the cable connector to the module.
- 10 Plug the PROFIBUS DP connector into the module and secure it with the screws.

Bus Begin and Bus End

The PROFIBUS connector with termination is required at the beginning and the end of the bus. These connectors emulate the line impedance.

It is recommended that at least one connector with diagnostics interface is used.

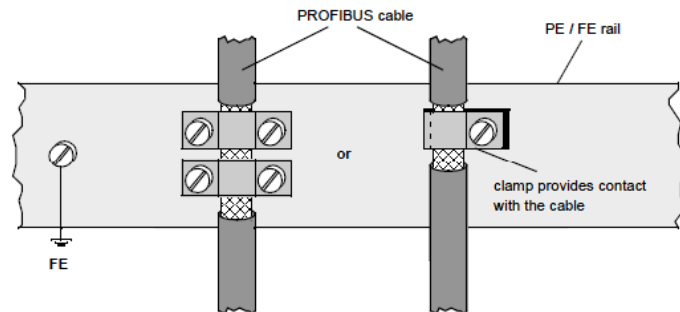
Wiring diagram for a PROFIBUS DP cable



Grounding and Shielding for Systems with Equipotential Bonding

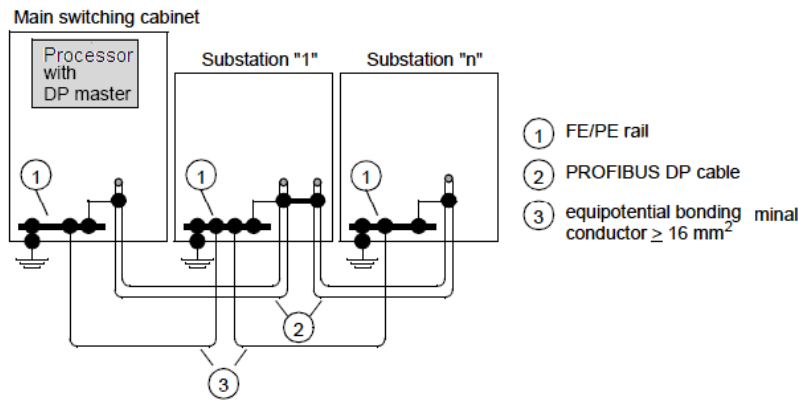
Each cable shield should be galvanically grounded with the earth using FE/PE grounding clamps immediately after the cable has been connected to the cabinet.

This example indicates the shielding connection from the PROFIBUS cable to the FE/PE rail.



Note: An equalization current can flow across a shield connected at both ends because of fluctuations in ground potential. To prevent this, it is imperative that there is potential equalization between all the attached installation components and devices.

This example indicates the system components and devices in a system with equipotential bonding.

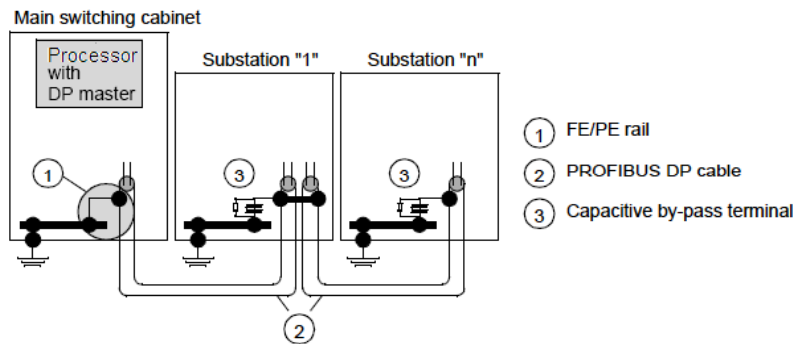


Grounding and Shielding for Systems without Equipotential Bonding

Note: Grounding and shielding is to be carried out the same as for systems with equipotential bonding.

If this is not possible because of system or construction specific reasons however, use distributed ground with a capacitive coupling of high frequency interference signals.

This representation shows distributed grounding with capacitive coupling.



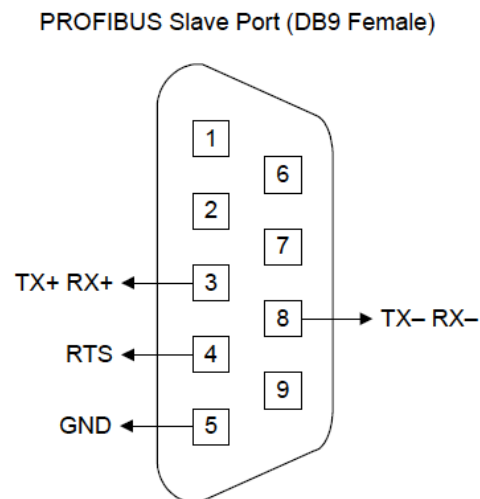
3.6.2 PROFIBUS Slave Port

The ProLinx module supports this protocol as a slave module on a PROFIBUS network.

The relationship between the port labeling on the front of the ProLinx module and the application is as follows:

Port Label	Function
PROFIBUS Slave	PROFIBUS Slave Port
Debug	Debug/Configuration
Port 0	Communication Port 0

The following illustration shows the pinout for the PROFIBUS Slave port on the front of the ProLinx module.

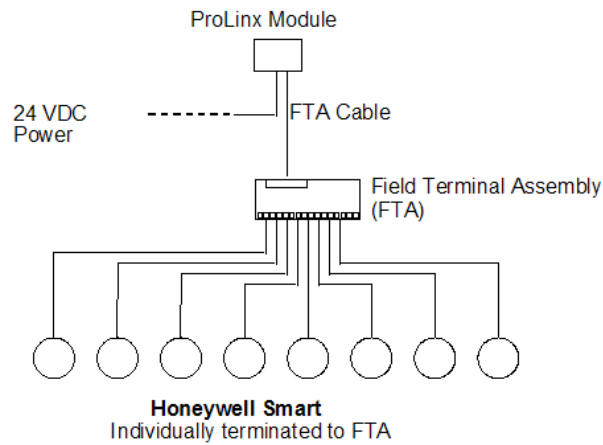


3.6.3 Honeywell DE

Honeywell DE Master modules ship with a special Field Terminal Assembly (FTA) module in addition to the ProLinx gateway itself. This module houses the physical blocks which devices can be connected to, supporting up to eight channels. A special cable is provided to link the FTA to the gateway, as well as the necessary screw terminal adapters to wire in your devices.

Connecting to the FTA

The module is shipped with a cable and FTA to attach the DE field devices. The following illustration shows how to terminate devices to the FTA:



3.6.4 Modbus Plus

Modbus Plus Connections

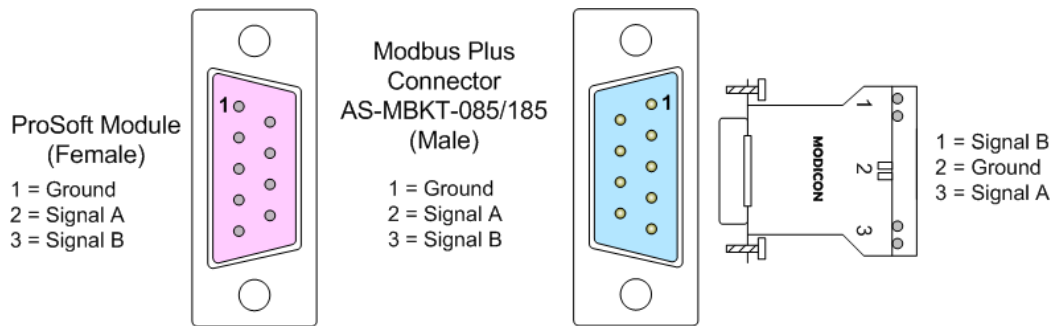
The ProLinx module has up to two physical Modbus Plus connectors with up to two DB-9 Female plugs located on the front of the module.

Modicon provides two different Modbus Plus connectors to ease installation. These connectors are as follows:

Modicon Part Number	Description
AS-MBKT-085	Inline Connector
AS-MBKT-185	Terminating Connector

The actual cable installation and the wiring of the cable to the connectors is fully documented in the Modicon publication *Modicon Modbus Plus Network Planning and Installation Guide - Pub No. GM-Modbus Plus L-001*.

If the Modicon connectors are not available during installation, the following pin out applies to the DB-9 Modbus Plus port connections:

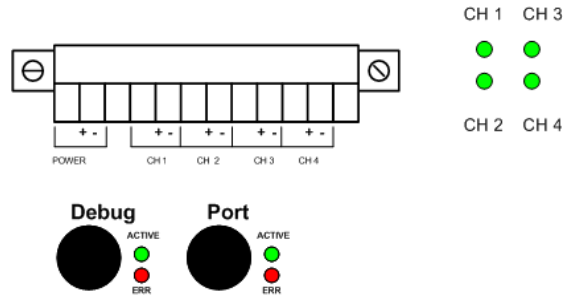


3.6.5 HART

HART modules ship with the necessary screw terminal adapters to connect your devices directly to the gateway.

HART Channels

The ProLinx module supports the HART protocol as a Master on up to 8 channels per interface card. Each channel is individually configurable.



The relationship between the port labeling on the front of the ProLinx module and the application is as follows:

Port Label	Function
Debug	Debug/configuration
Port 0	Communications Port 0
Channel 1	Hart Port 0
Channel 2	Hart Port 1
Channel 3	Hart Port 2
Channel 4	Hart Port 3
Channel 5	Hart Port 4
Channel 6	Hart Port 5
Channel 7	Hart Port 6
Channel 8	HART Port 7

The HART protocol uses the Bell 202 standard frequency shift keying (FSK) signal to communicate at 1200 baud, superimposed at a low level on the 4 to 20 mA analog measurement signal. Having an average value of zero, an FSK signal causes no interference with the analog value. The HART devices are powered from this 4 to 20 mA analog loop.

All HART protocol channels in the ProLinx module generate the Bell 202 FSK signal to communicate in multi-drop mode with up to 15 HART devices and provide up to 300 mA supply for the analog loop in multi-drop mode. Refer to the Reference chapter for ProLinx HART field connection information.

User configured commands determine the HART commands to be issued on each channel to the HART devices. Up to 100 commands can be defined for each port. Data read from the devices are placed in the virtual database. Any write requests or device specific command for the HART slave devices are sourced with data from the virtual database or from a configured constant data block. In the commands it can be specified whether to use the HART device's short or long address. If the long address is selected, the device is polled first with short address to ask for the long one. Then the device is polled with the long address. The module does all this processing of the address automatically.

The module can be configured to place slave devices that are not responding to commands from the master ports at a lower priority. If the module recognizes that a slave device has failed to respond to a message after the user defined retry count, it will mark the slave as "in communication failure" and set the error delay time to the specified value. Each time that the error delay time expires, the slave will be polled and if the answer is successful, the slave is placed again in an active status. This facility can improve communication throughput on the HART network.

In a HART network, it is possible to have two masters. The ProLinx module fully supports the existence of a second master, but it can reduce the throughput on the HART network. This facility is enabled or disabled in the module's configuration. If the ability to have a second master on the network is disabled, then the maximum throughput is achieved.

3.6.6 HART Analog

ProLinx 5108 / 5208 HART Field Connections

HART field instruments can be connected in multiple ways, depending on power requirements and whether the device sinks or sources a bias or operating current from the network.

Connections for HART Analog Point-to-Point Devices

The ProLinx 5108/5208 HART Analog interface module provides an isolated 24 VDC power supply output which may be used as a Network Power Supply. It is sized for powering one HART Analog transmitter for each of the four HART Analog channels. This internal isolated power supply can supply 24VDC @125 mA max., which is sufficient to supply power to four HART analog transmitters, each connected in a point-to-point fashion. Since each HART Analog channel is independent and completely isolated, any mixture of loop powered and self powered transmitters may be accommodated. External loop power, internal loop power or both may be used to power any HART Analog channel.

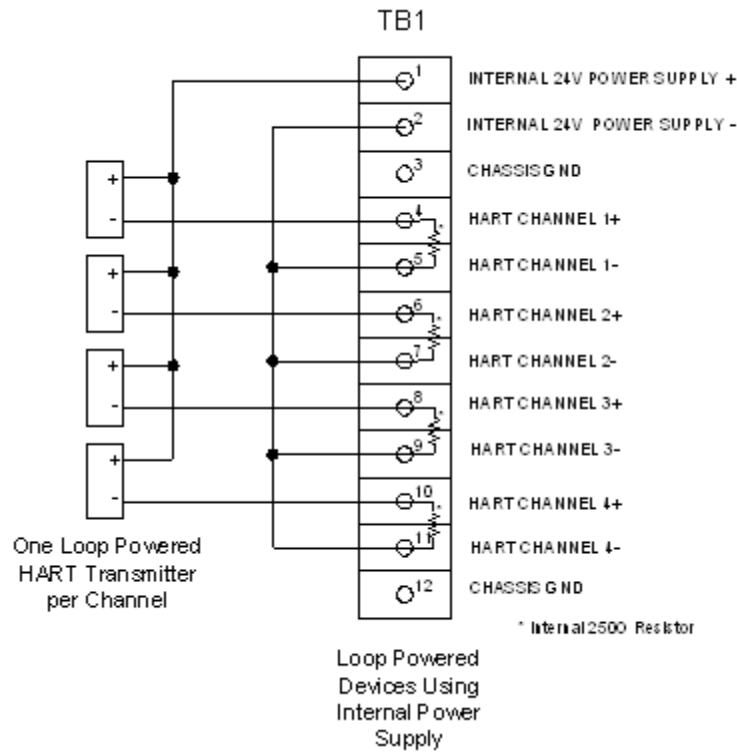
WARNING: The 5108/5208 HART Analog module may *not* be used in multi-drop applications. Only one HART transmitter per channel is allowed.

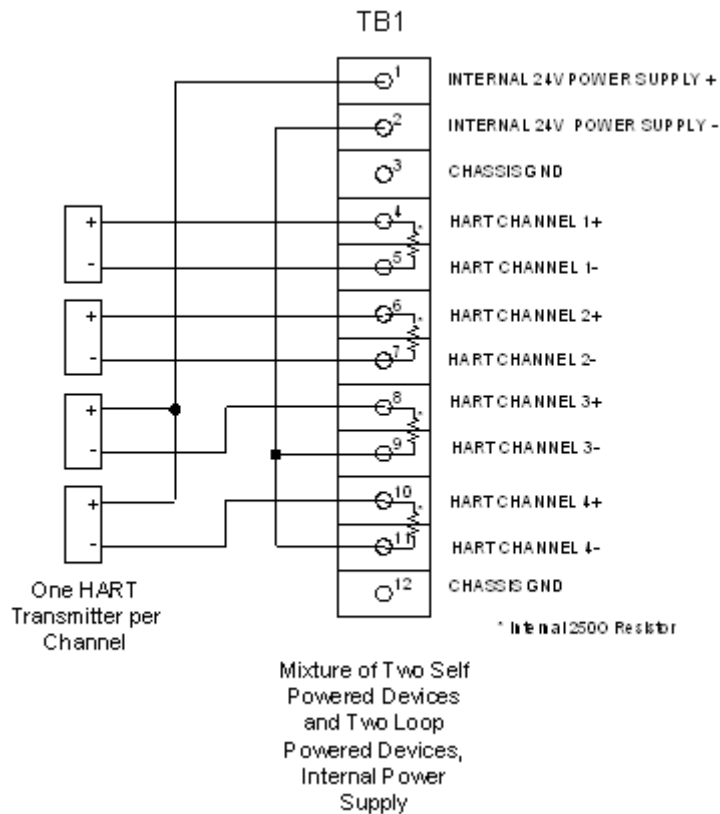
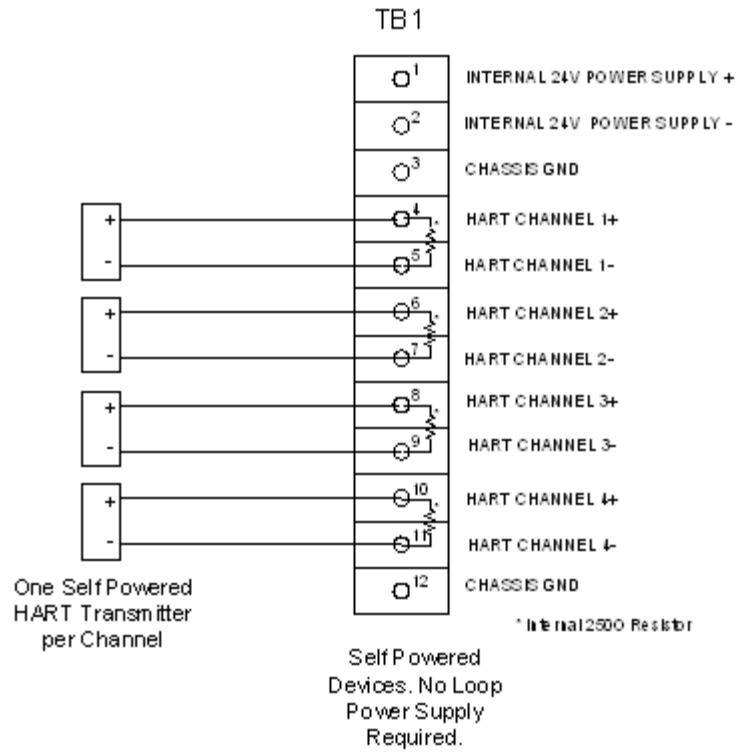
Network Power Supply Requirements

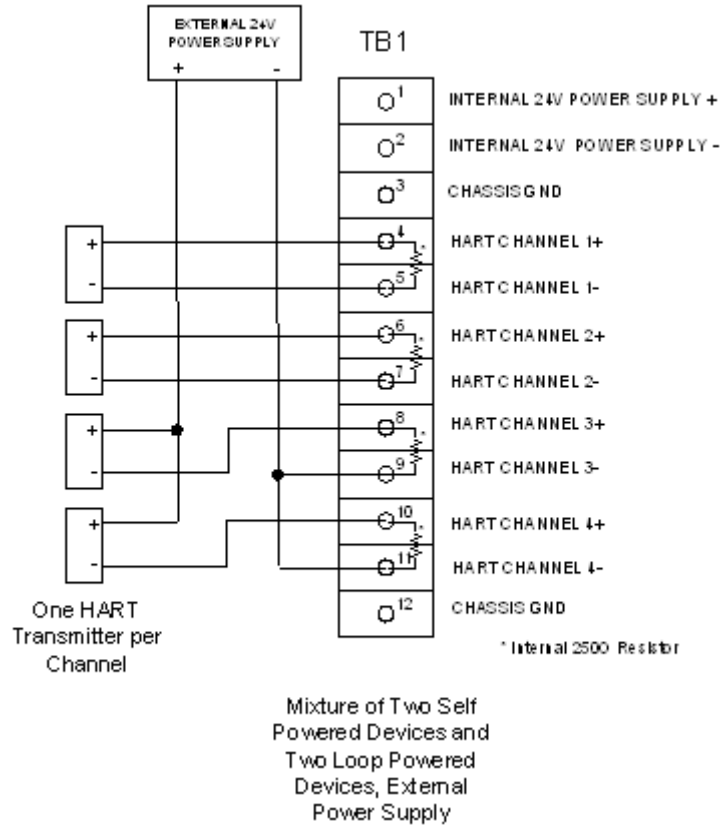
Note: The ProSoft 5108/5208 HART interface may be used with any HART field device transmitter.

Wiring Diagrams

If field instrument wiring is shielded, terminate shields at the ground terminals of the HART connector TB1. Do not terminate the shields at the instrument.



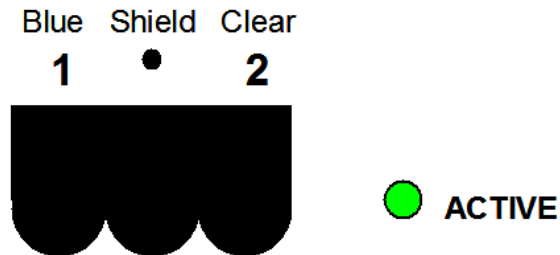




3.6.7 RIO

A 3 position screw terminal adapter is provided to connect Rockwell Automation Remote I/O Adapter devices to the gateway module.

Remote I/O Adapter Cable Connection



The RIO interface uses the standard Belden 9463 (Blue Hose) cable and is terminated as described in the Rockwell Automation Remote I/O documentation.

No termination resistor is provided on the RIO adapter communication card, therefore any necessary termination resistance must be applied via the screw terminal connector.

3.6.8 Wireless

Antenna Port (6000 Series Modules)

ProLinx 6000 Series modules provide two RP-SMA connectors, with automatic antenna diversity.

4 Diagnostics and Troubleshooting

In This Chapter

- ❖ Requirements 59
- ❖ LED Indicators 75

There are two ways to troubleshoot ProLinx modules: LEDs located on the front of the module, and a Debug port that provides a view into the module's internal database.

4.1 Requirements

In order to use the Debug capabilities of any ProLinx Module, you will need the following:

- A PC running ProSoft Configuration Builder or HyperTerminal software
- A Null Modem cable
- A Mini-DIN to DB-9M connector
- Configuration and executable files described earlier

4.1.1 The Configuration/Debug Menu

The Configuration and Debug menu for this module is arranged as a tree structure, with the Main Menu at the top of the tree, and one or more sub-menus for each menu command. The first menu you see when you connect to the module is the Main menu.

Because this is a text-based menu system, you enter commands by typing the command letter from your computer keyboard in the diagnostic window in ProSoft Configuration Builder (PCB). The module does not respond to mouse movements or clicks. The command executes as soon as you press the command letter — you do not need to press **[Enter]**. When you type a command letter, a new screen will be displayed in your terminal application.

Required Hardware

You can connect directly from your computer's serial port to the serial port on the module to view configuration information, perform maintenance, and send (upload) or receive (download) configuration files.

ProSoft Technology recommends the following minimum hardware to connect your computer to the module:

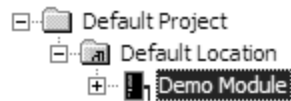
- 80486 based processor (Pentium preferred)
- 1 megabyte of memory

- At least one UART hardware-based serial communications port available. USB-based virtual UART systems (USB to serial port adapters) often do not function reliably, especially during binary file transfers, such as when uploading/downloading configuration files or module firmware upgrades.
- A null modem serial cable.

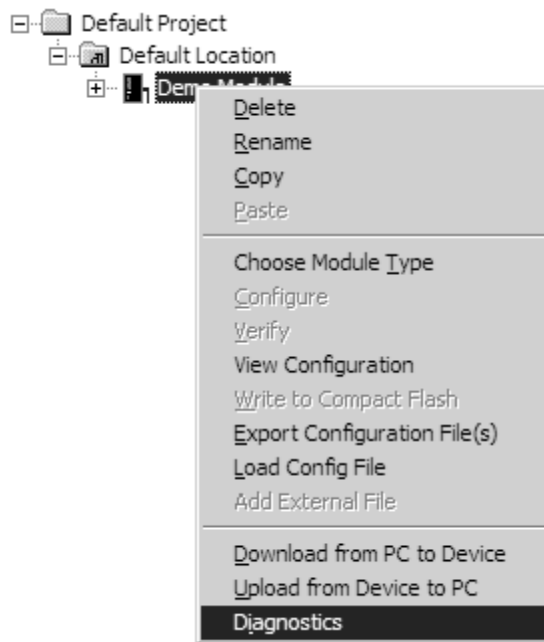
Using the Diagnostic Window in ProSoft Configuration Builder

To connect to the module's Configuration/Debug serial port:

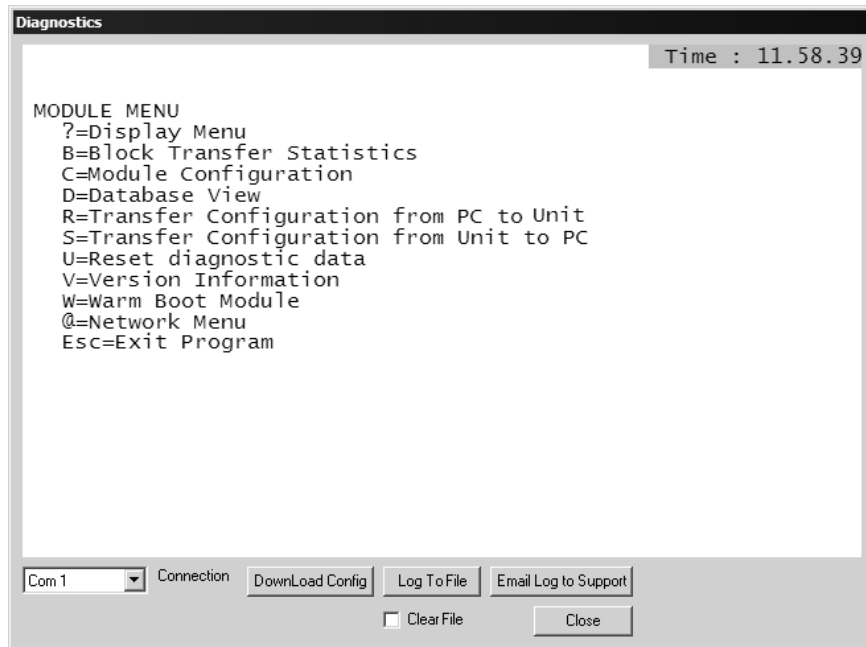
- 1 Start PCB program with the application file to be tested. Right click over the module icon.



- 2 On the shortcut menu, choose Diagnostics.



- 3 This action opens the Diagnostics dialog box. Press "?" to display the Main Menu.



Important: The illustrations of configuration/debug menus in this section are intended as a general guide, and may not exactly match the configuration/debug menus in your own module.

If there is no response from the module, follow these steps:

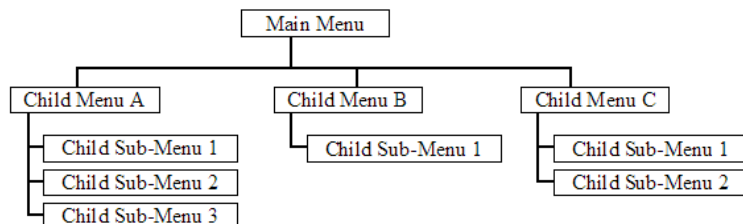
- 1 Verify that the null modem cable is connected properly between your computer's serial port and the module. A regular serial cable will not work.
- 2 On computers with more than one serial port, verify that your communication program is connected to the same port that is connected to the module.

If you are still not able to establish a connection, contact ProSoft Technology for assistance.

Navigation

All of the sub-menus for this module contain commands to redisplay the menu or return to the previous menu. You can always return from a sub-menu to the next higher menu by pressing **[M]** on your keyboard.

The organization of the menu structure is represented in simplified form in the following illustration:



The remainder of this section shows you the menus available for this module, and briefly discusses the commands available to you.

Keystrokes

The keyboard commands on these menus are almost always non-case sensitive. You can enter most commands in lower case or capital letters.

The menus use a few special characters ([**?**], [**-**], [**+**], [**@**]) that must be entered exactly as shown. Some of these characters will require you to use the [**Shift**], [**Ctrl**] or [**Alt**] keys to enter them correctly. For example, on US English keyboards, enter the [**?**] command as [**Shift**]/[**/**].

Also, take care to distinguish capital letter [**I**] from lower case letter [**i**] (L) and number [**1**]; likewise for capital letter [**O**] and number [**0**]. Although these characters look nearly the same on the screen, they perform different actions on the module.

4.1.2 Main Menu

When you first connect to the module from your computer, your terminal screen will be blank. To activate the main menu, press the [**?**] key on your computer's keyboard. If the module is connected properly, the main menu will appear on your terminal screen.

Each ProLinx module shows menu commands appropriate for its specific combination of protocols. The following illustration shows the main menu for a ProLinx 103M-PDPS module. The main menu for your module will most likely be somewhat different.

```
IEC-870-5-103 MASTER/PROFIBUS SLAVE COMMUNICATION MODULE (x105-I103M-PDPS) MENU
?=Display Menu
B=Profibus Configuration
C=Module Configuration
D=Database View
P=Profibus Menu
Q=Port 0 IEC-870-103 Master Driver Menu
S=Transfer Configuration from 4100 Unit to PC
V=Version Information
$=Data Map Menu
Esc=Exit Program
```

Caution: Some of the commands available to you from this menu are designed for advanced debugging and system testing only, and can cause the module to stop communicating with the processor or with other devices, resulting in potential data loss or other failures. Only use these commands if you are specifically directed to do so by ProSoft Technology Technical Support staff. Some of these command keys are not listed on the menu, but are active nevertheless. Please be careful when pressing keys so that you do not accidentally execute an unwanted command.

Opening the Data Analyzer Menu

Press [**A**] to open the Data Analyzer Menu. Use this command to view all bytes of data transferred on each port. Both the transmitted and received data bytes are displayed. Refer to Data Analyzer for more information about this menu.

Important: When in analyzer mode, program execution will slow down. Only use this tool during a troubleshooting session. Before disconnecting from the Config/Debug port, please press [S] to stop the data analyzer, and then press [M] to return to the main menu. This action will allow the module to resume its normal high speed operating mode.

Opening the Database Menu

Press **[D]** to open the Database View menu. Use this menu command to view the current contents of the module's database.

Viewing Block Transfer Statistics

Press **[B]** from the Main Menu to view the Block Transfer Statistics screen.

Use this command to display the configuration and statistics of the backplane data transfer operations between the module and the processor. The information on this screen can help determine if there are communication problems between the processor and the module.

Tip: To determine the number of blocks transferred each second, mark the numbers displayed at a specific time. Then some seconds later activate the command again. Subtract the previous numbers from the current numbers and divide by the quantity of seconds passed between the two readings.

Viewing Module Configuration

Press **[C]** to view the Module Configuration screen.

Use this command to display the current configuration and statistics for the module.

Viewing Version Information

Press **[V]** to view Version information for the module.

Use this command to view the current version of the software for the module, as well as other important values. You may be asked to provide this information when calling for technical support on the product.

Values at the bottom of the display are important in determining module operation. The Program Scan Counter value is incremented each time a module's program cycle is complete.

Tip: Repeat this command at one-second intervals to determine the frequency of program execution.

Viewing Port Communication Status

Use the Port Communication Status commands to view communication status and statistics for the selected port. This information can be informative when troubleshooting communication problems.

Viewing Port Configuration

Use the Port Configuration command to display detailed configuration information for the selected port.

Viewing Client Configuration

Press **[B]** to display the configuration information for the client.

Viewing Module Configuration

Press **[C]** to view the Module Configuration screen.

Use this command to display the current configuration and statistics for the module.

Warm Booting the Module

Caution: Some of the commands available to you from this menu are designed for advanced debugging and system testing only, and can cause the module to stop communicating with the processor or with other devices, resulting in potential data loss or other failures. Only use these commands if you are specifically directed to do so by ProSoft Technology Technical Support staff. Some of these command keys are not listed on the menu, but are active nevertheless. Please be careful when pressing keys so that you do not accidentally execute an unwanted command.

Press **[W]** from the Main Menu to warm boot (restart) the module. This command will cause the program to exit and reload, refreshing configuration parameters that must be set on program initialization. Only use this command if you must force the module to re-boot.

Exiting the Program

Caution: Some of the commands available to you from this menu are designed for advanced debugging and system testing only, and can cause the module to stop communicating with the processor or with other devices, resulting in potential data loss or other failures. Only use these commands if you are specifically directed to do so by ProSoft Technology Technical Support staff. Some of these command keys are not listed on the menu, but are active nevertheless. Please be careful when pressing keys so that you do not accidentally execute an unwanted command.

Press **[Esc]** to restart the module and force all drivers to be loaded. The module will use the configuration stored in the module's Flash ROM to configure the module.

4.1.3 Data Analyzer

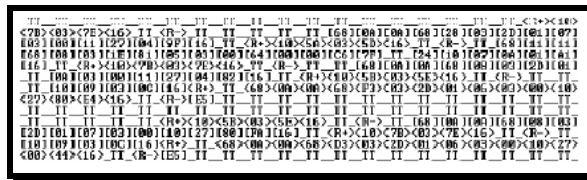
The data analyzer mode allows you to view all bytes of data transferred on each port. Both the transmitted and received data bytes are displayed. Use of this feature is limited without a thorough understanding of the protocol.

Note: The Port selection commands on the Data Analyzer menu differs very slightly in different modules, but the functionality is basically the same. Use the illustration above as a general guide only. Refer to the actual data analyzer menu on your module for the specific port commands to use.

Important: When in analyzer mode, program execution will slow down. Only use this tool during a troubleshooting session. Before disconnecting from the Config/Debug port, please press [S] to stop the data analyzer, and then press [M] to return to the main menu. This action will allow the module to resume its normal high speed operating mode.

Analyzing Data for the application port(s)

Press the key corresponding to the application port to display I/O data for the application port in the Data Analyzer. The following illustration shows an example of the Data Analyzer output.



Displaying Timing Marks in the Data Analyzer

You can display timing marks for a variety of intervals in the data analyzer screen. These timing marks can help you determine communication-timing characteristics.

Key	Interval
[5]	1 milliseconds ticks
[6]	5 milliseconds ticks
[7]	10 milliseconds ticks
[8]	50 milliseconds ticks
[9]	100 milliseconds ticks
[0]	Turn off timing marks

Removing Timing Marks in the Data Analyzer

Press [0] to turn off timing marks in the Data Analyzer screen.

Viewing Data in Hexadecimal Format

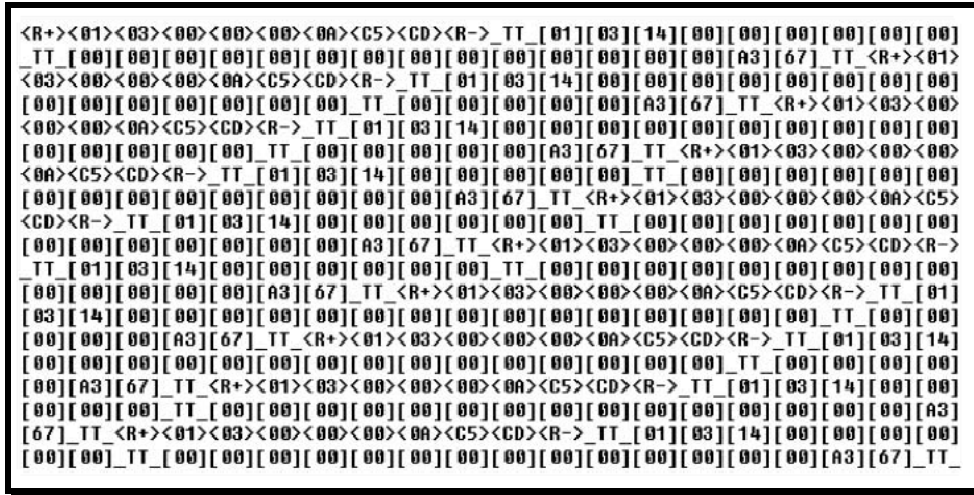
Press [H] to display the data on the current page in hexadecimal format.

Viewing Data in ASCII (Text) Format

Press [A] to display the data on the current page in ASCII format. This is useful for regions of the database that contain ASCII data.

Starting the Data Analyzer

Press **[B]** to start the data analyzer. After the key is pressed, all data transmitted and received on the currently selected port will be displayed. The following illustration shows an example.



The Data Analyzer displays the following special characters:

Character	Definition
[]	Data enclosed in these characters represent data received on the port.
< >	Data enclosed in these characters represent data transmitted on the port.
<R+>	These characters are inserted when the RTS line is driven high on the port.
<R->	These characters are inserted when the RTS line is dropped low on the port.
<CS>	These characters are displayed when the CTS line is recognized high.
TT	These characters are displayed when the timing mark interval has been reached. This parameter is user defined.

Stopping the Data Analyzer

Press **[S]** to stop the data analyzer. Use this option to freeze the display so the data can be analyzed. To restart the analyzer, press **[B]**.

Important: When in analyzer mode, program execution will slow down. Only use this tool during a troubleshooting session. Before disconnecting from the Config/Debug port, please press [S] to stop the data analyzer, and then press [M] to return to the main menu. This action will allow the module to resume its normal high speed operating mode.

Returning to the Main Menu

Press **[M]** to return to the Main Menu.

4.1.4 Data Analyzer Tips

From the main menu, press **[A]** for the "Data Analyzer". You should see the following text appear on the screen:

Data Analyzer Mode Selected

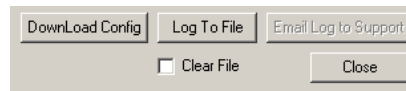
After the "Data Analyzer" mode has been selected, press **[?]** to view the Data Analyzer menu. From this menu, you can select the "Port", the "format", and the "ticks" that you can display the data in.

For most applications, HEX is the best format to view the data, and this does include ASCII based messages (because some characters will not display on HyperTerminal and by capturing the data in HEX, we can figure out what the corresponding ASCII characters are supposed to be).

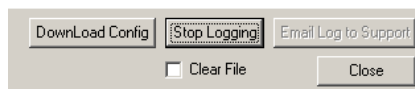
The Tick value is a timing mark. The module will print a `_TT` for every xx milliseconds of no data on the line. Usually 10milliseconds is the best value to start with.

To save a capture file of your Diagnostics session

- 1 After you have selected the Port, Format, and Tick, we are now ready to start a capture of this data. Click the Log to File button at the bottom of the Diagnostics window.



- 2 When you have captured the data you want to save, click the Stop Logging button.



You have now captured, and saved the file to your PC. This file can now be used in analyzing the communications traffic on the line, and assist in determining communication errors.

Now you have everything that shows up on the HyperTerminal screen being logged to a file called ProLinxLog.txt. This is the file that you will then be able to email to ProSoft Technical Support to assist with issues on the communications network.

To begin the display of the communications data, you will then want to press 'B' to tell the module to start printing the communications traffic out on the debug port of the module. After you have pressed 'B', you should see something like the following:

```
[03][00][04][00][05][00][06][00][07][00][08][00][09][FB][B7]_TT__TT_<R+><01><02>
<00><00><00><0A><F8><0D><R->_TT__TT__TT_[01][02][02][00][00][B9][B8]_TT__TT_<R+>
<01><03><00><00><00><0A><C5><CD><R->_TT__TT_[01][03][14][00][00][00][01][00]_TT__
[02][00][03][00][04][00][05][00][06][00][07][00][08][00][09][CD][51]_TT__TT_<R+>
<01><01><00><00><00><A0><3C><72><R->_TT__TT__[01][01][14][00][00][01][00][02]_TT__
[00][03][00][04][00][05][00][06][00][07][00][08][00][09][00][B7][52]_TT__TT_<R+>
<01><04><00><00><00><0A><70><0D><R->_TT__TT__[01][04][14][00][00][00][01][00]_TT__
[02][00][03][00][04][00][05][00][06][00][07][00][08][00][09][FB][B7]_TT__TT_<R+>
<01><02><00><00><00><0A><F8><0D><R->_TT__TT__TT__[01][02][02][00][00][B9][B8]_TT__
TT_<R+><01><03><00><00><00><0A><C5><CD><R->_TT__TT__[01][03][14][00][00][00][01]
[00]_TT__[02][00][03][00][04][00][05][00][06][00][07][00][08][00][09][CD][51]_TT__
TT_<R+><01><01><00><00><00><A0><3C><72><R->_TT__TT__TT__[01][01][14][00][00][01]
[00][02]_TT__[00][03][00][04][00][05][00][06][00][07][00][08][00][09][00][B7][52]
TT__TT_<R+><01><04><00><00><00><0A><70><0D><R->_TT__TT__[01][04][14][00][00][00]
[01][00]_TT__[02][00][03][00][04][00][05][00][06][00][07][00][08][00][09][FB][B7]
TT__TT_<R+><01><02><00><00><00><0A><F8><0D><R->_TT__TT__[01][02][02][00][00][B9]
[B8]_TT__TT_<R+><01><03><00><00><00><0A><C5><CD><R->_TT__TT__[01][03][14][00][00]
[00][01][00]_TT__[02][00][03][00][04][00][05][00][06][00][07][00][08][00][09][CD]
[51]_TT__TT_<R+><01><01><00><00><00><A0><3C><72><R->_TT__TT__TT__[01][01][14][00]
[00][01][00][02]_TT__[00][03][00][04][00][05][00][06][00][07][00][08][00][09][00]
[B7][52]_TT__TT_<R+><01><04><00><00><00><0A><70><0D><R->_TT__TT__[01][04][14][00]
[00][00][01][00]_TT__[02][00][03][00][04][00][05][00][06][00][07][00][08][00][09]
[FB][B7]_TT__TT_<R+><01><02><00><00><00><0A><F8><0D><R->_TT__TT__TT__[01][02][02]
[00][00][B9][B8]_TT__TT_<R+><01><03><00><00><00><0A><C5><CD><R->_TT__TT__
```

The <R+> means that the module is transitioning the communications line to a transmit state.

All characters shown in <> brackets are characters being sent out by the module.

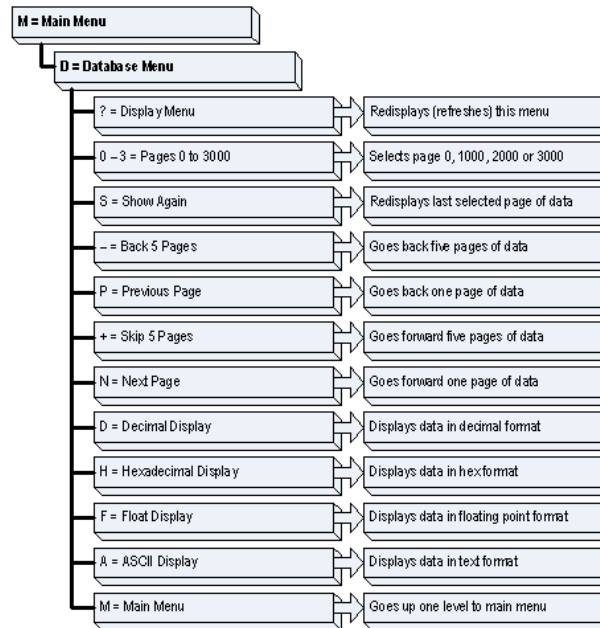
The <R-> shows when the module is done transmitting data, and is now ready to receive information back.

And finally, all characters shown in the [] brackets is information being received from another device by the module.

After taking a minute or two of traffic capture, you will now want to stop the "Data Analyzer". To do so, press the 'S' key, and you will then see the scrolling of the data stop.

4.1.5 Database View Menu

Press **[D]** from the Main Menu to open the Database View menu. Use this menu command to view the current contents of the module's database. Press **[?]** to view a list of commands available on this menu.



Viewing Register Pages

To view sets of register pages, use the keys described below:

Command	Description
[0]	Display registers 0 to 99
[1]	Display registers 1000 to 1099
[2]	Display registers 2000 to 2099

And so on. The total number of register pages available to view depends on your module's configuration.

Displaying the Current Page of Registers Again

```

DATABASE DISPLAY 0 TO 99 <DECIMAL>
100  101  102  4  5  6  7  8  9  10
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  
```

This screen displays the current page of 100 registers in the database.

Moving Back Through 5 Pages of Registers

Press **[-]** from the Database View menu to skip back to the previous 500 registers of data.

Viewing the Previous 100 Registers of Data

Press **[P]** from the Database View menu to display the previous 100 registers of data.

Skipping 500 Registers of Data

Hold down **[Shift]** and press **[=]** to skip forward to the next 500 registers of data.

Viewing the Next 100 Registers of Data

Press **[N]** from the Database View menu to select and display the next 100 registers of data.

Viewing Data in Decimal Format

Press **[D]** to display the data on the current page in decimal format.

Viewing Data in Hexadecimal Format

Press **[H]** to display the data on the current page in hexadecimal format.

Viewing Data in Floating Point Format

Press **[F]** from the Database View menu. Use this command to display the data on the current page in floating point format. The program assumes that the values are aligned on even register boundaries. If floating-point values are not aligned as such, they are not displayed properly.

Viewing Data in ASCII (Text) Format

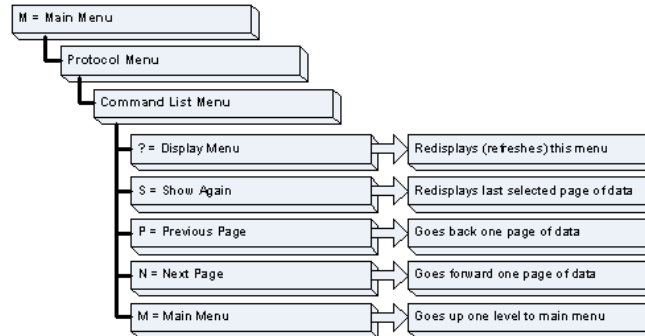
Press **[A]** to display the data on the current page in ASCII format. This is useful for regions of the database that contain ASCII data.

Returning to the Main Menu

Press **[M]** to return to the Main Menu.

4.1.6 Master Command Error List Menu

Use this menu to view the command error list for the module. Press **[?]** to view a list of commands available on this menu.



Redisplaying the Current Page

Press **[S]** to display the current page of data.

Viewing the Previous 20 Commands

Press **[-]** to display data for the previous 20 commands.

Viewing the Previous Page of Commands

Press **[P]** to display the previous page of commands.

Viewing the Next 20 Commands

Press **[+]** to display data for the next 20 commands.

Viewing the Next Page of Commands

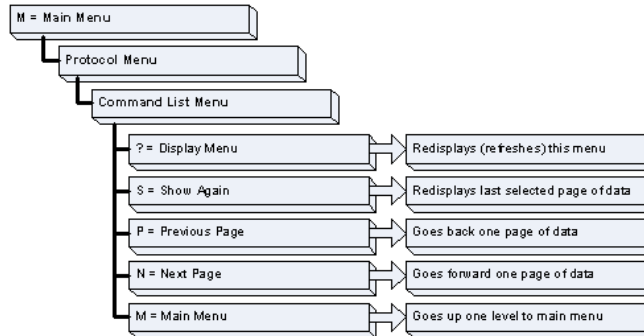
Press **[N]** to display the next page of commands.

Returning to the Main Menu

Press **[M]** to return to the Main Menu.

4.1.7 Master Command List Menu

Use this menu to view the command list for the module. Press **[?]** to view a list of commands available on this menu.



Redisplaying the Current Page

Press **[S]** to display the current page of data.

Viewing the Previous 50 Commands

Press **[-]** to view the previous 50 commands.

Viewing the Previous Page of Commands

Press **[P]** to display the previous page of commands.

Viewing the Next 50 Commands

Press **[+]** to view the next 50 commands from the master command list.

Viewing the Next Page of Commands

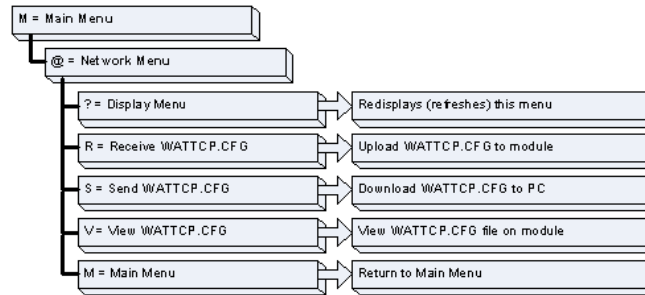
Press **[N]** to display the next page of commands.

Returning to the Main Menu

Press **[M]** to return to the Main Menu.

4.1.8 Network Menu

The network menu allows you to send, receive and view the WATTCP.CFG file that contains the IP and gateway addresses, and other network specification information.



Transferring WATTCP.CFG to the module

Use this command if you are using HyperTerminal to communicate with the module, instead of using ProSoft Configuration Builder (the preferred method).

Press **[R]** to transfer a new WATTCP.CFG file from the PC to the module. Use this command to change the network configuration for the module (for example, the module's IP address).

Press **[Y]** to confirm the file transfer, and then open the Transfer menu in HyperTerminal. On the Transfer menu, choose Send File, and then choose Ymodem as the file transfer protocol.

Transferring WATTCP.CFG to the PC

Use this command if you are using HyperTerminal to communicate with the module, instead of using ProSoft Configuration Builder (the preferred method).

Press **[S]** to transfer the WATTCP.CFG file from the module to your PC.

Press **[Y]** to confirm the file transfer, and then open the Transfer menu in HyperTerminal. On the Transfer menu, choose Receive File, and then choose Ymodem as the file transfer protocol.

After the file has been successfully transferred, you can open and edit the file to change the module's network configuration.

Viewing the WATTCP.CFG file on the module

Press **[V]** to view the module's WATTCP.CFG file. Use this command to confirm the module's current network settings.

```
Network Menu Selected
WATTCP.CFG FILE:
# ProLinx Communication Gateways, Inc.
#
# Default private class 3 address
my_ip=192.168.0.135
#
# Default class 3 network mask
netmask=255.255.255.0
#
# The gateway I wish to use
gateway=192.168.0.1
#
#Parameters used by the ProLinx Communication Gateways, Inc. module
#Local_Domain_Name=mycompany.com
#Password=PASSWORD
```

Returning to the Main Menu

Press **[M]** to return to the Main Menu.

4.1.9 4101 Series Modules

NOTE: 4101 series modules that use both serial ports (Debug and Port x) as application ports (for example, 4101-MCM-DFCM) must be reset or power-cycled in order to enable the selected port as a Debug port. To enable the debug port, connect to the port using a null-modem serial cable, and then press and hold the **[A]** key on the keyboard while resetting or power cycling the card. Do not release the key until HyperTerminal shows the debug port menu. Debug mode can be enabled on either port. The upload/download command is only available when connected to the Debug port.

4.2 LED Indicators

LEDs provide visual indications of potential problems. The following LEDs are fundamental to all ProLinx modules.

4.2.1 Base Module LEDs

LED	State	Description
Power	Off	Power is not connected to the power terminals. This LED is hardware driven, so it only requires power to operate.
	Green Solid	Power is connected to the power terminals. Verify that the other LEDs for operational and functional status.
Fault	Off	Normal operation.
	Red Solid	A critical error has occurred. Program executable has failed or has been user-terminated and is no longer running. Press Reset p/b or cycle power to clear error. If not, use the Debug procedures described later in this manual.
Cfg	Off	Normal operation.
	Amber Solid	The unit is in the configuration mode. The configuration file is being read and the unit is implementing the configuration values and initializing the hardware. This will occur during power cycle, or after pressing the reset button. It also occurs after a cold/warm boot command is received.
Err	Off	Normal operation.
	Amber Blinking	An error condition has been detected and is occurring. Check configuration.
	Amber Solid	This condition is indicative of a large number of errors in the application interface communications. The module's error flag is cleared at the start of each command (master/client) or receipt of data (slave/adaptor/server).

4.2.2 Mini-DIN 8 Serial Port

LED	State	Description
ERR	Off	Normal state. When off and Port Active LED indicates activity, there are no communication errors.
	Red Solid or Blinking	Activity on this LED indicates that some communication error was detected, either during transmit or receive. To determine the exact error, use the Debug port procedures described in this section.
ACT (Active)	Off	No activity on this port.
	Green Blinking	The port is either actively transmitting or receiving data.

4.2.3 Ethernet LED Indicators

LED	State	Description
Data	Off	No activity on the port.
	Green Blinking	The port is either actively transmitting or receiving data.
Link	Off	No connection to hub or network is detected.
	Green Solid	Connected to hub or network correctly. This is the normal operating state.

4.2.4 PROFIBUS DPV0 Master LED Indicators

LED	State	Description
TKN (Token)	Green Solid	PROFIBUS Master owns token
RDY (Ready)	Off	Hardware Error
	Green Solid	Normal Operation
	Green cyclic blinking, approx. once per second	Flash only contains boot loader, no valid firmware stored in flash.
	Green cyclic blinking, approx. four times per second	Hardware or system error or firmware/configuration database download in progress.
ERR	Off	No errors detected.
	Red Solid	Error on communication line. Shows if a bus error has occurred, for example, a remote node was not found.
RUN	Green Solid	Communication running.
	Green cyclic blinking, approx. four times per second	Ready for communication.
	Green acyclic flash	Configuration error or fatal error.

4.2.5 PROFIBUS DPV0 Slave LED Indicators

Active LED	Error LED	Description
On	Off	Normal Operation
Off	Off	Module not receiving power or program terminated
Off	On	Module configured and waiting for first output data set.
Blinking	On	PROFIBUS communication problem (not receiving output)
Off	Blinking	User timeout expired.
On	Rapid irregular blinking	Configuration problem from master.
Blinking Together		Configuration error during initialization.
Blinking Alternately		Watchdog timer expired.

4.2.6 Modbus Plus LED Indicators

LED	State	Description
ACT	6 blinks per second	The Modbus Plus is working normally in that it is successfully receiving and passing the token. All nodes on the link should be Blinking in this pattern.
	1 blink per second	This node is off-line after just being powered up, or after exiting the four blinks per second mode. In this state the node monitors the network and builds a table of active nodes and token-holding nodes. It remains in this state for five seconds, then attempts to go to its normal operating state.
	2 blinks, then Off for 2 seconds	The node is hearing the token being passed among other nodes, but is never receiving the token. Check the network for an open circuit or defective termination.
	3 blinks, then Off for 1.7 seconds	The node is not hearing any other nodes. It is periodically claiming the token but finding no other node to pass it to. Check the network for an open circuit or a defective termination.
	4 blinks, then Off for 1.4 seconds	The node has heard a valid message from another node that is using the same address as this node. The node remains in this state as long as it continues to hear the duplicate address. If the duplicate address is not heard for five seconds, the node then changes to the pattern of one flash every second.
ERR	Off	Normal State. When the error LED is off and the port is actively transferring data, there are no communication errors.
	Red Blinking	If the LED blinks momentarily, a message error has been detected on the cable path.
	Red Solid	Either a hard fault has occurred either in the cable or in a node device connected to the cable, or none of the commands in the Master Command list are successfully being completed.

4.2.7 Rockwell Automation Remote I/O LED Indicators

LED	State	Description
ACTIVE	Off	No communication detected on the Remote I/O link. Verify connection to scanner, power, and use Debug terminal capabilities.
	Green Blinking	Remote adapter not actively controlling I/O (Scanner to adapter communication link is normal). Verify if the processor is in program, or duplicate node address on network.
	Green Solid	Normal indication. Remote I/O Adapter is operational. Check base module ERR LED to be sure.

4.2.8 HART LED Indicators

LED	State	Description
CH1 to CH4	Green Blinking	The module either sending or receiving data over that channel.
	Off	The module is waiting to receive data on that channel.

4.2.9 Honeywell DE Master LED Indicators

LED	State	Description
ACT	Green Solid	The module has received data on a channel. Under normal operation, this LED should blink rapidly.
	Off	The module is waiting to receive data on a channel.
ERR	Red Solid	The module is in error or the FTA is not connected. This LED will blink when the module is being initialized to indicate module activity. Module errors include communication timeout on a channel, bad commands, mismatch conditions or hardware failure.
	Off	Normal Operation.

4.2.10 Wireless Gateway Antenna LED Indicators

LED	Color	Description
RF LINK	Off	No activity on this port.
	Blinking Green	The port is either actively transmitting or receiving data.
RF DATA	Off	No activity on this port.
	Blinking Green	The port is either actively transmitting or receiving data.

4.2.11 4101 Series LEDs

LED	State	Description
Power	Off	Power is not connected to the power terminals. This LED is hardware driven, so it only requires power to operate.
	Green Solid	Power is connected to the power terminals. Verify that the other LEDs for operational and functional status.
Fault	Off	Normal operation.
	Red Solid	The Debug/Configuration mode is active (applies to modules that support pass-through on Debug port - such as DFCM units). If CFG LED is not on, a critical error has occurred. Program executable has failed or has been user-terminated and is no longer running. Press Reset p/b or cycle power to clear error. If not, use the Debug procedures described later in this manual.
CFG	Off	Normal operation.
	Amber Solid	If Fault LED is on, the Debug/Configuration Mode is active (if the module supports pass-through on the Debug port - such as DFCM units). If the Fault LED is off, the unit is in the configuration mode. The configuration file is being read and the unit is implementing the configuration values and initializing the hardware. This will occur during power cycle, or after pressing reset button. It also occurs after a cold/warm boot command is received.
ERR	Off	Normal operation.
	Blinking	An error condition has been detected and is occurring. Check configuration.
	Solid Red	This condition is indicative of a large number of errors in the application interface communications. The module's error flag is cleared at the start of each command (master/client) or receipt of data (slave/adaptor/server).

5 Error and Status Data

In This Chapter

- ❖ Fixed Error and Status Data Register Locations 82

The module error and status data are discussed in this section. Errors are stored in individual register addresses within each module. The individual protocol driver manuals contain these register addresses and includes tables as to what type of error is contained in each register. The protocol driver manuals also contain interpretations of the error codes found in specific registers.

To view individual register content, refer to Opening the Database Menu (page 63).

Each driver maintains its error and status data in virtual database registers. In order for a protocol driver to use this data, it must be mapped into the module's internal database registers (0 to 3999). Data Map Facility describes this process.

5.1 Fixed Error and Status Data Register Locations

In versions 2.20, and later of the ProLinx Gateway products, separate, fixed locations have been reserved in upper module memory for error and status information for most protocols. Each protocol driver may have a defined set of registers associated with its assigned register space; or it may not.

The chart below shows the memory address areas reserved for status and error information from each protocol. Refer to the protocol driver manual for specific details of the status information. A few protocols, including DNPM and 101M, do not provide status information at this time.

Driver	Description	Start Address	End Address
All Drivers	Common Module Information	4000	4099
MBP	MODBUS Plus	4100	4399
MCM	Modbus	4400	5999
MNET	Modbus Ethernet	6000	6299
DFCM	DF1 Master/Slave	6300	7899
DFNT	Rockwell Automation EtherNet/IP	7900	8999
RIO	Rockwell Automation Remote I/O adapter	9000	9099
DNPM	DNP 3.0 Master	Not available	Not available
DNPS	DNP 3.0 Slave	9900	9999
DNPNET	DNP Net Server	10000	10099
101S	IEC-101 Slave	10100	10199
104S	IEC-104 Server	10200	10299
PDPS	PROFIBUS Slave	10300	10399
PDPM	PROFIBUS Master	10400	10499
	Master Cmds	10500	10699
HART	HART	10700	12299
BAC	BACnet	12300	12499
Radio	Radio Status	12500	12599
Uconn DFNT Client	Unconnected EtherNet/IP Client	12800	12999
ASCII	Generic Serial	13000	13099
PDPMV1	PROFIBUS DP V1 Master	13100	13999
103M	IEC-103 Master	14000	14089
	Master Cmds	15000	15499
DH485	DH-485	14100	14199
	Master Cmds	14200	14299
101M	IEC-101 Master	Not Available	Not Available
	Master Cmds	Not Available	Not Available
MNETC	Modbus Ethernet Client	15500	15759
EGD	Ethernet Global Data Exchange Status	16000	17400
PWP	ProSoft Wireless Protocol Exchange Status	18000	19399
WA-MNET	Wireless Modbus TCP/IP	19400	19699
WA-DFNT	Wireless EtherNet/IP	19900	21000

5.1.1 Module Status Data Map

General Module Status Data

Status Register	Description
4000	Program Cycle Counter
4001	Product Name (ASCII) = MNET
4002	
4003	Revision (ASCII)
4004	
4005	Operating System Rev (ASCII)
4006	
4007	Production Run Number (ASCII)
4008	
4009 to 4019	No Valid Data

HTTP Port 80 Status

Status Register	Description
4020	Reserved
4021	Reserved
4022	Reserved
4023	Number of Request Packets
4024	Number of Response Packets
4025	Reserved
4026	Reserved
4027	Reserved
4028	Reserved
4029	Reserved

SNTP Client Status

Status Register	Description
4030	Time is valid
4031	Request count
4032	Response count
4033	Computation count
4034	Clock set count
4035	Timeout error count
4036 to 4039	No Valid Data

Wireless SNTP Client Status

Status Register	Description
4040	Time is valid
4041	Request count
4042	Response count
4043	Computation count
4044	Clock set count
4045	Timeout error count
4096 to 4049	No Valid Data

6 Functional Overview

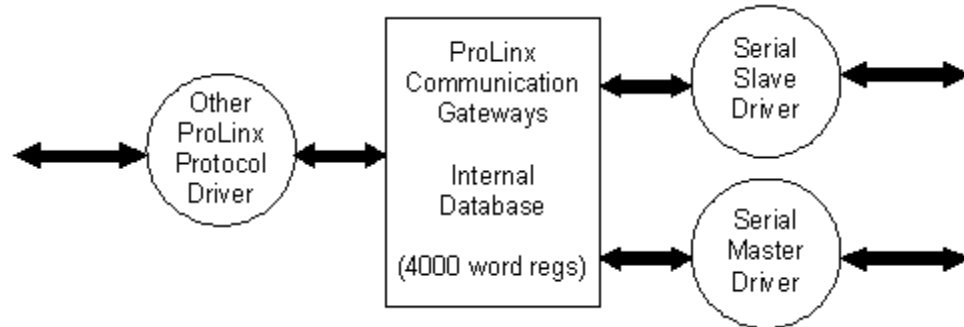
In This Chapter

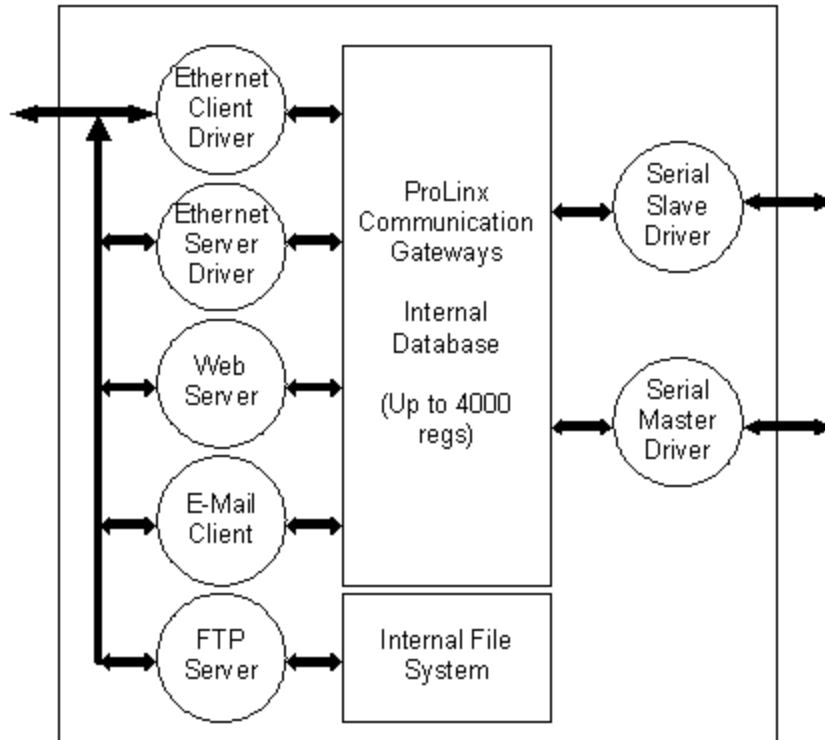
- ❖ Internal Database 85

ProLinx communication gateway modules allow devices with different protocols to communicate with each other. The available drivers act as Masters (clients in Ethernet), Slaves (servers in Ethernet), and in some cases peers on their respective communication networks.

6.1 Internal Database

Central to the functionality of the module is the internal database. This database is shared between all ports on the module and is used as a conduit to pass information from one device on one network to one or more devices on another network. This permits data from devices on one communication port to be viewed and controlled by devices on another port.





In addition to data from the slave and master ports, status and error information generated by the module can also be mapped into the internal database.

6.1.1 Protocol Driver Access to the Database

Master/Client drivers use the database in two ways:

- A Read Command issued to a slave/server device by the Master/Client driver will return the slave/server data to the internal database.
- A Write Command issued to a slave/server by the Master/Client driver uses the data in the internal database to write to the slave/server device.

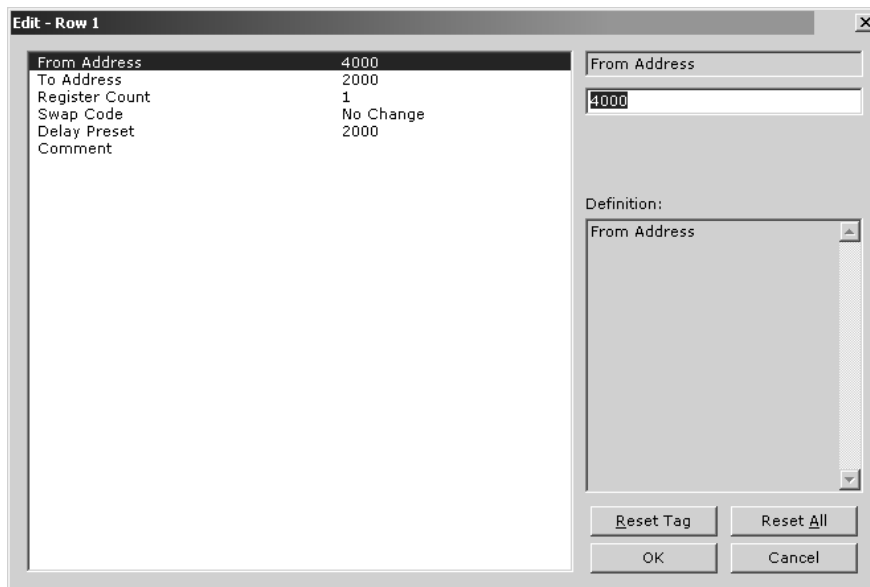
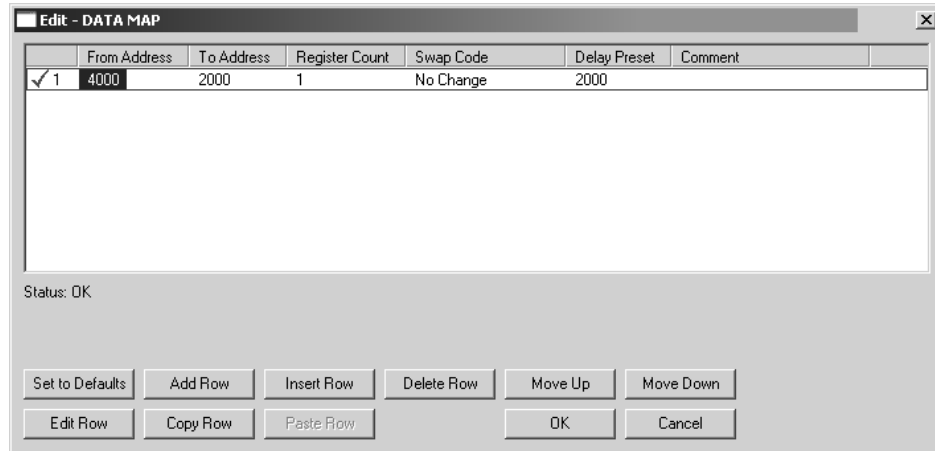
Slave/server drivers access data from the internal database. External Master/Client devices can monitor and control data in this database through these slave/server ports. Setup of the slave/server ports only requires a .cfg file.

6.1.2 [Data Map]

The [Data Map] section of the CFG file allows you to selectively copy data registers, one register up to 100 registers at a time, from one internal database area to another. Up to 200 entries can be made in the [Data Map] section, providing a wide and powerful range of functionality.

You can use the Data Map section of the configuration file to copy data from the device error or status table to the internal database register, or to copy data from one area to another. The bytes and/or words copied can be altered to preset the data (for example, floating-point data) in the correct format for a specific protocol.

You can also use the Data Map to build a specific block of data to be used by any of the protocol drivers. For example, you can use the data map to build the input and output data area for the PROFIBUS Slave driver.



From Address

0 to highest Status Data address

This field specifies the internal database register to copy from. This address can range from the Data area as well as the Status Data Area of the product

To Address

0 to 3999

The destination for the copy is always within the Register Data area.

Register Count

1 to 100

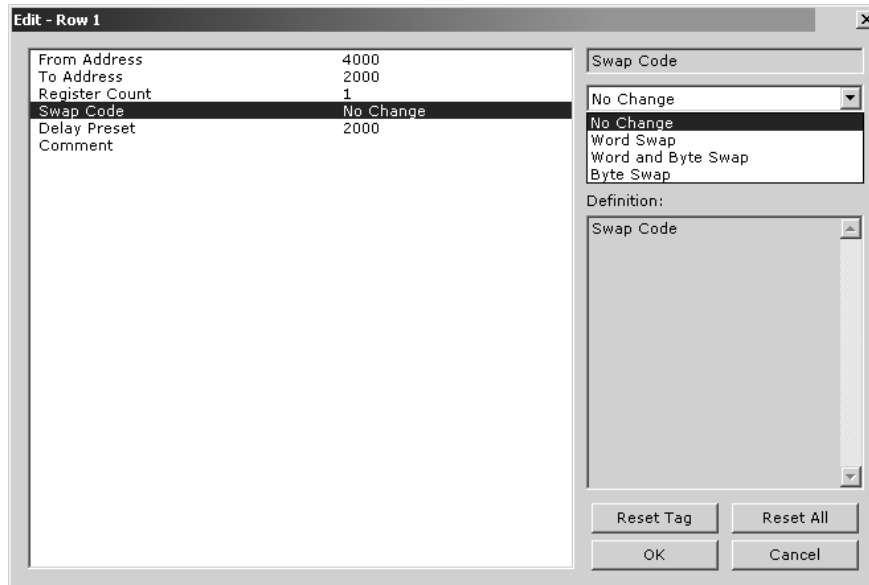
This parameter specifies the number of registers to copy.

Swap Code

0,1,2,3

You may need to swap the order of the bytes in the registers during the copy process in order to change from alignment of bytes between dissimilar protocols. This parameter is helpful when dealing with floating-point or other multi-register values, as there is no standard method of storage of these data types in slave devices.

The following table defines the values and their associated operations:



Swap Code	Description
0	None: No Change is made in the byte ordering (1234 = 1234)
1	Words: The words are swapped (1234=3412)
2	Words & Bytes: The words are swapped then the bytes in each word are swapped (1234=4321)
3	Bytes: The bytes in each word are swapped (1234=2143)

Delay Preset

Copies one portion of the database or virtual database to a user specified location in the database. The Delay Preset represents the scan count of the program between each copy operation. The copy operations should not all happen at the same time, otherwise the process could delay the scan. For example, you should not set all values to a delay preset of 1001. Instead, use values such as 1000, 1001 and 1002, or you can use the preset values. This will keep the copies from happening concurrently.

7 Reference

In This Chapter

- ❖ Product Specifications 89
- ❖ Editing and Downloading CFG Files using NotePad and HyperTerminal93

7.1 Product Specifications

ProLinx Communication Gateways are the ideal solution for bridging communication between networks that use differing protocols. ProLinx modules provide several protocol combinations, allowing for a wide range of flexibility in establishing a network, or fitting into and expanding your current infrastructure. Coupled with ProSoft's radio technology, you can easily integrate devices into your system wirelessly, and without the need to purchase additional radios to do so.

7.1.1 General Specifications

The ProLinx Communication Modules provide connectivity for two or more dissimilar network types. The modules, encased in sturdy extruded aluminum, are stand-alone DIN-rail mounted protocol gateways, providing communication between many of the most widely used protocols in industrial automation today.

7.1.2 General Specifications - Radio Modules

These modules utilize a full function wireless network card, supporting RF data rates up to 11 Mbps. The modules function as a client, providing an ultra-fast wireless solution for the most demanding industrial applications.

These modules allow you to connect various field devices using different networks or protocols and share data between these devices "over-the-air." This is accomplished by exchanging shared common database information over-the-air with ProSoft Technology's efficient but powerful wireless protocol.

General Radio Specifications

Specification	Value
Frequency	2.4 GHz band (2400 to 2483.5 MHz)*
Wireless medium	DSSS: Direct Sequence Spread Spectrum (802.11 b)
Output power	32 mW (15 dBm)
Channel data rates	11, 5.5, 2, 1 Mbps
Channels: user selectable	11: North America 13: Europe** 14: Japan
Security	PWP + WEP 64/128 Encryption with WEP key rollover management
Antenna Ports	Two RP-SMA connectors, automatic antenna diversity
Bit Error Rate (BER)	Better than 10 ⁻⁵

Range / Transmit Rate	High Speed 11 Mbps	Medium Speed 5.5 Mbps	Standard Speed 2 Mbps	Low Speed 1 Mbps
Open Office Environment	160m (525 ft.)	270 m (885 ft.)	400 m (1300 ft.)	550 m (1750 ft.)
Semi-Open Office Environment	50 m (165 ft.)	70 m (230 ft.)	90 m (300 ft.)	115 m (375 ft.)
Closed Office	25 m (80 ft.)	35 m (115 ft.)	40 m (130 ft.)	50 m (165 ft.)
Receiver Sensitivity	-83 dBm	-87 dBm	-91 dBm	-94 dBm

* Varies with country regulation

** Some European countries such as France allow fewer channels

7.1.3 Internal Database

The ProLinx module contains an internal database that consists of areas for application data, status information, and configuration information.

The internal database is shared between all ports on the module and is used as a conduit to pass information from a device on one network to one or more devices on another network.

Application Data Area

The data area stores and retrieve data by the protocol drivers and for data exchange between protocols. The database is used as a source for write commands to remote devices and holds data collected from the remote devices. Commands defined in the configuration file (stored in the configuration data area) control how the data is to be handled in the database.

Status Data Area

This area stores error codes, counters, and port status information for each port.

Configuration File

This file contains module configuration information such as port configuration, network information, and command configuration. This configuration file is transferred to or from the module.

Optional Web Server for Ethernet Solutions

An HTML server is available for Ethernet ProLinx modules. With this option, HTML text pages can be enabled to:

- Display module internal register and status values
- Accept user data input values via POST commands for setpoint, on/off control, etc.
- Provide limited graphic file support

Type	Specifications
HTML Server (See note below)	Key features of the HTML server include: Max HTML page size: 1MB Max File Storage: 32MB Supported context types: jpeg, bmp, css Supported data types: bit, ASCII, integer, float Sockets: Up to five connections. Note that this limits the number of simultaneous graphic file and frame references per HTML page
FTP Server	Permits remote HTML file transfer between the module and remote host. Capabilities of the FTP Server include: Single socket connection Non-passive transfers only WS_FTP or Command Line FTP recommended CuteFTP, Internet Explorer, Netscape, or NCFTP all support multiple socket connections and therefore are not supported by the ProLinx module
Email Client	E-mail message generation based on database trigger values. Messages can contain dynamic data from the module

Important Note: The Web Server is not designed to act like, or replace, the powerful web servers available in the marketplace today. Please check application specifics with Technical Support if you are unsure if your application will work with the ProLinx Web Server.

7.1.4 Hardware Specifications

Specification	Description
Power Supply	24 VDC nominal 18 to 32 VDC allowed Positive, Negative, GND Terminals 2.5 mm screwdriver blade
Current Load	500 mA max@ 32 VDC max
Operating Temperature	-20 to 50°C (-4 to 122°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5% to 95% (non-condensing)
Dimensions	Standard: 5.20H x 2.07W x 4.52D in. (13.2cmH x 5.25cmW x 11.48cmD) Extended: 5.20H x 2.73W x 4.52D in. (13.2cmH x 6.934cmW x 11.48cmD)
LED Indicators	Power and Module Status Application Status Serial Port Activity LED Serial Activity and Error LED Status
Configuration Serial Port	DB-9M RS-232 only No hardware handshaking
Ethernet Port (Ethernet modules only)	10Base-T RJ45 Connector Link and Activity LED indicators Electrical Isolation 1500 V rms at 50 Hz to 60 Hz for 60 s, applied as specified in section 5.3.2 of IEC 60950: 1991 Ethernet Broadcast Storm Resiliency = less than or equal to 5000 [ARP] frames-per-second and less than or equal to 5 minutes duration
Application Serial Ports	RS-232/422/485 RS-232 handshaking configurable RS-422/485 screw termination included
Serial Port Isolation	2500V RMS port signal isolation per UL 1577 3000V DC min. port to ground and port to logic power isolation
Shipped with Each Unit	Mini-DIN to DB-9M serial cables 4 ft RS-232 configuration cable 2.5mm screwdriver CD (docs and Configuration utility) RS-422/485 DB-9 to Screw Terminal Adaptor (1 or 4, depending on ports)
Example Interconnect Cable Types	Rockwell Automation RIO and DH+ protocols use Belden 9463 type shielded cable or equivalent. Schneider Electric Modbus Plus protocol uses Belden 9841 type shielded cable or equivalent.

7.1.5 ProSoft Configuration Builder

ProSoft Configuration Builder (PCB) provides a quick and easy way to manage module configuration files customized to meet your application needs. PCB is not only a powerful solution for new configuration files, but also allows you to import information from previously installed (known working) configurations to new projects.

7.2 Editing and Downloading CFG Files using NotePad and HyperTerminal

Important: The following topics describe how to connect to the ProLinX module with HyperTerminal, and how to edit configuration files with NotePad. In most cases, you will use ProSoft Configuration Builder to manage your ProLinX configuration files. You should only use these procedures if you are directed to do so by ProSoft Technical Services.

ProLinX modules are shipped with a default configuration file, executable files, and if required, a wattcp.cfg file.

Configuration and executable file updates are found on the ProSoft web site at <http://www.prosoft-technology.com>

7.2.1 Determining the Version of Your ProLinX Module

You can check the version of your module two ways; first by looking at the sticker on the back of the module. Or, you can check the version through the version menu item using the Module Program Loader.

To view version information through the Loader:

- 1 Connect to the module using HyperTerminal, and then turn power off to the module.
- 2 With HyperTerminal open, restore power to the module while holding down the **[L]** key on your keyboard. This action causes the module to run a special utility program that provides basic version information, file transfers and upgrade tools.
- 3 After a few moments, the Loader screen will appear. The Loader screen for your module will be similar but not necessarily identical to the following illustration.

```
ComOne - HyperTerminal
File Edit View Call Transfer Help
[Icons]
An CS89X0 was found by I/O scan.
Reading EEPROM ...
Using twisted pair cable
System: I345186 processor, Two 8259s
Packet driver software interrupt is 0x60 (96)
Interrupt number 0xC (12)
I/O port 0x300 (768)
My Ethernet address is 00:0D:8D:B0:01:4C

PROLINX 4150/4160 MODULE LOADER (2.46):
(c) 1999-2005, ProLinX Communication Gateways, Inc.

PROLINX 4150/4160 MODULE PROGRAM LOADER MENU (Version 2.46)
(c) 1999-2005, ProLinX Communication Gateways, Inc.

? = Display this menu
V = Display Module Version Information
C = Configuration File (.cfg) - Download File to Module
W = WATTCP (Ethernet) Configuration - Download File to Module
U = Upgrade module Executable file
Esc = Exit Menu and Reboot module

Enter Selection (? , V , C , W , U , Esc) > _
Connected 0:02:57  ANSIV  57600 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo
```

- 4 Press the **[V]** key on your keyboard to see the Version Information screen. The Version Information screen for your module will be similar but not necessarily identical to the following illustration.

```
Please wait...
Loading program file...
Locating program signature.....
MODULE CONFIGURATION INFORMATION:
  Program: 6202-WA-DFNT-DFCM3
  Version: 2.60
  Config : 6202-WA-DFNT-DFCM3
```

Important: Download procedures for ProLinx modules older than version 2.4 are listed at the end of this section. If your ProLinx module is an older version, please contact ProSoft Technical Services for upgrade instructions.

7.2.2 Overview and Purpose of the Configuration File

All configuration information for the module is stored in a text file with a user-defined name. Examples include:

- 4201-DFNT-DFCM: DFNTDFCM.CFG
- 4204-RIO-MCM: RIOMCM.CFG
- PUMP1.CFG
- STAT101.CFG

The CFG file contains the configuration for the internal database, the port communication parameters, and the command list data for the master ports.

All modules ship with an example CFG file stored directly in the module and should be used as a starting point for configuration. A file is also available from the ProSoft web site at <http://www.prosoft-technology.com>. You can update this file using any text editor to edit data in the file.

When you are finished editing the file, download to the module using a terminal emulation program as described in the following sections.

7.2.3 CFG File Structure

The CFG file is separated into several sections with topic header names enclosed in the [] bracket characters. As an example, the sections present in the configuration file are as follows:

[SECTION]	Description
[Module]	Contains general module configuration information.
[RIO]	Configuration data for remote I/O interface
[Port 0 Modbus]	Configuration data for Modbus Port 0
[Port 0 Commands]	Command list for Port 0 Modbus Master

The following sections are only required if using the multiple serial protocol port unit (MCM4 unit):

[SECTION]	Description
[Port 1 Modbus]	Configuration data for Modbus Port 1
[Port 1 Commands]	Command list for Port 1 Modbus Master
[Port 2 Modbus]	Configuration data for Modbus Port 2
[Port 2 Commands]	Command List for Port 2 Modbus Master
[Port 3 Modbus]	Configuration data for Modbus Port 3
[Port 3 Commands]	Command list for Port 3 Modbus Master

[MODULE]

The [Module] section of the CFG file is used to set the module's name. Each ProLinx Protocol Manual provides a sample configuration file followed by a descriptive table of each section of the file.

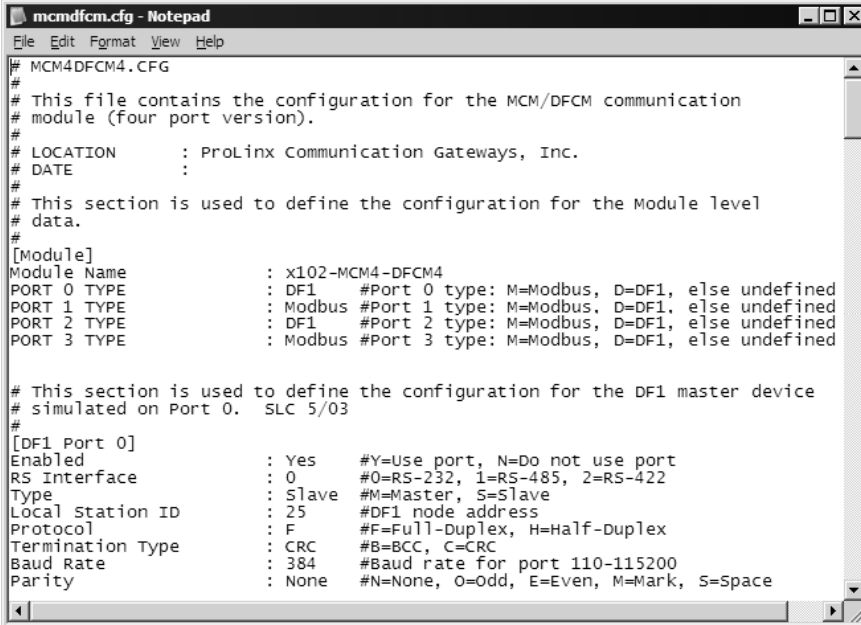
7.2.4 Editing Configuration Files

In order to understand each of the parameters contained within the configuration file, you should refer to the specific protocol manual for the module you are attempting to change.

- 1 Choose Start → Programs → Accessories → Notepad.
- 2 In Notepad, choose File → Open.

The *Open* dialog appears.

- 3 Browse to the configuration file on your PC and select it. Click **Open**. The configuration file appears in Notepad, ready for editing.



```
mcmdfcm.cfg - Notepad
File Edit Format View Help
# MCM4DFCM4.CFG
# This file contains the configuration for the MCM/DFCM communication
# module (four port version).
#
# LOCATION      : ProLinx Communication Gateways, Inc.
# DATE         :
#
# This section is used to define the configuration for the Module level
# data.
#
[Module]
Module Name      : x102-MCM4-DFCM4
PORT 0 TYPE     : DF1 #Port 0 type: M=Modbus, D=DF1, else undefined
PORT 1 TYPE     : Modbus #Port 1 type: M=Modbus, D=DF1, else undefined
PORT 2 TYPE     : DF1 #Port 2 type: M=Modbus, D=DF1, else undefined
PORT 3 TYPE     : Modbus #Port 3 type: M=Modbus, D=DF1, else undefined

# This section is used to define the configuration for the DF1 master device
# simulated on Port 0. SLC 5/03
#
[DF1 Port 0]
Enabled          : Yes #Y=Use port, N=Do not use port
RS Interface     : 0 #0=RS-232, 1=RS-485, 2=RS-422
Type            : Slave #M=Master, S=Slave
Local Station ID : 25 #DF1 node address
Protocol        : F #F=Full-Duplex, H=Half-Duplex
Termination Type : CRC #B=BCC, C=CRC
Baud Rate       : 384 #Baud rate for port 110-115200
Parity          : None #N=None, O=Odd, E=Even, M=Mark, S=Space
```

- 4 Edit the Sample Configuration File Sections.

Comment Records and Editing Hints

Any record that begins with the # character is considered a comment record. These records may be placed anywhere in the file as long as the # character is found in the first column of the line. All comment lines are ignored in the file and may be used to provide documentation within the configuration file. Liberal use of comments within the file can ease the use and interpretation of the data in the file.

A set of parameters follows each section header. Unique labels are used under each section to specify a parameter. Each label in the file must be entered exactly as shown in the file for the parameter to be identified by the program. If the module is not accepting a parameter, check the label for the data item. Each parameter's value is separated from the label with the [:] character. This character is used to delimit the position in the record where reading is to start. All data for a parameter must be placed after the [:] character.

For numeric parameter values, any text located after the value will not be used. There must be at least one space character between the end of the parameter value and the following text.

Important notes to consider when editing the sample configuration file:

- Comments within the file are preceded by the pound (#) sign. Any text on a line that occurs after the # character will be ignored.
- Do not use tabs or other non-printing characters instead of spaces to separate parameters (spacebar).

Parameter names must begin in the first column of a line, and may not be preceded with a space (spacebar) or other non-printing character.

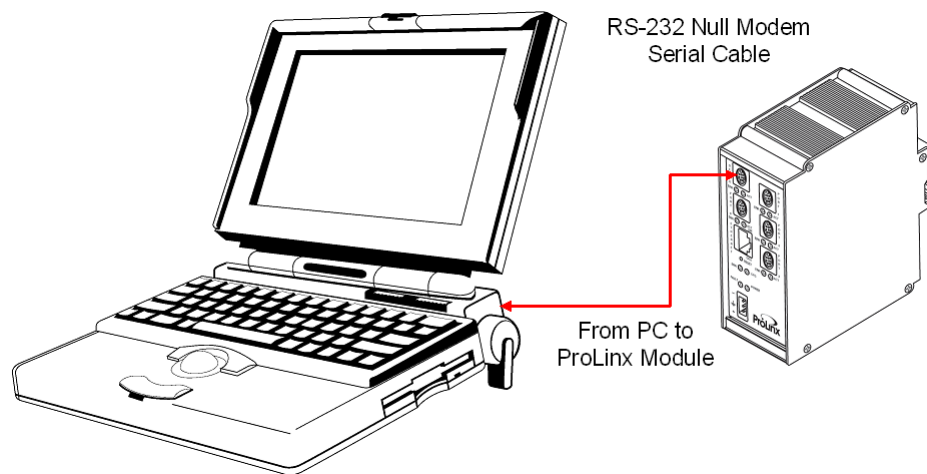
When all edits are complete, you should save the updated file to a location on your hard drive before following the instructions on how to download the configuration file to the ProLinx module.

7.2.5 Backing Up Existing Files (Version 2.4 Modules)

Before performing this procedure, make sure to check the version of your module. This procedure is designed for module versions 2.4 or above. All modules should be upgraded to Version 2.4. If you have not already upgraded your module, please contact ProSoft Technical Services for instructions.

Performing this procedure is only required if you do not have a copy of the module's configuration file (and wattcp.cfg/web files for Ethernet modules) on your PC.

The following procedure describes how to back up these files. Make sure your computer is connected to the module's Configuration/Debug port as shown using a Null Modem cable and ProLinx Adapter Cable.

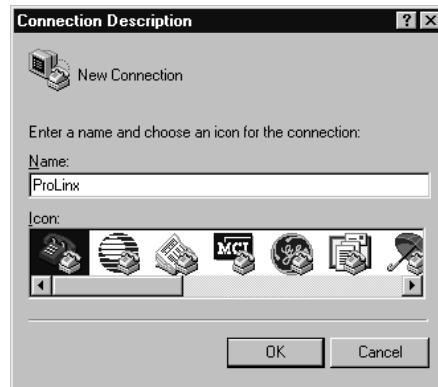


Uploading the Configuration from the Module to Your PC

Perform the following steps to upload the module's configuration file to your PC:

- 1 Start HyperTerminal on your PC. The **Connection Description** window appears.

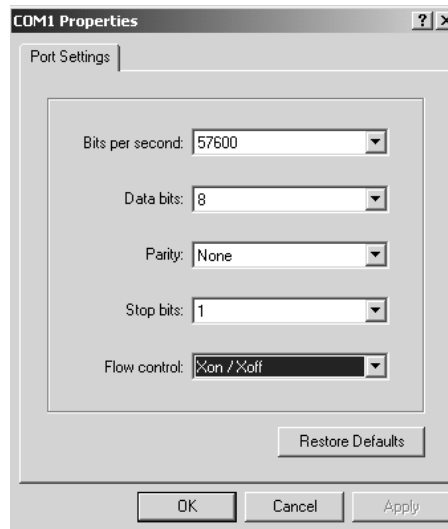
Note: This document uses HyperTerminal in all examples.



- 2 Type a name in the Name field and click **OK**. The **Connect To** window appears.



- 3 Choose the COM Port that your ProLinx module is connected to and click **OK**. The **COM1 Properties** window opens.



- 4 Set the following parameters:

Bits per second	57600
Data bits	8
Parity	None
Stop bits	1
Flow control	Xon/Xoff

- 5 Click **OK**. The **HyperTerminal** window opens and displays a blinking cursor.
- 6 Press the **[?]** key to display the Loader Menu.

Note: The following screen is an example Loader menu. Your screen may look slightly different depending on what application you run. However, the procedure is the same for all modules.

```
ComOne - HyperTerminal
File Edit View Call Transfer Help
[Icons]
An CS89X0 was found by I/O scan.
Reading EEPROM ....
Using twisted pair cable
System: [345]86 processor, Two 8259s
Packet driver software interrupt is 0x60 (96)
Interrupt number 0xC (12)
I/O port 0x300 (768)
My Ethernet address is 00:0D:8D:B0:01:4C
PROLINX 4150/4160 MODULE LOADER (2.46):
(c) 1999-2005, ProLinX Communication Gateways, Inc.
PROLINX 4150/4160 MODULE PROGRAM LOADER MENU (Version 2.46)
(c) 1999-2005, ProLinX Communication Gateways, Inc.
? = Display this menu
V = Display Module Version Information
C = Configuration File (.cfg) - Download File to Module
W = WATTCP (Ethernet) Configuration - Download File to Module
U = Upgrade module Executable file
Esc = Exit Menu and Reboot module
Enter Selection (? , V , C , W , U , Esc) > _
Connected 0:02:57  ANSI.W  57600 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo
```

- 7 Type **[S]** and press **Enter**.
- 8 Type **[Y]** when the prompt appears.
- 9 The message:

"**TRANSFERRING CONFIGURATION FILE FROM UNIT TO REMOTE:**"

appears.

- 10 Choose the **Transfer** menu option at the top of the HyperTerminal window, then choose **Receive File**.
- 11 The Receive File window opens.
- 12 Navigate to the directory where you want to store the uploaded file. Make sure Ymodem is selected as the protocol.
- 13 Click **Receive**.
- 14 This uploads the **.cfg** file to the PC. When the upload is complete, the message "**FILE TRANSFERRED TO REMOTE UNIT**" appears.
- 15 The Module Configuration information appears. To return to the Module Menu, press the **[?]** key.

Uploading the WATTCP.CFG File (Modules with an Ethernet Port)

To upload the WATTCP.CFG file to your PC, use the same upload procedure described in the previous section but first press **[@]** from the Main Menu to open the Network menu.

7.2.6 Downloading Files to a Version 2.4 Module

The procedure described in this section pertains to Version 2.4 and newer modules only.

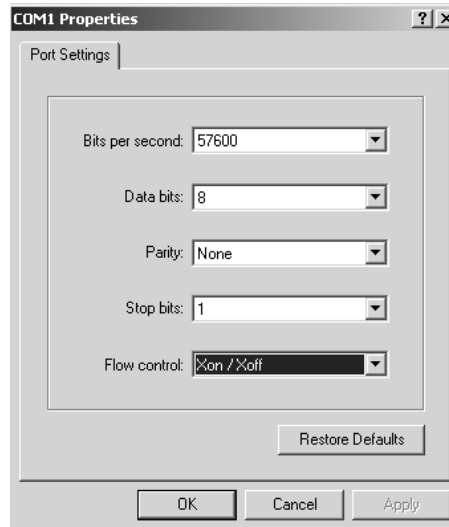
- 1 Connect your PC's COM port to the ProLinx Configuration/Debug port using the Null Modem cable and ProLinx Adapter cable.
- 2 From the Start Menu on your PC, select **Programs** → **Accessories** → **Communications** → **HyperTerminal**. The *New Connection* Screen appears:



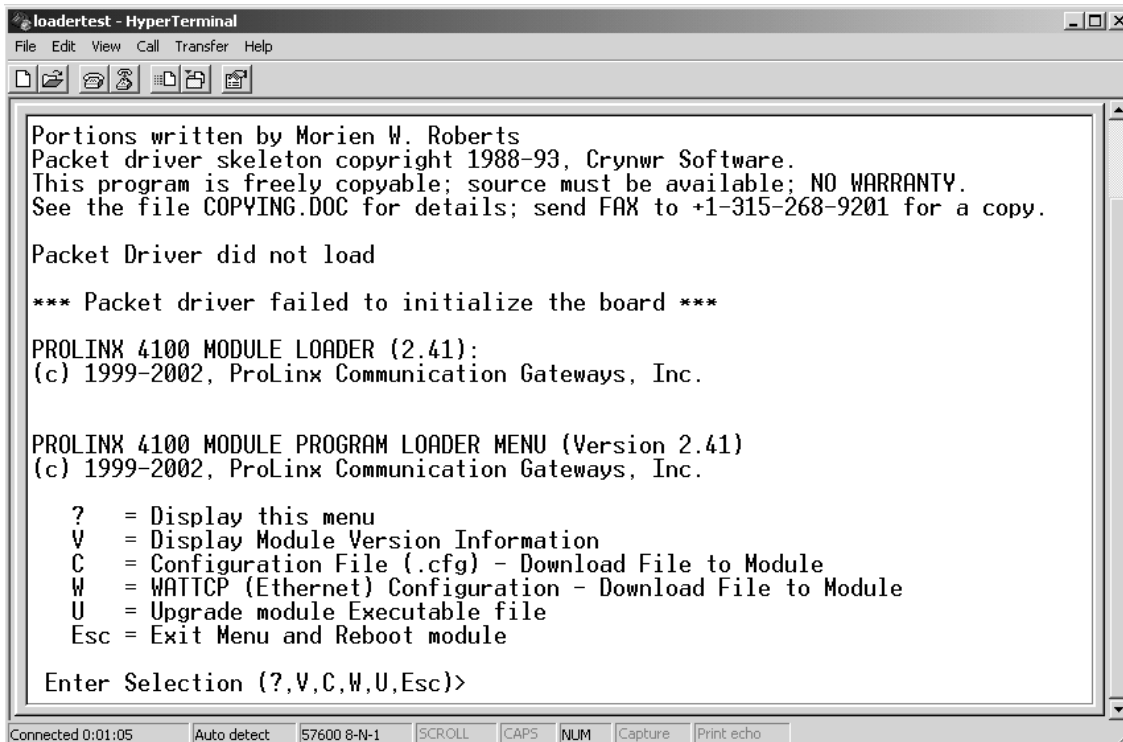
- 3 Enter a name and choose **OK**. The *Connect To* window appears:



- 4 Choose the COM port that your ProLinx module is connected to and choose **OK**. The COM1 Properties window appears.

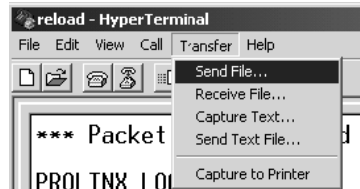


- 5 Ensure that the settings shown on this screen match those on your PC.
- 6 Click **OK**. The HyperTerminal window appears with a DOS prompt and blinking cursor.
- 7 Apply power to the ProLinx module and hold down the **[L]** key. The screen displays information and ultimately displays the Loader menu:

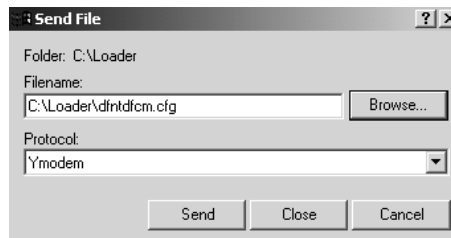


This menu provides options that allow you to download a configuration file **[C]**, a WATTCP file **[W]**, or a new executable file **[U]**. You can also press **[V]** to view module version information.

- 1 Type **[C]** at the prompt to transfer files from the computer to the ProLinx unit.
- 2 Type **[Y]** when the program asks if you want to load a .cfg file.
- 3 From the HyperTerminal menu, select **Transfer** → **Send**.



- 4 When the *Send To* screen appears, browse for the configuration file that you downloaded from the web or backed up from your unit. Be sure to select **Y Modem** in the Protocol field.



Note: The configuration file downloaded from the web is a default configuration file. You will have to update this configuration file. Therefore, if you backed up your module's configuration file to a location on your hard drive, make sure you select your backed up configuration file and not the configuration file downloaded from the web.

- 5 Click **Send**. The program loads the new configuration file to the ProLinx module. When the download is complete, the program returns to the Loader menu.

If you want to load a new executable file or a WATTCP file, select the appropriate option and perform the same steps to download these files.

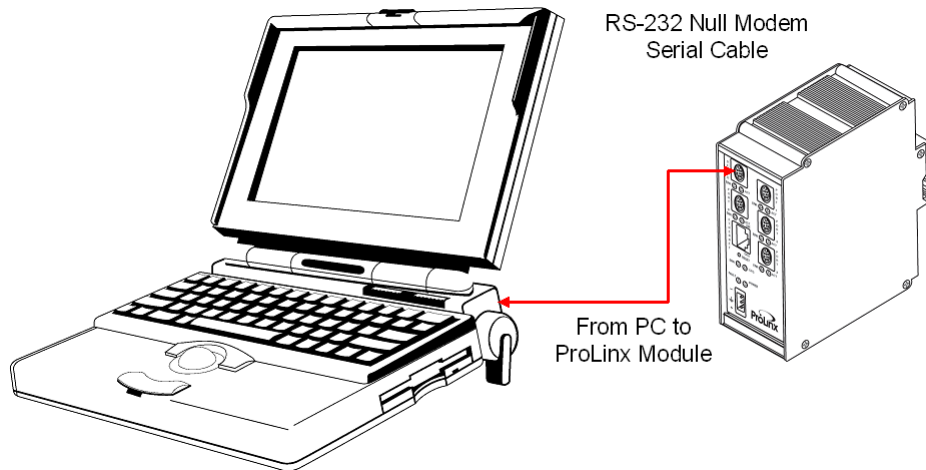
- 6 Press **[Esc]**, then **[Y]** to confirm module reboot.

7.2.7 Download Procedure for Version 2.2 Modules

Important! These procedures are provided for customers who have not yet upgraded to Version 2.4. However, you should perform the upgrade as soon as possible. Contact ProSoft Technical Services for instructions to upgrade your ProLinx module.

Making the Required Connections

Ensure that all of the required connections are made and secure. The following diagram illustrates the appropriate connections:



The Null modem cable connects to the serial port (for example COM1) of a PC running a terminal emulation program, while the other end plugs into the DB-9M connector. The other end of the DB-9M connector plugs into the Debug port of the ProLinx module.

Uploading and Downloading Configuration Files

This section describes how to upload a configuration file from a ProLinx module to a PC for editing, and how to download the edited file from a PC to the ProLinx module.

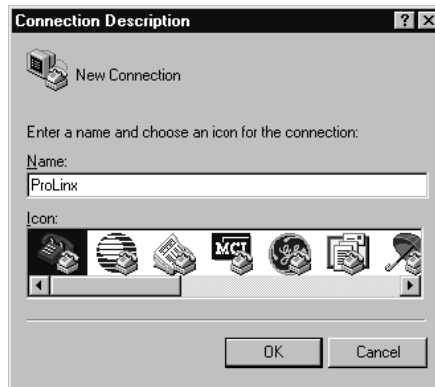
At this point, you should have the module connected to a PC.

Uploading the Configuration from the Module to Your PC.

Perform the following steps to upload the module's configuration file to your PC:

- 1 Start HyperTerminal on your PC. The **Connection Description** window appears.

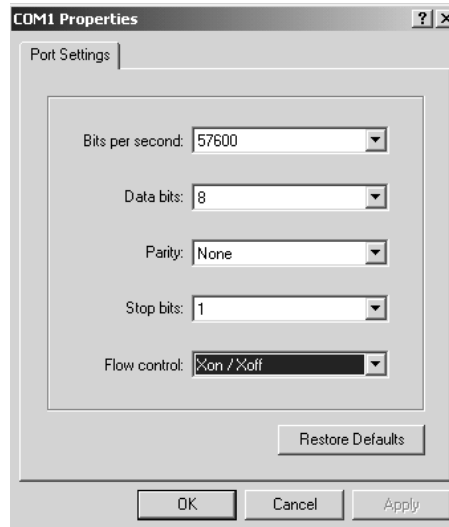
Note: This document uses HyperTerminal in all examples.



- 2 Type a name in the Name field and click **OK**. The **Connect To** window appears.



- Choose the COM Port that your ProLinx module is connected to and click **OK**. The **COM1 Properties** window opens.



- Set the following parameters:

Bits per second	57600
Data bits	8
Parity	None
Stop bits	1
Flow control	Xon/Xoff

- Click **OK**. The **HyperTerminal** window opens and displays a blinking cursor.
- Press the **[?]** key to display the Module Menu.

```

RIO / MODBUS MASTER-SLAVE COMMUNICATION MODULE (4601-MCM) MENU
?=Display Menu
A=Data Analyzer
C=Module Configuration
D=Database View
E=Command List Errors:
I=Command List:
M=Slave Status List
R=Transfer Configuration from PC to 4100 Unit
S=Transfer Configuration from 4100 Unit to PC
U=Upgrade Software
V=Version Information
W=Warm Boot Module
Communication Status:
  0=RIO  1=Port 0
Port Configuration:
  5=RIO  6=Port 0

Esc=Exit Program
    
```

- Type **[S]** and press **Enter**.
- Type **[Y]** when the prompt appears.

The message:

"TRANSFERRING CONFIGURATION FILE FROM UNIT TO REMOTE:"

appears.

- 9 Choose the **Transfer** menu option at the top of the HyperTerminal window, then choose **Receive File**.
- 10 The Receive File window opens.
- 11 Select the directory where you want to store the uploaded file.
- 12 Click **Open**.
- 13 This uploads the .cfg file to the PC. When the upload is complete, the message "**FILE TRANSFERRED TO REMOTE UNIT**" appears.
- 14 The Module Configuration information appears. To return to the Module Menu, press the [?] key.

Uploading the WATTCP.CFG File (Modules with an Ethernet Port)

If you are using an Ethernet module, you may want to modify the default WATTCP.CFG file located on the module. Section 7 provides information on how to modify the WATTCP.CFG file and also provides instructions on how to download it back to the module.

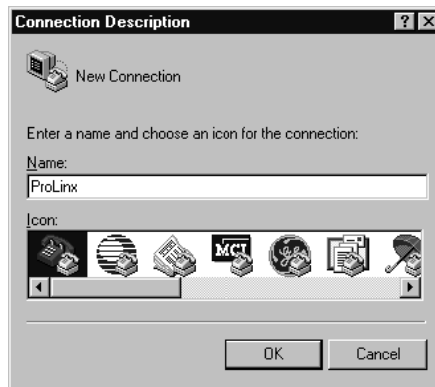
To upload the WATTCP.CFG file to your PC, use the same upload procedure described in the previous section but first press [@] from the Main Menu to open the Network menu.

Downloading the Configuration File from Your PC to the Module

Perform the following steps to download the configuration file:

- 1 Start HyperTerminal on your PC. The **Connection Description** window appears.

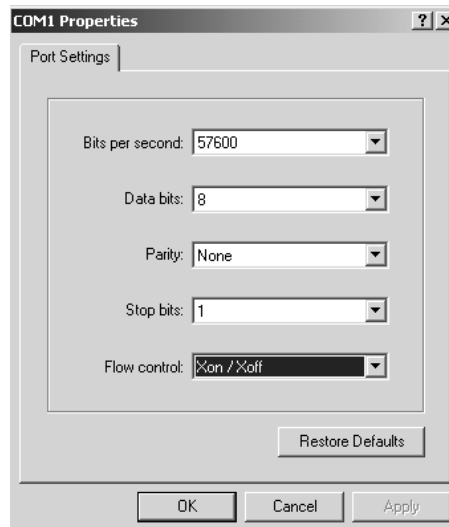
Note: This document uses HyperTerminal in all examples.



- 2 Type a name in the Name field and click **OK**. The **Connect To** window appears.



- 3 Choose the COM Port that your ProLinx module is connected to and click **OK**. The **COM1 Properties** window opens.



- 4 Set the following parameters:

Bits per second	57600
Data bits	8
Parity	None
Stop bits	1
Flow control	Xon/Xoff

- 5 Click **OK**. The **HyperTerminal** window opens and displays a blinking cursor.

- 6 Press the **[?]** key to display the Module Menu.

```
RIO / MODBUS MASTER-SLAVE COMMUNICATION MODULE (4601-MCM) MENU
?=Display Menu
A=Data Analyzer
C=Module Configuration
D=Database View
E=Command List Errors:
I=Command List:
M=Slave Status List
R=Transfer Configuration from PC to 4100 Unit
S=Transfer Configuration from 4100 Unit to PC
U=Upgrade Software
V=Version Information
W=Warm Boot Module
Communication Status:
  0=RIO  1=Port 0
Port Configuration:
  5=RIO  6=Port 0

Esc=Exit Program
```

- 7 Type **[R]** and press **Enter**.
- 8 Type **[Y]** to confirm configuration receive.

The message:

```
"TRANSFERRING FILE FROM COMPUTER TO PROLIX UNIT:
Send the Configuration file now!"
```

appears.

- 9 Choose the **Transfer** menu option at the top of the HyperTerminal window, then choose **Send File**.
- 10 The Select File to Send Window opens.
- 11 Locate the directory where you stored the edited files.
- 12 Select the file and click **Open**.
- 13 This downloads the **.cfg** file to the ProLinx module. When the download is complete, the message "**FILE TRANSFERRED FROM REMOTE UNIT**" appears. The module displays configuration information. Press the **[?]** key to return to the Module Menu.

8 Support, Service & Warranty

In This Chapter

- ❖ How to Contact Us: Technical Support..... 114
- ❖ Return Material Authorization (RMA) Policies and Conditions..... 114
- ❖ LIMITED WARRANTY..... 116

ProSoft Technology, Inc. (ProSoft) is committed to providing the most efficient and effective support possible. Before calling, please gather the following information to assist in expediting this process:

- 1 Product Version Number
- 2 System architecture
- 3 Network details

If the issue is hardware related, we will also need information regarding:

- 1 Module configuration and contents of file
 - Module Operation
 - Configuration/Debug status information
 - LED patterns
- 2 Information about the processor and user data files as viewed through and LED patterns on the processor.
- 3 Details about the serial devices interfaced, if any.

8.1 How to Contact Us: Technical Support

Internet	Web Site: http://www.prosoft-technology.com/support E-mail address: support@prosoft-technology.com
-----------------	---

Asia Pacific

+603.7724.2080, support.asia@prosoft-technology.com
Languages spoken include: Chinese, English

Europe (location in Toulouse, France)

+33 (0) 5.34.36.87.20, support.EMEA@prosoft-technology.com
Languages spoken include: French, English

North America/Latin America (excluding Brasil) (location in California)

+1.661.716.5100, support@prosoft-technology.com
Languages spoken include: English, Spanish
For technical support calls within the United States, an after-hours answering system allows pager access to one of our qualified technical and/or application support engineers at any time to answer your questions.

Brasil (location in Sao Paulo)

+55-11-5084-5178, eduardo@prosoft-technology.com
Languages spoken include: Portuguese, English

8.2 Return Material Authorization (RMA) Policies and Conditions

The following RMA Policies and Conditions (collectively, "RMA Policies") apply to any returned Product. These RMA Policies are subject to change by ProSoft without notice. For warranty information, see "Limited Warranty". In the event of any inconsistency between the RMA Policies and the Warranty, the Warranty shall govern.

8.2.1 All Product Returns:

- a) In order to return a Product for repair, exchange or otherwise, the Customer must obtain a Returned Material Authorization (RMA) number from ProSoft and comply with ProSoft shipping instructions.
- b) In the event that the Customer experiences a problem with the Product for any reason, Customer should contact ProSoft Technical Support at one of the telephone numbers listed above (page 114). A Technical Support Engineer will request that you perform several tests in an attempt to isolate the problem. If after completing these tests, the Product is found to be the source of the problem, we will issue an RMA.
- c) All returned Products must be shipped freight prepaid, in the original shipping container or equivalent, to the location specified by ProSoft, and be accompanied by proof of purchase and receipt date. The RMA number is to be prominently marked on the outside of the shipping box. Customer agrees to insure the Product or assume the risk of loss or damage in transit. Products shipped to ProSoft using a shipment method other than that specified by ProSoft or shipped without an RMA number will be returned to the Customer, freight collect. Contact ProSoft Technical Support for further information.
- d) A 10% restocking fee applies to all warranty credit returns whereby a Customer has an application change, ordered too many, does not need, etc.

8.2.2 Procedures for Return of Units Under Warranty:

A Technical Support Engineer must approve the return of Product under ProSoft's Warranty:

- a) A replacement module will be shipped and invoiced. A purchase order will be required.
- b) Credit for a product under warranty will be issued upon receipt of authorized product by ProSoft at designated location referenced on the Return Material Authorization.

8.2.3 Procedures for Return of Units Out of Warranty:

- a) Customer sends unit in for evaluation
- b) If no defect is found, Customer will be charged the equivalent of \$100 USD, plus freight charges, duties and taxes as applicable. A new purchase order will be required.
- c) If unit is repaired, charge to Customer will be 30% of current list price (USD) plus freight charges, duties and taxes as applicable. A new purchase order will be required or authorization to use the purchase order submitted for evaluation fee.

The following is a list of non-repairable units:

- 3150 - All
- 3750
- 3600 - All
- 3700
- 3170 - All
- 3250
- 1560 - Can be repaired, only if defect is the power supply
- 1550 - Can be repaired, only if defect is the power supply
- 3350
- 3300
- 1500 - All

8.2.4 Purchasing Warranty Extension:

- a) ProSoft's standard warranty period is three (3) years from the date of shipment as detailed in "Limited Warranty (page 116)". The Warranty Period may be extended at the time of equipment purchase for an additional charge, as follows:
 - Additional 1 year = 10% of list price
 - Additional 2 years = 20% of list price
 - Additional 3 years = 30% of list price

8.3 LIMITED WARRANTY

This Limited Warranty ("Warranty") governs all sales of hardware, software and other products (collectively, "Product") manufactured and/or offered for sale by ProSoft, and all related services provided by ProSoft, including maintenance, repair, warranty exchange, and service programs (collectively, "Services"). By purchasing or using the Product or Services, the individual or entity purchasing or using the Product or Services ("Customer") agrees to all of the terms and provisions (collectively, the "Terms") of this Limited Warranty. All sales of software or other intellectual property are, in addition, subject to any license agreement accompanying such software or other intellectual property.

8.3.1 *What Is Covered By This Warranty*

- a) *Warranty On New Products:* ProSoft warrants, to the original purchaser, that the Product that is the subject of the sale will (1) conform to and perform in accordance with published specifications prepared, approved and issued by ProSoft, and (2) will be free from defects in material or workmanship; provided these warranties only cover Product that is sold as new. This Warranty expires three years from the date of shipment (the "Warranty Period"). If the Customer discovers within the Warranty Period a failure of the Product to conform to specifications, or a defect in material or workmanship of the Product, the Customer must promptly notify ProSoft by fax, email or telephone. In no event may that notification be received by ProSoft later than 39 months. Within a reasonable time after notification, ProSoft will correct any failure of the Product to conform to specifications or any defect in material or workmanship of the Product, with either new or used replacement parts. Such repair, including both parts and labor, will be performed at ProSoft's expense. All warranty service will be performed at service centers designated by ProSoft.
- b) *Warranty On Services:* Materials and labor performed by ProSoft to repair a verified malfunction or defect are warranted in the terms specified above for new Product, provided said warranty will be for the period remaining on the original new equipment warranty or, if the original warranty is no longer in effect, for a period of 90 days from the date of repair.

8.3.2 *What Is Not Covered By This Warranty*

- a) ProSoft makes no representation or warranty, expressed or implied, that the operation of software purchased from ProSoft will be uninterrupted or error free or that the functions contained in the software will meet or satisfy the purchaser's intended use or requirements; the Customer assumes complete responsibility for decisions made or actions taken based on information obtained using ProSoft software.

- b) This Warranty does not cover the failure of the Product to perform specified functions, or any other non-conformance, defects, losses or damages caused by or attributable to any of the following: (i) shipping; (ii) improper installation or other failure of Customer to adhere to ProSoft's specifications or instructions; (iii) unauthorized repair or maintenance; (iv) attachments, equipment, options, parts, software, or user-created programming (including, but not limited to, programs developed with any IEC 61131-3, "C" or any variant of "C" programming languages) not furnished by ProSoft; (v) use of the Product for purposes other than those for which it was designed; (vi) any other abuse, misapplication, neglect or misuse by the Customer; (vii) accident, improper testing or causes external to the Product such as, but not limited to, exposure to extremes of temperature or humidity, power failure or power surges; or (viii) disasters such as fire, flood, earthquake, wind and lightning.
- c) The information in this Agreement is subject to change without notice. ProSoft shall not be liable for technical or editorial errors or omissions made herein; nor for incidental or consequential damages resulting from the furnishing, performance or use of this material. The user guide included with your original product purchase from ProSoft contains information protected by copyright. No part of the guide may be duplicated or reproduced in any form without prior written consent from ProSoft.

8.3.3 Disclaimer Regarding High Risk Activities

Product manufactured or supplied by ProSoft is not fault tolerant and is not designed, manufactured or intended for use in hazardous environments requiring fail-safe performance including and without limitation: the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines or weapons systems in which the failure of the product could lead directly or indirectly to death, personal injury or severe physical or environmental damage (collectively, "high risk activities"). ProSoft specifically disclaims any express or implied warranty of fitness for high risk activities.

8.3.4 Intellectual Property Indemnity

Buyer shall indemnify and hold harmless ProSoft and its employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not ProSoft is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless ProSoft and defend or settle any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party. ProSoft makes no warranty that the product is or will be delivered free of any person's claiming of patent, trademark, or similar infringement. The Buyer assumes all risks (including the risk of suit) that the product or any use of the product will infringe existing or subsequently issued patents, trademarks, or copyrights.

- a) Any documentation included with Product purchased from ProSoft is protected by copyright and may not be duplicated or reproduced in any form without prior written consent from ProSoft.
- b) ProSoft's technical specifications and documentation that are included with the Product are subject to editing and modification without notice.
- c) Transfer of title shall not operate to convey to Customer any right to make, or have made, any Product supplied by ProSoft.
- d) Customer is granted no right or license to use any software or other intellectual property in any manner or for any purpose not expressly permitted by any license agreement accompanying such software or other intellectual property.
- e) Customer agrees that it shall not, and shall not authorize others to, copy software provided by ProSoft (except as expressly permitted in any license agreement accompanying such software); transfer software to a third party separately from the Product; modify, alter, translate, decode, decompile, disassemble, reverse-engineer or otherwise attempt to derive the source code of the software or create derivative works based on the software; export the software or underlying technology in contravention of applicable US and international export laws and regulations; or use the software other than as authorized in connection with use of Product.
- f) **Additional Restrictions Relating To Software And Other Intellectual Property**

In addition to compliance with the Terms of this Warranty, Customers purchasing software or other intellectual property shall comply with any license agreement accompanying such software or other intellectual property. Failure to do so may void this Warranty with respect to such software and/or other intellectual property.

8.3.5 Disclaimer of all Other Warranties

The Warranty set forth in What Is Covered By This Warranty (page 116) are in lieu of all other warranties, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

8.3.6 Limitation of Remedies **

In no event will ProSoft or its Dealer be liable for any special, incidental or consequential damages based on breach of warranty, breach of contract, negligence, strict tort or any other legal theory. Damages that ProSoft or its Dealer will not be responsible for included, but are not limited to: Loss of profits; loss of savings or revenue; loss of use of the product or any associated equipment; loss of data; cost of capital; cost of any substitute equipment, facilities, or services; downtime; the claims of third parties including, customers of the Purchaser; and, injury to property.

** Some areas do not allow time limitations on an implied warranty, or allow the exclusion or limitation of incidental or consequential damages. In such areas, the above limitations may not apply. This Warranty gives you specific legal rights, and you may also have other rights which vary from place to place.

8.3.7 Time Limit for Bringing Suit

Any action for breach of warranty must be commenced within 39 months following shipment of the Product.

8.3.8 No Other Warranties

Unless modified in writing and signed by both parties, this Warranty is understood to be the complete and exclusive agreement between the parties, suspending all oral or written prior agreements and all other communications between the parties relating to the subject matter of this Warranty, including statements made by salesperson. No employee of ProSoft or any other party is authorized to make any warranty in addition to those made in this Warranty. The Customer is warned, therefore, to check this Warranty carefully to see that it correctly reflects those terms that are important to the Customer.

8.3.9 Allocation of Risks

This Warranty allocates the risk of product failure between ProSoft and the Customer. This allocation is recognized by both parties and is reflected in the price of the goods. The Customer acknowledges that it has read this Warranty, understands it, and is bound by its Terms.

8.3.10 Controlling Law and Severability

This Warranty shall be governed by and construed in accordance with the laws of the United States and the domestic laws of the State of California, without reference to its conflicts of law provisions. If for any reason a court of competent jurisdiction finds any provisions of this Warranty, or a portion thereof, to be unenforceable, that provision shall be enforced to the maximum extent permissible and the remainder of this Warranty shall remain in full force and effect. Any cause of action with respect to the Product or Services must be instituted in a court of competent jurisdiction in the State of California.

Index

[

[Data Map] • 86
[MODULE] • 96

4

4101 Series LEDs • 79
4101 Series Modules • 74

A

About ProSoft Configuration Builder • 19
Adding a Location • 16, 20
Adding a Module • 16, 20
Adding a Project • 16
Adding External (Web) Files • 30
All Product Returns • 114
All ProLinX® Products • 3
Allocation of Risks • 119
Analyzing Data for the application port(s) • 65
Antenna LED Indicators • 78
Antenna Port (6000 Series Modules) • 57
Application Data Area • 90
Application Ports • 39

B

Backing Up Existing Files (Version 2.4 Modules) • 99
Base Module LEDs • 75

C

CFG File Structure • 96
Choose Module Type dialog box • 26
Collision Avoidance (DNP modules only) • 42
Comment Entries • 17
Comment Records and Editing Hints • 98
Common Tasks • 30
Configuration File • 91
Configuration View • 19, 24
Configuration/Debug Port • 43
Configure the Module • 16
Connecting Power to the Unit • 12
Connecting to the FTA • 50
Connections for HART Analog Point-to-Point Devices • 53
Constructing a Bus Cable for PROFIBUS DP • 45
Controlling Law and Severability • 119
Copying Group Information • 30, 34
Copying Module Information • 30, 34

D

Data Analyzer • 64
Data Analyzer Tips • 67
Data Map Edit Dialog box • 30

Database View Menu • 69
DB9 to Mini-DIN Adaptor (Cable 09) • 43
Delay Preset • 88
Deleting a Location • 31
Deleting a Module • 31
Deleting a Project • 31
Determining the Version of Your ProLinX Module • 94
Diagnostics and Troubleshooting • 7, 59
Diagnostics dialog box • 27
Disclaimer of all Other Warranties • 118
Disclaimer Regarding High Risk Activities • 117
Displaying the Current Page of Registers Again • 69
Displaying Timing Marks in the Data Analyzer • 65
Download Procedure for Version 2.2 Modules • 106
Downloading a File from PC to the Module • 18, 32
Downloading Files to a Version 2.4 Module • 103
Downloading the Configuration File from Your PC to the Module • 109

E

Edit dialog box • 28
Editing and Downloading CFG Files using NotePad and HyperTerminal • 94
Editing Configuration Files • 97
Enable Configurable Items • 31
Error and Status Data • 81
Ethernet Cable Configuration • 44
Ethernet Configuration Entries • 33
Ethernet LED Indicators • 75
Ethernet Port • 44
Exiting the Program • 64
Exporting Configuration Files • 32, 36

F

Fixed Error and Status Data Register Locations • 82
From Address • 87
Functional Overview • 7, 85

G

General Specifications • 89
General Specifications - Radio Modules • 89
Getting Email Support • 36
Guide to the ProLinX Reference Guide • 7

H

Hardware Specifications • 92
HART • 52
HART Analog • 53
HART Channels • 52
HART LED Indicators • 78
Honeywell DE • 50
Honeywell DE Master LED Indicators • 78
How to Contact Us
 Technical Support • 114

I

Important Installation Instructions • 3
Information View • 19, 24
Install ProSoft Configuration Builder Software • 14

Intellectual Property Indemnity • 117
Internal Database • 85, 90

K

Keystrokes • 62

L

LED Indicators • 7, 75
Limitation of Remedies ** • 118
LIMITED WARRANTY • 115, 116

M

Main Menu • 62
Making the Required Connections • 106
Master Command Error List Menu • 71
Master Command List Menu • 72
Mini-DIN 8 Serial Port • 75
Modbus Plus • 51
Modbus Plus Connections • 51
Modbus Plus LED Indicators • 77
Module Entries • 17, 33
Module Status Data Map • 83
Mounting the Module on the DIN Rail • 12
Moving Back Through 5 Pages of Registers • 70

N

Navigation • 61
Network Menu • 73
Network Power Supply Requirements • 54
No Other Warranties • 119

O

Opening the Data Analyzer Menu • 62
Opening the Database Menu • 63, 81
Optional Web Server for Ethernet Solutions • 91
Overview and Purpose of the Configuration File • 96

P

Package Contents • 10
Pasting Group Information • 34
Pasting Module Information • 34
Pinouts • 3, 39, 43, 44, 45, 49, 51, 54, 57
Please Read This Notice • 3
Port 0,1,2,3
 RS-232 - Modem Connection • 41
 RS-232 - Null Modem (with Hardware Handshaking) • 40
 RS-232 - Null Modem (without Hardware Handshaking) • 40
 RS-422 Interface Connections • 41
 RS-485 Interface Connections • 42
Printing a Configuration File • 17
Procedures for Return of Units Out of Warranty: • 115
Procedures for Return of Units Under Warranty: • 115
Product Specifications • 7, 89
PROFIBUS Master LED Indicators • 76
PROFIBUS Master Port • 44
PROFIBUS Slave LED Indicators • 76
PROFIBUS Slave Port • 49

ProLinx 5108 / 5208 HART Field Connections • 53
ProLinx Modules with Ethernet Ports • 4
ProLinx Plus with Radio • 4
ProSoft Configuration Builder • 19, 93
Protocol Driver Access to the Database • 86
Purchasing Warranty Extension: • 115

R

Redisplaying the Current Page • 71, 72
Reference • 7, 89
Register Count • 88
Remote I/O Adapter Cable Connection • 57
Removing Timing Marks in the Data Analyzer • 65
Renaming a Location • 35
Renaming a Module • 34
Renaming a Project • 34
Required Hardware • 59
Requirements • 59
Return Material Authorization (RMA) Policies and Conditions • 114
Returning to the Main Menu • 66, 70, 71, 72, 74
RIO • 57
RJ45 • 44
Rockwell Automation Remote I/O LED Indicators • 77
RS-232 Serial Connection • 13

S

Select Protocol dialog box • 29
Selecting a Protocol • 35
Selecting a Tag • 35
Sending the Log to a File • 37
Serial Port Cable Connections
 Config/Debug and Port 0 • 39
 Multiple Port Units • 39
Setting an External (Web) File Location • 35
Setting Port 0 Configuration Jumpers • 11
Skipping 500 Registers of Data • 70
Special Ports • 44
Start Here • 7, 9
Starting the Data Analyzer • 66
Status Data Area • 90
Stopping the Data Analyzer • 66
Support • 36
Support, Service & Warranty • 7, 113
Swap Code • 88
System Requirements • 9

T

The Configuration/Debug Menu • 59
Time Limit for Bringing Suit • 119
To Address • 87
To Order a Series C mode with the -WEB option: • 4
To upgrade a previously purchased Series C model: • 4
Transferring a File from the Module • 35
Transferring WATTCP.CFG to the module • 73
Transferring WATTCP.CFG to the PC • 73
Tree View • 19, 20, 25

U

- Upload/Download dialog box • 29
- Uploading and Downloading Configuration Files • 106
- Uploading the Configuration from the Module to Your PC • 100
- Uploading the Configuration from the Module to Your PC. • 107
- Uploading the WATTCP.CFG File (Modules with an Ethernet Port) • 102, 109
- User Interface • 26
- Using the Diagnostic Window in ProSoft Configuration Builder • 60
- Using the help system • 15

V

- View Configuration dialog box • 29
- Viewing Block Transfer Statistics • 63
- Viewing Client Configuration • 64
- Viewing Data in ASCII (Text) Format • 65, 70
- Viewing Data in Decimal Format • 70
- Viewing Data in Floating Point Format • 70
- Viewing Data in Hexadecimal Format • 65, 70
- Viewing Diagnostic Information • 37
- Viewing Module Configuration • 63, 64
- Viewing Port Communication Status • 63
- Viewing Port Configuration • 64
- Viewing Register Pages • 69
- Viewing the Next 100 Registers of Data • 70
- Viewing the Next 20 Commands • 71
- Viewing the Next 50 Commands • 72
- Viewing the Next Page of Commands • 71, 72
- Viewing the Previous 100 Registers of Data • 70
- Viewing the Previous 20 Commands • 71
- Viewing the Previous 50 Commands • 72
- Viewing the Previous Page of Commands • 71, 72
- Viewing the WATTCP.CFG file on the module • 74
- Viewing Version Information • 63
- Views • 24

W

- Warm Booting the Module • 64
- What Is Covered By This Warranty • 116, 118
- What Is Not Covered By This Warranty • 116
- Wireless • 57
- Wiring Diagrams • 54

Y

- Your Feedback Please • 2