Prolink

Serial Network Card
Basic Mode

RED JACKET
ELECTRONICS
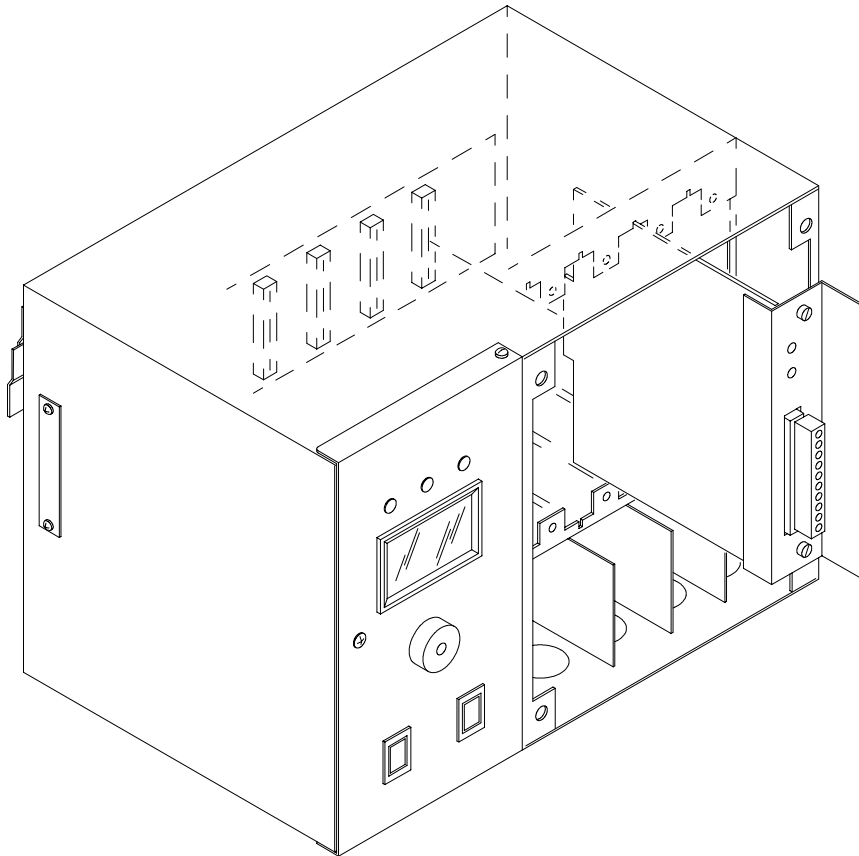
Prolink Fuel Management System

LLOYD'S REGISTER QUALITY ASSURANCE
ISO9001

Serial Network Card Basic Mode Installation Manual
RE260-269 ♦ Rev B ♦ June 99

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The Prolink has been approved by Underwriters Laboratories to carry the UL Listing Mark.

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About This Manual

This preface describes the organization of this manual, explains symbols and typographical conventions used, and defines vital terminology.

Organization

This manual is organized into two chapters:

Chapter 1: Serial Network Card Overview
Chapter 2: Connecting to a Network

It also includes a Glossary of Terms, a Parts List, and an Index.

Typographical Conventions

The various symbols and typographical conventions used in this manual are described here.

Numeric Formats	A numeric zero looks like 0 in this document. An uppercase letter "oh" is rendered as O.
	A numeric one looks like 1 in this document. A lowercase letter "ell" is rendered as l. However, to prevent confusion, the abbreviation for milliliter includes a capital letter (mL).

Terminology

The following terms are used throughout this manual to bring attention to the presence of hazards of various risk levels, or to important information concerning use of the product

Danger!!	Indicates the presence of a hazard that **will** cause **severe** personal injury, death, or substantial property damage **if ignored**

Warning!	Indicates the presence of a hazard that **can** cause **severe** personal injury, death, or substantial property damage **if ignored**.

Caution	Indicates the presence of a hazard that **will** or **can** cause **minor** personal injury or property damage **if ignored**.

Notice	Indicates special instructions on installation, operation, or maintenance that are important but not related to personal injury hazards.

Chapter 1: Overview and Installation

This Chapter Explains:

- **Overview of the Serial Network Card Basic Mode**

- **Installation Requirements**

  - The Serial Network Card, Basic Mode

  - Serial Network Card Configuration Worksheet Information

- **Installation Procedures**

Overview of the Serial Network Card

The Serial network card is a circuit board which fits into a slot in a Prolink chassis. The Serial network card supports the Basic Mode application. The Serial network card provides a method for transmitting data to and from peripheral equipment via an R232 serial port. The Basic Mode application allows the Serial network card to retrieve line leak detection information on a Prolink network and send it to a PC running Pathway Plus either by direct connection using a serial cable or remotely via modem connection. The Serial network card can also interface directly with a TLS 250/350 printer.

The Serial Network card differs from the Serial Link in that it is not a stand alone unit. It must be installed in a Prolink chassis. The Serial Network card does not have error, transmit(TX), or receive(RX) LEDs. This card also does not contain DIP switches. It utilizes jumpers on the circuit board to change configurations.

Installation Requirements

The Serial Network card Basic Mode

Requires an open network card slot in a Prolink chassis. Jumpers on the circuit board must be used for configuration. This card is shipped with the jumpers set in the DTE configuration. The top service pin and service LED on the face plate apply to the Serial Network card Basic Mode application.

Serial Network Card Configuration Worksheet Information

When installing the Serial network card, Basic Mode, certain information must be recorded.

- **Card serial number**

- **Card date of manufacture**

- **Card neuron ID number**

- **Part Number**

- **Card chassis number**

- **Card slot number**

This information should be entered on the Pro*link* Installation and Configuration Worksheet. (WAF03) Refer to figure 1.1.

Prolink Installation and Configuration Worksheet Sample

Network
Card
Type

Prolink Configuration Worksheet– SAMPLE

Date Code

Chassis #_____	Slot 1
Type of Network Card Installed	SERIAL NETWORK CARD 12/15/98 123456789 ABCDE12345678910 REXXX-XXX
CHANNEL 1 PROBE/SENSOR TYPE	NONE
CHANNEL 2 PROBE/SENSOR TYPE	
CHANNEL 3 PROBE/SENSOR TYPE	
CHANNEL 4 PROBE/SENSOR TYPE	

Part
Number

Serial
Number

Neuron ID
Number

The Serial network card does not have external channel connectors. This card receives information from the network connection in the Prolink chassis.

Figure 1.1 Serial network card - Basic mode required information

Installation Procedures

Serial Network Card Configuration

Normally the only card configuration necessary is to configure jumper JP2(see *figure 1.1* for location). This jumper enables or disables the battery backup on the Serial network Card. The other jumper changes the configuration of the serial(DB9) port between DTE and DCE protocols.(If necessary) This jumper is set at the factory to the DTE protocol. Select the desired card configuration from the table and drawing below and install the jumpers in the indicated positions on the circuit board.

Jumper	Installed	Not Installed
JP2	Enables battery backup	Disables battery backup
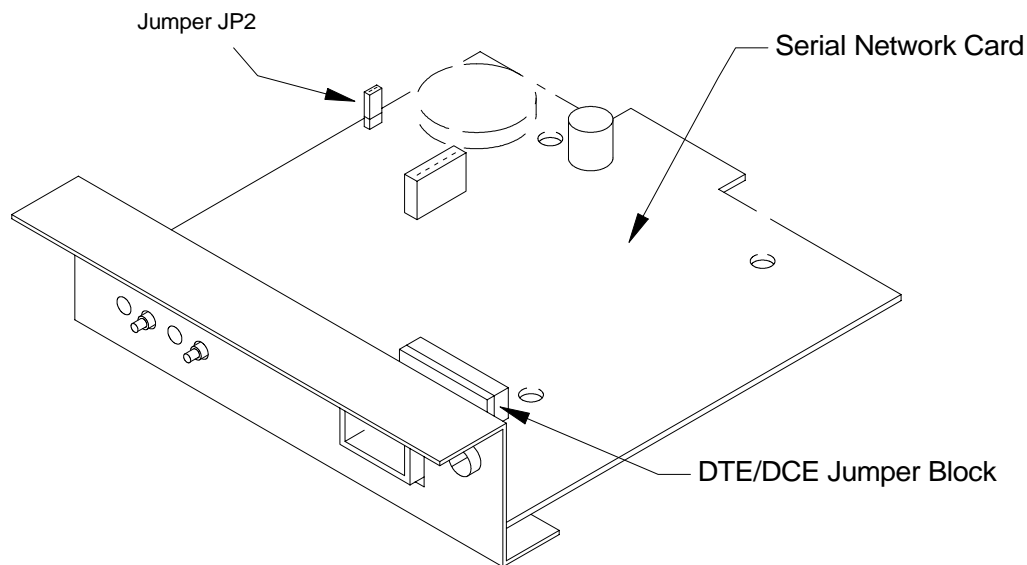
Figure 1.2 Serial network card jumper locations

DCE / DTE

Jumper set to
DTE/DCE
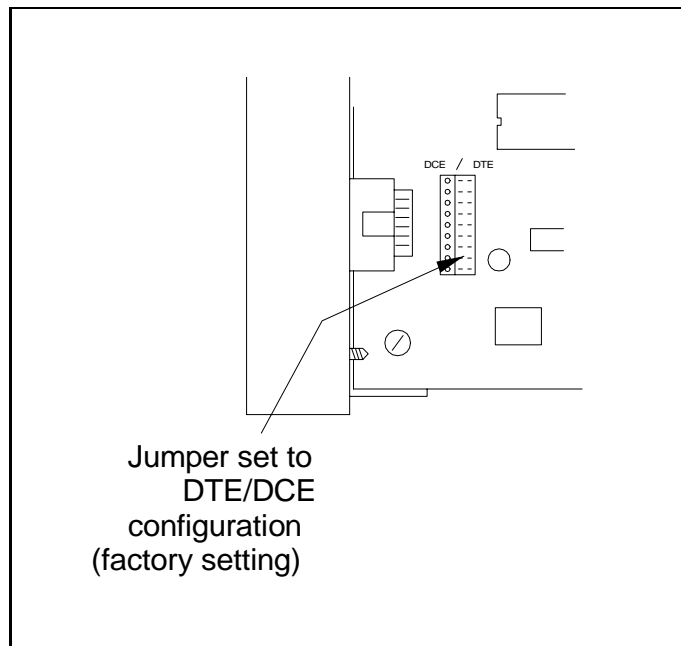configuration
(factory setting)

Figure 1.3 Jumper Location

Installation in the Prolink Chassis

The following procedures should be followed when installing the Serial network card in a Prolink chassis.

Step 1: Disconnect power to the Prolink chassis at the electrical service panel and the On-Off switch on the Prolink chassis power supply circuit board. Open the network card access panel and select an unused slot for installation. (Refer to figure 1.4)

Step 2: Remove the card slot protective cover.

Step 3: Install the jumpers on the circuit board to the desired configuration.(refer to the previous Card Configuration section and *figure 1.1*)

Step 4: Slide the Serial network card into the selected slot. Note the orientation of the card in *figure 1.2,* the card can be installed in this position only. Ensure that the card connects completely with the backplane board. Tighten the two hold-down screws to fully secure the card in position.

Step 5: Punch out the DB9 knockout underneath the selected slot.

THE RIBBON CABLE CONNECTOR
MUST BE CONNECTED AS SHOWN
IN THIS DRAWING FOR PROPER OPERATION

Serial
Network
Card

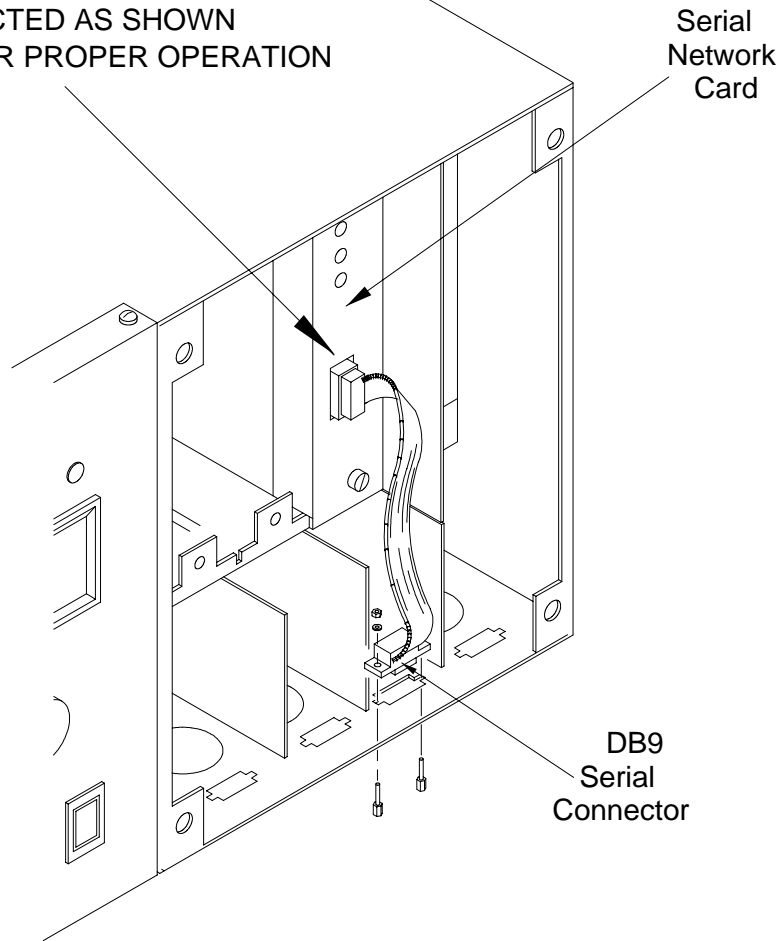DB9
Serial
Connector

Figure 1.4 Serial network card - DB9 connector installation

WARNING!	The short dividers in the lower section of the chassis may be removed for access but MUST be reinstalled to maintain intrinsic safety and complete the installation.

Step 6: Place the ribbon cable DB9 connector in the knockout. Install and tighten the hex nuts to hold it in place.

Step 7: Reinstall the divider(s) in the lower section of the chassis.(if necessary) Close and fasten the network card access panel.

Step 8: Connect the desired peripheral to the DB9 connector.

Step 9: Reconnect power to the Prolink chassis.

RS232 Cable Selections

To connect the Serial network card to a peripheral, an RS232 cable assembly is required.

IF the Serial network card is to be connected to a:	THEN use the following type of cable:
TLS 250/350 printer	null modem
RS-232 port on a PC using direct-connection	null modem
modem	straight

Chapter 2: Connecting to a Network

This Chapter Explains

- **Network Connections**
- **RS232 Connections**

Network Connections

The Serial network card is connected to the network as long as the Pro*link* chassis has a network connection. This allows the Serial network card to collect line leak data from other devices on the network.

RS-232 Connections

Connecting the Serial Network Card to TLS Systems

Notice	The Serial network card uses the RS232 port on the TLS printer. This does not affect any other hardware or software on the TLS.

TLS 250/350 Series

The Red Jacket Serial network card can be connected to the TLS 250/350 series printers, provided that an RS232 port is available on the TLS. If no RS232 port is available, contact a service representative to order the necessary equipment. The parameters for communications with the Serial network card are as follows: odd, 7 data bits, and 1 parity bit. These are the

default settings for the TLS 250/350 series. These Serial network card parameters are set in Pathway(Plus).

The following steps describe how to connect to a TLS 250 or 350 printer.

Step 1: Disconnect power from the TLS and the Serial network card.

Step 2: Connect the DB9 to the DB25 Null Modem Cable (see parts list) between the Serial network card and the TLS.

Step 3: Reconnect power to the system.

Programming the TLS 350 Series

On the TLS keypad, enter the programming menu by pressing the <**Backup**> key until the **"All Functions Normal"** screen appears. If a security code is active, you must deactivate it before programming.

Press < **Mode** > then press the < **Function** > key until you enter communications setup.

Step 1: Press the <**Step**> key then the < **Enter** > key to access the port settings menu.

Step 2: Press the <**Change**> key to select the baud rate that matches the baud rate for the Serial network card. Press the <**Enter**> key to save the settings.

Step 3: Press the <**Step**> key to move to the next communication setting.

Repeat steps 2 and 3 until all communication port programming is complete. Press the <**Backup**> key until the **"All Functions Normal"** screen appears.

Programming the TLS 250 Series

Baud Rate

Change the baud rate by turning the rotary switch located on the outer edge of the door. Baud rate settings are 1 though 8 on the rotary switch. Select the baud rate from the following chart and set the rotary switch accordingly. The parameters for communications with the Serial network card are as follows: odd, 7 data bits, and 1 parity bit. These are the factory default settings for the TLS 250. The default baud rate for the Serial network card is 9600 baud. All Serial network card parameters are set in Pathway Plus.

Switch Position	Baud Rate
1	9600 baud
2	4800 baud
3	2400 baud
4	1200 baud
5	600 baud
6	300 baud
7	150 baud
8	110 baud

Parity, Security Code

A five-position dip switch (located on the main board) controls parity (SW1) and the security code enable/disable function in the TLS system.

Warning! For safety, shut off the power to the TLS while changing switch settings.

The TLS system "reads" these switches during power-up or after depressing the reset button. The communication settings of the TLS must match the communication settings of the Serial network card.

The security code switch disables the system security code when troubleshooting the communications port. You **must** disable the security code before servicing the system. To disable the security code:

Step 1: Shut down power to the TLS-250 system.

Step 2: Disable the code by moving the switch to the disable (open) position and return power to the system.

Step 3: After servicing is complete, be sure to re-enable the security code by turning off power to the system, moving the switch to the enabled position (closed), and turning on the power.

DIP switch positions are as follows:

Position 4	**Parity**
Closed	Odd
Position 5	**Security Code**
Open	Disabled

Connecting to a Modem

The Serial network card connects to an external Hayes compatible modem. Refer to the parts list at the end of this manual for modems that have been tested with the Serial network card to ensure compatibility.
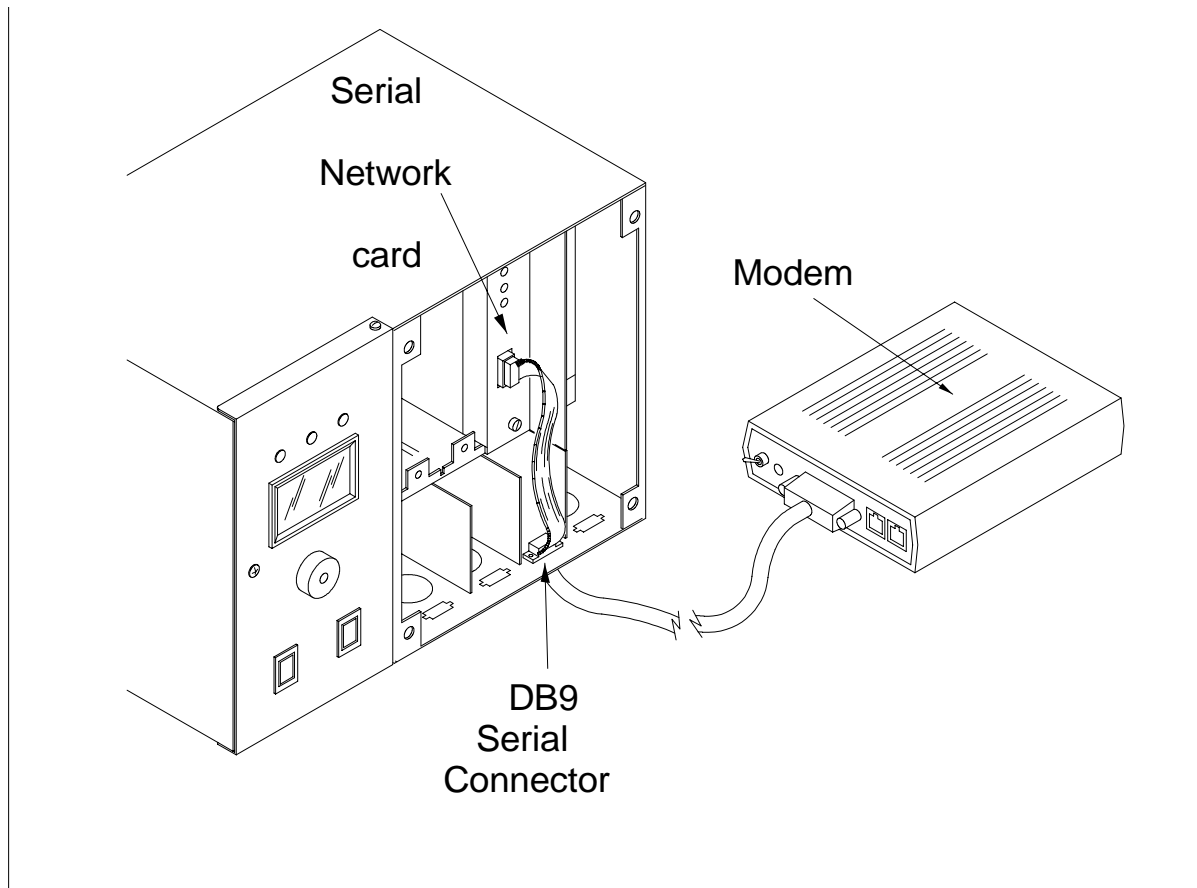

Figure 2.1 Serial network card to modem connections

Step 1: Disconnect power from both the Prolink chassis and the modem.

Step 2: Connect the DB9 end of the modem cable to the Serial network card connector and the DB25 end to the modem.

Step 3: Reconnect power to both the Prolink chassis and the modem.

Appendix A: Replacement Parts

Part Number	Description
RE400-605-5	Serial Network Card, Basic Mode
RE400-679-5	KIT, PCC-10 Network adapter
RE125-153	PCLTA-10 Network Adapter
RE350-158-5	Cable, DB9 to DB25-Null Modem
RE350-159-5	Cable, DB9 to DB9-Null Modem
RE350-160-5	Cable, DB9 to DB9-Straight
RE350-151-5	Cable, DB9 to DB25-Straight (modem)
RE400-634	Modem kit, high speed
RE400-636	Modem kit, high speed, with call router
RE400-633	Modem kit, low speed
RE400-635	Modem kit, low speed, with call router
RE350-157	PCC-10 Network cable
RE350-161	Cable, PCC-10 Network to Fly-wire Adapter

Appendix B: Glossary

AC	Alternating Current
Adapter	A device used to make different parts of an apparatus compatible.
Ampere (A)	A unit of electric current equivalent to a steady current produced by 1 V applied across a resistance of 1 Ω.
Annunciator Panel	This panel provides a common interface for the network cards installed on the LonWorks based Pro*link* and provides a user interface to the archived data.
API	American Petroleum Institute
CPT	Constant Pressure Turbine. The CPT pump uses controlled pressure technology and includes the constant pressure turbine and compliance pressure testing. The CPT System has three components: controller, final pump and motor, and a transducer kit.
DC	Direct Current.
DIP switch	Dual in-line package switch with two rows of pins through which signals and power enter and leave the package.
EMI	Electromagnetic interference; interference relating to the magnetism developed by a current of electricity.
EPA	U.S. Environmental Protection Agency. The EPA line leak test protocols include hourly, monthly, and annual testing.
Ground	A conductor that connects with the earth; to connect electrically with ground (earth ground, chassis ground, analog ground, digital ground).
HDPE	High-density polyethylene.
Intrinsically safe barrier	A barrier to keep intrinsically safe wiring physically separated from other wiring.
LED	Light-emitting diode.
Ohm (Ω)	A unit of electrical resistance equal to the resistance of a circuit in which a potential difference of 1 V produces a current of 1 ampere.
Peripheral	A device connected to the system that provides communication or auxiliary functions.
Piezo	An audible alarm that uses a piezoelectric material to produce sound.
RAM	Random access memory.
RFI	Radio frequency interference.
ROM	Read-only memory.

TIM	Transaction interface module.
UL-classified	A designation for products that have been evaluated by Underwriters Laboratories with respect to one or more of the following: (1) specific hazards only — for example, flammability; (2) performance under specified conditions; (3) regulatory codes; or (4) other standards.
UL-listed	A designation for products that have been evaluated by Underwriters Laboratories with respect to reasonably foreseeable hazards to life and property, and in which the risks of such hazards have been reduced to an acceptable degree.
Ullage	The amount by which the contents fall short of filling a container.
Volt (V)	The meter-kilogram-second unit of electric potential difference and electromotive force equal to the difference in potential between two points in a wire carrying a constant current of 1 ampere when the power dissipated between the points is equal to 1 watt.
Voltage	A potential difference, expressed in volts.

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