Section XXX
NIC Option Card
(86-6004)

Settings of NIC Ethernet Port

Record NIC Option Card Ethernet Address parameters below, for quick reference.

Net Port Ethernet Address: _____

Net Port IP Address: _____

Net Port Subnet Mask: _____

Net Port Default Gateway: _____

Net Port Clock Type: _____

1   INTRODUCTION

This manual provides the user of an NIC Option Card all the information necessary to install, operate, and utilize it to control a XL-DC over the Internet. Internet access uses the Telnet protocol. Telnet is a session-based terminal/remote host protocol developed for the Internet.

Telnet is available on most systems, including Windows 95/98/NT, UNIX, and Mac systems. Telnet control of an NIC Option Card for XL-DC uses the same function strings that are employed on the serial User Port.

All XL-DC timing and frequency functions and specifications are unaffected by the presence of an NIC Option Card.

An NIC Option Card for XL-DC has an Ethernet connector, labeled as the NET port. The Net Port uses an RJ-45 connector (Category 5 Ethernet).

A 9-pin D serial Utility Port connector is also provided. With the exception that serial timestamps are not available from an NIC Option Card-equipped XL-DC, the Utility Port works the same as the serial User Port defined in the main XL-DC manual.

A few new commands have been added, to control new NIC Option Card functions. The new commands use the same function string format as the standard XL-DC commands.

NOTE: *Functions 04, 05, 08, 09, 11 are <u>disabled</u> on NIC Option Card-equipped XL-DC.*

1.1 PHYSICAL SPECIFICATIONS

An NIC Option Card-equipped XL-DC adds 0.1 lb to the weigh of the XL-DC. Aside from this small weight gain, all physical specifications are as presented in the main XL-DC manual.

1.2 ENVIRONMENTAL SPECIFICATIONS

Environmental specifications of an NIC Option Card-equipped XL-DC are identical to those

described in the main XL-DC manual.

1.3 POWER INPUT SPECIFICATIONS

Power input specifications of an NIC Option Card-equipped XL-DC are identical to those of a XL-DC, as specified in the main XL-DC manual.

1.4 NIC OPTION CARD-EQUIPPED XL-DC SYNCHRONIZATION OPTIONS

The synchronization options of an NIC Option Card-equipped XL-DC are identical to those of a XL-DC, as specified in the main XL-DC manual.

1.5 INTERNAL TIMING PERFORMANCE SPECIFICATIONS

The absolute time and frequency characteristics of an NIC Option Card-equipped XL-DC are identical to those of a XL-DC, as specified in the main XL-DC manual.

1.6 INTERFACE SPECIFICATIONS

1.6.1   Ethernet Interface

The Ethernet Interface connector of an NIC Option Card-equipped XL-DC is a standard RJ-45 female plug. It conforms to standard Ethernet signal levels.

1.6.2   Utility RS-232 Serial I/O Interface – adjacent to NET Port

Data: Serial functions as listed in Section III.
                         Note: Serial timestamps are NOT available from
                         an NIC Option Card-equipped XL-DC.
Data Rates: **9600**
Data Bits: **8**
Parity: **None**
Stop Bits: **1**
Connector: Male 9-pin D subminiature, wired as DTE

Pin Assignment

Pin	Assignment
1	NC
2	RXNIC
3	TXNIC
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

1.7 TIME/FREQUENCY OUTPUT SIGNALS

With the exception of serial timestamps, Time and Frequency outputs of a XL-DC are unaffected by the presence of an NIC Option Card.

2 INSTALLATION

2.1 OVERVIEW

The user must provide the XL-DC NIC card with an Ethernet network connection and set-up parameters. The NIC Option Card retains all configuration data in a combination of EEPROM and flash memory.

2.1.1 Basic Quick Start Instructions

Before powering up the module, connect a serial device to the DB-9 RS-232 "Utility Port" to the left of the NET Port. A null modem adapter is required between the unit and the serial device.

The NIC Option Card must have its NET Port network address set. It is set is using F100 IP, SM, and G. Use the serial interface to set the Ethernet port addresses.

*Caution: The NET port **must** have its address configuration parameters set **before** the Ethernet cable is connected.*

Once the addresses are configured, connect the Ethernet cable.

Verify that the XL-DC is running by pressing the "TIME" push-button on the front panel.

Once the NIC Option Card is running properly, the NET Port should respond to PING at the configured address. If it does not, check the connection to the network and all network configuration parameters.

3 OPERATION

3.1 INTRODUCTION

An NIC Option Card-equipped XL-DC is a XL-DC that can be controlled over the Internet, via Telnet.

3.2 BASIC OPERATION

The basic operation of an NIC Option Card-equipped XL-DC is the same as that of a XL-DC. The only change is the addition on an Internet-accessible port that can be used to control the unit remotely over an Ethernet connection.

3.3 TELNET ACCESS

The main feature of an NIC Option Card-equipped XL-DC is the ability to perform setup and control functions from a remote location using the Internet or a local area network (LAN). The protocol used for Internet access to the NIC Option Card is Telnet. Telnet is a widely available ASCII character-based interface. Once logged in, Telnet operated similarly to serial interface programs: F-series commands are entered on the command line, and the unit responds with appropriate messages.

Telnet is a standard Internet communications program. It is bundled with Windows 95/98/NT and with many versions of UNIX. Telnet connects to the NIC Option Card through the NET Port. The NIC Option Card connects to the main XL-DC via an internal RS-232 cable.
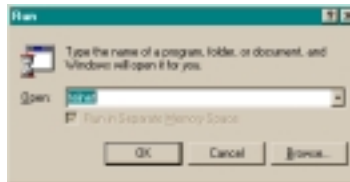
Telnet can only send commands when there is no active session on the Utility Port. If there is an active Utility Port session any Telnet command will be responded to with "NOTICE: Cannot respond to command because Utility Port session has priority".

3.3.1 Starting Telnet and Making a Connection

Note: Check with your System Administrator for Telnet application information, if you are using an operating system other than Windows (such as Macintosh or UNIX).

The following procedures apply to Windows 95/98/NT systems.

1. Press the **Start** button at the lower left of your screen.

2. Click **Run** and enter "Telnet" in the Open field.

3. Click **OK**.
   The "Telnet – (None)" window appears.

4. Click **Connect**, the first item on the Telnet menu bar, then select **Remote System**.
   The **Connect** dialog box appears.

5. In the "Host Name" field, enter the IP Address of the NIC.
   Do not change the text in the other two fields, which should read "Telnet" and "VT100".

6. Click the **Connect** button to start a Telnet connection to the NIC.
   If the connection was successful, a "login" prompt appears.

   If an hourglass appears instead, it means the connection was not successful and you should repeat steps 1-5.

7. Enter the login name "guest".
   A password prompt appears.

8. Enter the default password "truetime" (one word, all lower case).
   A welcome message appears if the login and password are approved.

9. Begin your Telnet session by entering F-series commands.

3.3.2 Ending Telnet

There are two ways to end Telnet:

- Close it from your terminal by selecting **Exit** from the **Connect** menu.
- Let it timeout. If no commands are received for 15 minutes, the NIC will automatically terminate the session.

3.4 SERIAL ACCESS

Serial access uses the 9-pin D RS-232 connector adjacent to the NET Port. This serial connection is referred to as the Utility Port. NIC Option Card provides transparent access to all supported serial functions of the XL-DC. Any serial access program may be used to connect to the Utility Port. Two popular serial programs, Procomm and HyperTerminal, are described below.

Regardless of the serial program used, all commands are input using conventional TrueTime F-series type commands.

Serial time output is not available on the Utility Port.

The following table describes the Utility Port's RS-232 pinouts and signal levels.

RS-232 Pinouts and Signal Levels

SIGNAL	9- to 25- PIN ADAPTER CABLE		SIGNAL DESCRIPTION
	9-pin	**25-pin**	
OPEN	1	8	DCD, CARRIER DETECT
IN RECEIVED DATA	2 – – – – < – – – – 3		RxD,
OUT TRANSMITTED DATA	3 – – – – > – – – – 2		TxD,
OPEN	4	20	DTR, DATA TERMINAL READY
GND SIGNAL GROUND	5 – – – – <> – – – – 7		SC
OPEN	6	6	DSR, DATA SET READY

SIGNAL	9- to 25- PIN ADAPTER CABLE		SIGNAL DESCRIPTION
	9-pin	25-pin	
OPEN	7	4	RTS, REQUEST TO SEND
OPEN	8	5	CTS, CLEAR TO SEND
OPEN	9	22	RI, RING INDICATOR

3.4.1 RS-232 Connection

There are two male 9-pin D connectors on an NIC Option Card-equipped XL-DC. The one on the right side of the back of the unit has a cap over it, and is NOT to be used. An NIC Option Card-equipped XL-DC has a new DB-9 serial connector to the left of the NET connector. This is the serial connector to use. With the exception of serial timestamp related functions, all regular XL-DC functions are available at the new connector. The new serial connector uses standard RS-232 pinouts and signal levels, as specified in the main section of this manual.

3.4.2 Serial Line Settings

Serial I/O settings are factory set and cannot be changed. The default serial format is:

    Data Rate: 9600 bits/second
    Word Length: 8 bits
    Parity: None
    Stop Bits: 1

Any serial access program may be used to connect to the Utility Port, and all commands are input using conventional TrueTime F-series type commands (see **Error! Reference source not found.** on page **Error! Bookmark not defined.**).

Note: The following examples use two popular Windows-based serial programs, Procomm and HyperTerminal. Therefore, these examples apply *only* to systems using Windows 95/98/NT. Check with your System Administrator if you are using another operating system.

The Utility Port can be connected to a terminal or a computer. These instructions assume that a terminal is already connected.
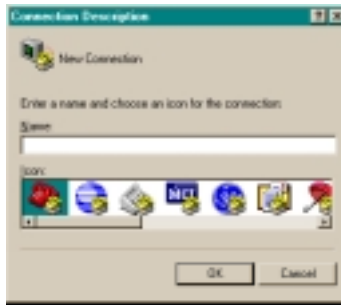
3.4.3 Procomm

As with all TrueTime products, connect the serial cable from the computer running Procomm to the NIC Utility Port.
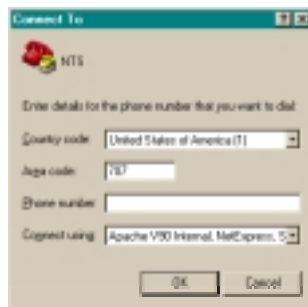
3.4.4 HyperTerminal

To use HyperTerminal, go through the dialog box sequence described in the following sections.

3.4.4.1 Starting HyperTerminal

1. Click the **Start** button on the task bar.

2. Select **Programs** > **Accessories** > **HyperTerminal** > **HyperTerminal.**
   The **Connection Description** dialog box appears.

3. Enter a name you would like to use for this connection in the **Name** box ("NIC" in this example) and click **OK**.
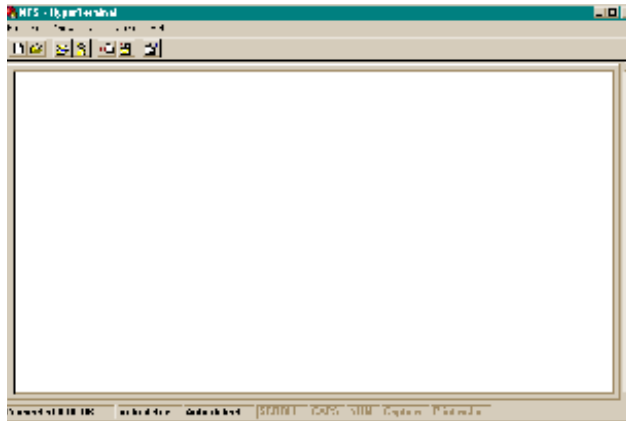   The **Connect To** dialog box appears.

4. In the **Connect using** box, use the drop-down menu to select your modem's Com port (COM1 in this example), then click **OK**.
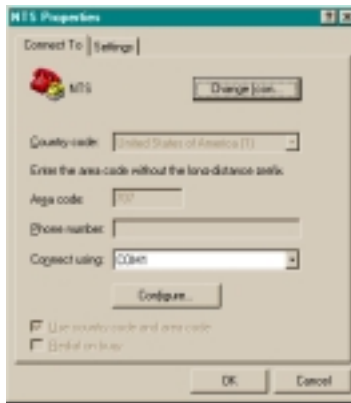   The **COM1 Properties** dialog box appears, showing the **Port Settings** tab.

5. Edit the fields in the **Port Settings** dialog box as follows:
Bits per second	9600
Data bits	8
Parity	None
Stop Bits	1
Flow control	None

6. Click **OK.**
   The **NIC HyperTerminal** window appears, indicating the NIC is now connected through the serial port you chose.
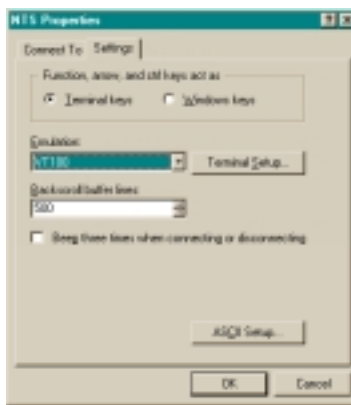
3.4.4.2 Setting Up a HyperTerminal Session

1. From the **File** menu in the session window, select **Properties**.
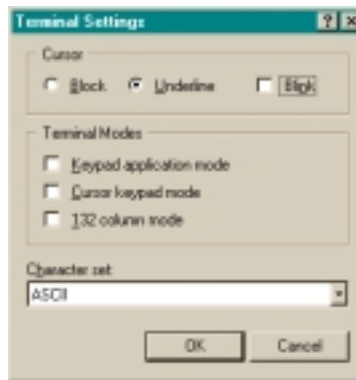   The NIC Properties dialog box appears, showing the **Connect To** tab.

2. Select the **Settings** tab and click the **Terminal keys** button.
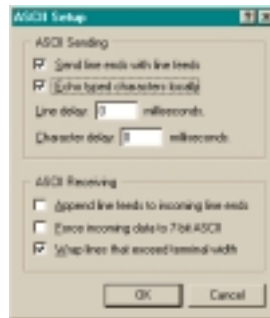

3. In the **Emulation** box, use the drop-down menu to select VT100 terminal type (do not select the Auto detect option).
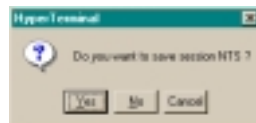
4. Click **Terminal Setup** and configure the terminal by selecting the appropriate options in the **Terminal Settings** dialog box (with a VT100 terminal, the recommended settings are pictured below).

5. Click **ASCII Setup…**
    The **ASCII Setup** dialog box appears.

6. Place check marks in the following boxes:
    *   Send line end with line feeds
    *   Echo typed characters locally
    *   Wrap lines that exceed terminal width

7. Click **OK**.
    This returns you to the **NIC Properties** dialog box.

8. Click **OK.**
    This returns you to your **HyperTerminal** session window, where you can enter "f" sequence commands.

9. When exiting HyperTerminal, click **Yes** when prompted to save the current session.

The next time you launch HyperTerminal from the **Start** menu, you can reconnect to the session you just created.

To reconnect to your last HyperTerminal session:

1. From the HyperTerminal window, select **File** > **Open**.
2. Double-click your last session.

3.5 SESSION TIMERS

There are timers on the Utility Port Session and the Telnet Session. These timers cause their Session(s) to be terminated if there is a lack of activity. Any action by a user during a Session resets the timer, and it starts all over again. The timers and their interactions are described in the following sections.

3.5.1 Utility Port Session Timer

The Utility Port Session Timer starts upon receipt of a character from the Utility Port. The timer is reset upon receipt of every character. If no characters are received for fifteen consecutive minutes, the Utility Port Watchdog Program will terminate the session.

When a Utility Port Session is in progress, Telnet cannot execute any commands the NIC. The Utility Port Session must end before full Telnet access is possible.

3.5.2 Telnet Session Timer

The Telnet Session Timer starts upon receipt of a command line from Telnet, via the Net Port. The timer is reset upon receipt of every command line. If no lines are received for fifteen consecutive minutes, the Telnet Port Watchdog Program will terminate the session.

Terminating a Telnet session results in the connection to the remote host being dropped. A new connection can be made immediately.

3.6 XL-DC START-UP

On power up, the NIC Option Card is ready for commands from the Serial I/O device. A NIC Option Card-equipped XL-DC does not at any time output continuous elapsed time to the Serial Port.

3.6.1 Satellite Acquisition

Satellite acquisition is identical to a XL-DC, as defined in the main XL-DC manual.

3.7 OPERATING MODES

The NIC Option Card-equipped XL-DC operates under the same modes as a XL-DC, as defined in the main XL-DC manual.

3.8 FRONT PANEL INTERFACE

The XL-DC front panel is identical to a XL-DC, as defined in the main XL-DC manual.

3.9 KEYPAD OPERATION

With the exception of the commands listed below, The various keypad functions are identical to those of a XL-DC, as defined in the main XL-DC manual.

3.9.1 Keypad Function 04 - SERIAL I/O SETUP

Not Supported on NIC Option Card-equipped XL-DC

WARNING: Use of F04 command will disable the Network Interface!

4 SERIAL OR TELNET I/O FUNCTIONS

At power-up, the Serial I/O port is ready to receive commands. Please note that NIC Option Card-equipped XL-DC does NOT output serial timestamps. Therefore, it is NOT necessary to stop the timestamps before entering commands. The NIC Option Card is ready for commands immediately upon power up.

NIC Specific Commands

COMMAND	Function	Parameters
F100 DHCP	DHCP Control	ENABLE/DISABLE
F100 EA	NET Port Ethernet Address	00-A0-69-##-##-##
F100 IC	NIC Configuration Request	-
F100 IP	NET Port IP Address	###.###.###.###
F100 G	NET Port Gateway	###.###.###.###
F100 P	Password	XXXXXXXX
F100 R	Reset to Default	-
F100 SM	NET Port Subnet Mask	###.###.###.###
F100 ST	Network Self test results Request	-
F100 VER	Version Request	-

NOTE: The following commands may **NOT** be used with an NIC Option Card-equipped XL-DC:

F04	Serial Line Settings
F08	Continuous Time Once Per Second Enable
F09	Time On Request Enable
F11	Time Output Format Entry/Request

4.1 GENERAL INPUT AND OUTPUT FORMAT

Data may be sent to or requested from the Serial I/O port by using various function commands as ASCII character strings. The commands and strings are the same as for a XL-DC, as specified in the main XL-DC manual.

4.2 KEYPAD FUNCTION 04 - SERIAL I/O SETUP

Not Supported on NIC Option Card-equipped XL-DC

4.3 SERIAL OR TELNET I/O FUNCTION F08 - CONTINUOUS TIME ONCE PER SECOND ENABLE

Not Supported on NIC Option Card-equipped XL-DC

4.4 SERIAL OR TELNET I/O FUNCTION F09 - TIME ON REQUEST ENABLE

Not Supported on NIC Option Card-equipped XL-DC

4.5 SERIAL OR TELNET I/O FUNCTION F11 - TIME OUTPUT FORMAT ENTRY/REQUEST

Not Supported on NIC Option Card-equipped XL-DC

4.6 OUTPUTS

The outputs from an NIC Option Card-equipped XL-DC are the same as from a XL-DC, as defined in the main XL-DC manual.

5 NIC OPTION CARD COMMANDS

The NIC Option Card commands are input just like the existing Function Commands. All NIC Option Card commands start with F100 followed by parameters. The parameters specify which NIC Option Card-specific command is to be executed. The parameters may also provide data to the command.

The following series of function commands controls the NIC functions and Net Port configuration. The parameters specify which specific sub-function should be executed. All examples use upper case letters. However, they may be entered in either upper case or lower case.

Note: F100 commands *only* control NIC functions and Net Port configuration.

5.1 FUNCTION F100 DHCP – DHCP CONTROL

DHCP (Dynamic Host Configuration Protocol) provides the NIC with the capability of auto-configuring its network address. DHCP is a TCP/IP client/server protocol that allows IP addresses to be administered and assigned from a common pool located at the server.

In order to work, the NIC must be installed on an Ethernet LAN that includes a DHCP server. Use F100 DHCP to enable or disable the DHCP feature.

Note: If any *change* is made, NIC will reboot after this command is executed.

DHCP status (enabled / disabled) can be <u>queried</u> without rebooting the unit.

To enable DHCP, send the following command:

F100<SP>DHCP<SP>ENABLE<CR><LF>

where:

F	=	ASCII character F
100	=	NIC function number
<SP>	=	space
DHCP	=	specify DHCP command
ENABLE	=	command DHCP to be enabled
<CR><LF>	=	line terminator

To disable DHCP, send the following command:

F100<SP>DHCP<SP>DISABLE<CR><LF>

where:

F	=	ASCII character F
100	=	NIC function number
<SP>	=	space
DHCP	=	specify DHCP command
DISABLE	=	command DHCP to be enabled
<CR><LF>	=	line terminator

To query the status of DHCP send:

F100<SP>DHCP<CR><LF>

where:

F	=	ASCII character F
100	=	NIC function number
<SP>	=	space
DHCP	=	specify DHCP command
<CR><LF> =		line terminator

5.2 FUNCTION F100 EA / IP / SM / G / IC – NET PORT CONFIGURATION ENTRY/REQUEST

This command is very similar to the F36 command (see **Error! Reference source not found.**). The difference is that this command affects the Net Port, instead of the NTP Port.

The Network Configuration Parameters may only be altered when DHCP is disabled.

Whenever a Net Port parameter is changed, the unit will reboot after the command is finished.

Use Serial or Telnet I/O Function F100 IC to obtain information about the current configuration or to change the setup using a single command line.

5.2.1 F100 EA - Ethernet Address

This Ethernet address is a six-byte, hexadecimal value specific to the Net Port. The first three bytes are registered to TrueTime Inc; the last three bytes are the hex value identifying the Net Port. The Ethernet address for the Net Port is a fixed address assigned at the factory.

To request the Ethernet address of the Net Port, send the following command:

F100 EA<CR><LF>

The NIC responds with:

F100 EA:00-A0-69-xx-xx-xx<CR><LF>

where "xx-xx-xx" are the six hex digits of the unit's unique address. Attempts to set this field will be rejected with a syntax error message.

5.2.2 F100 IP - IP Address

The IP Address can only be set if DHCP is disabled, and can be queried at any time.

To obtain the IP address of the Net Port, send the following command:

F100 IP<CR><LF>

The NIC responds with a string of the form:

F100 IP:nnn.nnn.nnn.nnn<CR><LF>

where "nnn.nnn.nnn.nnn" is the dotted decimal address notation.

To set the IP address and restart the NIC, send the following command:

F100 IP:nnn.nnn.nnn.nnn<CR><LF>

Sample entry:	F100 IP:206.54.0.21<CR><LF>
The response might be:	Restarting<CR><LF>

Note: Changing this parameter will cause a software reset of the network interface card.

5.2.3 F100 SM - Subnet Mask

The subnet mask can only be set if DHCP is disabled, and can be queried at any time.

To return the subnet mask of the Net Port, send the following command:

F100 SM<CR><LF>

The NIC responds with:

F100 SM:nnn.nnn.nnn.nnn<CR><LF>

To set the subnet mask and restart the NIC, send the following command:

F100 SM:nnn.nnn.nnn.nnn<CR><LF>

Sample entry:	F100 SM:255.255.255.240<CR><LF>
The response might be:	Restarting<CR><LF>

Note: Changing this parameter will cause a software reset of the network interface card.

5.2.4 F100 G - Gateway

The Default Gateway Address can only be manually set if DHCP is disabled, and can be queried at any time.

To obtain the Default Gateway of the Net Port, send the following command:

F100 G<CR><LF>

The NIC responds with:

F100 G:nnn.nnn.nnn.nnn<CR><LF>

To set the Default Gateway and restart the NIC, send the following command:

F100 G:nnn.nnn.nnn.nnn<CR><LF>

Sample entry:	F100 G:206.54.0.17<CR><LF>
The response might be:	Restarting<CR><LF>

Note: Changing this parameter will cause a software reset of the network interface card.

5.2.5 F100 IC – Net Port Network Configuration Request

To review the entire network configuration of the network interface card, send the following command:

F100<SP>IC<CR><LF>

An example of the response is:

F100 IP:206.54.0.21 SM:255.255.255.240 G:206.54.0.17<CR><LF>

This response indicates the specific IP address, Subnet Mask, and Default Gateway of the Net Port.

Note: The leading zeros within fields of the dotted decimal addresses are omitted from the IP address, Subnet Mask, and Default Gateway.

To set all settable network parameters and reset the NIC, send a command that provides the NIC with an IP address, Subnet Mask, and Default Gateway.

Sample entry: F100 IP:206.54.0.21 SM:255.255.255.240 G:206.54.0.17<CR><LF>
The response might be: Restarting<CR><LF>

Note: The leading zeros may be omitted when entering IP address, Subnet Mask, and Default Gateway. Any field may be omitted and order is not significant. Blanks are allowed on either side of a colon.

Note: Any legal command set containing one of the three network parameters will cause a reboot of the NIC.

5.3 FUNCTION F100 P – CHANGE USER PASSWORD

The User Password is only used when initiating a Telnet Session. The password may be changed from either the Telnet Port or the Utility Port. It is not necessary to know the old password in order to enter a new password. If a user forgets the password, all they have to do is use the Utility Port to define a new one. Maximum password size is ten characters.

To change the User Password, send:

F100<SP>P<CR><LF>

where:

F   =   ASCII character F
100   =   NIC function number
<SP>   =   space
P   =   specify Password command
<CR><LF> =   line terminator

The NIC responds with:

Enter new user password:

When you enter a new password, the NIC responds with:

Enter it again:

Enter the same new password again, to confirm the spelling.

If the same new password has been entered twice, the NIC responds with:

OK<CR><LF>

In this case, the new password will be used for the next Telnet login.

However, if the new password is entered differently the second time, the NIC responds with:

ERROR: Passwords do NOT match. New password rejected.

The old password will be used for the next Telnet login.

5.4 FUNCTION F100 VER – VERSION REQUEST

This command queries the software version number of the network interface card. The version number is set at compile time, and cannot be changed. It may only be queried.

To query the version number send:

F100<SP>VER<CR><LF>

where:

F	=	ASCII character f
100	=	NIC function number
<SP>	=	space
VER	=	specify Version Request command
<CR><LF> =		line terminator

5.5 FUNCTION F100 BASET – 100BASET/10BASET CONTROL

With the BASET command, the unit can be set to 10BaseT only, or allow it to negotiate between 10BaseT and 100BaseT. The current BASET setting can be queried with this command.

To set 100BaseT maximum connection speed to 100BaseT, send the following command:

F100<SP>BASET<SP>100<CR><LF>

where:

F	=	ASCII character F
100	=	NIC function number
<SP>	=	space
BASET	=	specify BaseT command
100	=	set maximum BaseT speed to 100
<CR><LF> =		line terminator

Note: If the BASET command is used to set the BaseT value, the NIC will reboot.

To set 10BaseT maximum connection speed to 10BaseT, send the following command:

F100<SP>BASET<SP>10<CR><LF>

where

F	=	ASCII character F
100	=	NIC function number
<SP>	=	space
BASET	=	specify BaseT command
10	=	set maximum BaseT speed to 10
<CR><LF> =		line terminator

To query the maximum BaseT speed, send:

F100<SP>BASET<CR><LF>

where

F	=	ASCII character F
100	=	NIC function number
<SP>	=	space
BASET	=	specify BaseT command
<CR><LF>	=	line terminator

5.6 FUNCTION F100 ST – SELF TEST STATUS

The status of the power-up tests can be queried with the ST command. The return result contain the PASS/FAIL status of the flash memory checksum test, ram test, serial port test and version check.

To query the self-test status, send:

F100<SP>ST<CR><LF>

where:

F	=	ASCII character F
100	=	NIC function number
<SP>	=	space
ST	=	specify ST command
<CR><LF>	=	line terminator

The returned result is n the following format:

F100<SP>ST<SP>FLASH/CRC<SP>:<SP><STATUS>,<SP>RAM<SP>:<SP>
<STATUS>,<SP>SERIAL<SP>:<SP><STATUS>,<SP>VER<SP>:<SP><STATUS><CR>
<LF>

This string appears as a single line on your display.

where:

F	=	ASCII character F
100	=	NIC function number
<SP>	=	space
ST	=	specify ST command
FLASH/CRC	=	specify flash checksum result
RAM	=	specify ram test result
SERIAL	=	specify serial port test result.
VER	=	specify version test result. This test compares the version of the code against the version recorded in the Non-Volatile memory.
<STATUS>	=	is either ASCII PASS or FAIL
,	=	ASCII comma.
:	=	ASCII colon.
<CR><LF>	=	line terminator

5.7 LOGIN/LOGOUT – ALLOWS ACCESS TO MORE ADVANCED FEATURES

There are two levels of login: "operator" and "guest".

5.7.1 Operator Login

Operator is the default level at the RS-232 interface. No "Login" is necessary to access the Operator level via the serial interface.

As shipped, the Operator level login at the Telnet interface has a default password of "mercury". In order to maintain security, the Operator password should be changed at time of installation.

Operator may perform most of the defined serial or Telnet functions through the RS-232 interface. The only function that an Operator cannot perform is to change the Guest Password.

5.7.2 Guest Login

Guest login is the default level on the Telnet interface. A Guest may perform all of the defined serial or Telnet functions, including changing the Guest Password.

As shipped, the Guest level login has a default User Name of "guest" (all lower case, no quotation marks), and has a default password of "truetime". In order to maintain security, the Guest password should be changed at time of installation.

A Guest may perform most of the defined serial or Telnet functions through the RS-232 interface. The only function that a Guest cannot perform is to change the Operator Password.

6 MESSAGES FROM NIC OPTION CARD FOR XL-DC

All new NIC Option Card-generated messages that a craftsperson may see are described below.

6.1 ERROR MESSAGES

6.1.1 ERROR: Access denied.

Meaning: User has attempted to use a command that is not user accessible.

Recovery Action: Correct condition that prevents access from being granted

6.1.2 ERROR: Command is NOT supported by NIC Option Card for XL-DC

Meaning: User has attempted to use a serial timestamp related command that is NOT supported on an NIC Option Card for XL-DC

Recovery Action: Do something else. The command cannot be executed on an NIC Option Card for XL-DC.

6.1.3 ERROR: Login refused

Meaning: User attempted to login from Telnet while another user was changing the user password from the Utility Port.

Recovery Action: Coordinate activities with the craftsperson working on the Utility Port.

6.1.4 ERROR: Undefined NIC Option Card for XL-DC Command

Meaning: User has attempted to use an undefined F100 command string

Recovery Action: Retype the command, correcting the typing error

6.1.5 ERROR 01 VALUE OUT OF RANGE - from NIC Option Card for XL-DC

Meaning: User has entered a valid command, with an invalid parameter value

Recovery Action: Retype the command, using a valid parameter

6.1.6 ERROR 02 SYNTAX - from NIC Option Card for XL-DC

Meaning: User has entered a valid command with a minor syntax error. The NIC Option Card for XL-DC module of the software has detected the error.

Recovery Action: Retype the command, using valid syntax

6.2 INFORMATIONAL MESSAGES

Messages in this section inform the craftsperson of events. No action is required in response to these messages.

6.2.1 DHCP is enabled

Meaning: User has just successfully entered the Enable DHCP command.

6.2.2 DHCP is disabled

Meaning: User has just successfully entered the Disable DHCP command.

6.2.3 Goodbye.

Meaning: NIC Option Card for XL-DC has just terminated a session.

6.2.4 NIC Option Card for XL-DC Rev Level is

Meaning: Response to F100 V command, requesting XL-DC Net Port software version number

6.2.5 Restarting NIC Option Card for XL-DC

Meaning: A command has just been executed that requires a soft restart of the NIC Option Card for XL-DC. The restart happens immediately after this message is sent

6.2.6 NOTICE: A new Telnet Session has been started on the Internet Port

Meaning: Inform a craftsperson on the Utility Port that someone has logged in to the Telnet Port

6.2.7 NOTICE: Cannot respond to command because Utility Port session has priority

Meaning: A craftsperson on the Telnet Port has tried to do a command, but was prevented from doing so because there is an active session on the Utility Port. The person on the Telnet Port cannot do any commands until the Utility Port session ends.

6.2.8 NOTICE: Resource usage conflict. Try again later.

Meaning: Simultaneous attempts to change the user password are being attempted from the Utility Port and the Net Port

6.2.9 NOTICE: There is already a Telnet Session on the Internet Port

Meaning: User started a session on the Utility Port when the Net Port was already active.

6.2.10 NOTICE: Telnet now has full access to Product

Meaning: Sent to Utility Port after its watchdog expired. Inform the Utility Port craftsperson that the Utility Port session has terminated, and Telnet can now be fully used.

6.2.11 NOTICE: Telnet Port Watchdog expired

Meaning: Sent to the craftsperson on the Net Port to inform him that the Telnet Session watchdog has expired. The Telnet session will be terminated, by the XL-DC, immediately after this message is displayed.

6.2.12 NOTICE: Telnet Session terminated by timeout

Meaning: Sent to Utility Port, if it is active, to inform the Utility Port craftsperson that the Telnet Session has timed out.

6.2.13 NOTICE: To take control back from Telnet, send in a command

Meaning: Sent to Utility Port, if it is active, to inform the Utility Port craftsperson that the Utility Port timer has expired, and Telnet has full rights. This message reminds the Utility Port person that they can take control back by sending in a character.

6.2.14 NOTICE: Utility Monitor Session has relinquished control to this Telnet Session

Meaning: Sent to Telnet user, to inform him that he is no longer being inhibited from performing commands because of a Utility Port session. The Utility Port session has just ended.

6.2.15 NOTICE: Utility Monitor Session has taken priority from this Telnet Session

Meaning: Sent to Telnet Port craftsperson to inform him that he can no longer enter commands, because a session has started on the Utility Port. The Utility Port has precedence over the Telnet Port.

6.2.16 NOTICE: Utility Port Watchdog expired

Meaning: Sent to the Utility Port after its timer has expired because from lack of activity.

6.2.17 NOTICE: You have taken control away from the Telnet Session

Meaning: Sent to the Utility Port to inform the craftsperson there that a Telnet Session was in progress when the Utility Port craftsperson started a session, by sending in a character.

6.2.18 OK

Meaning: Command accepted and processed as specified.

6.2.19 Network Interface 182-9001v001 (c) 1998 TrueTime Inc.

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Login successful

Meaning: A Telnet Port user has just successfully logged in, by sending in the correct login name and password.

6.3 PASSWORD RELATED MESSAGES

6.3.1   login:

Meaning: Prompt for login name, craftsperson must enter a name.

6.3.2   password:

Meaning: Prompt for login password, craftsperson must enter the user password.

6.3.3   Enter new user password:

Meaning: Craftsperson has entered Change Password command. This is the first

prompt for the new password. Craftsperson must enter a new password.

6.3.4   Enter it again:

Meaning: User is in the process of changing the User Password. A new password has been entered. This messages prompts for it to be entered again, for confirmation. Craftsperson must re-enter the new password

6.3.5   ERROR: Passwords do NOT match. New password rejected.

Meaning: The re-entered password does NOT patch the original password. Restart the password sequence.