

NETCON Small System Controller

Installation and Operation

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Manual Revision History

Shown below is a chronological listing of revisions to this manual. The issue number, date, and synopsis of revised materials are included to provide the reader with a comprehensive manual history.

Note *In keeping with the policy of continuing development carried out by General DataComm Inc., the information in this manual is subject to revision without notice.*

Issue	Date	Description
-01		First issue.

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Preface

Scope

This manual describes how to install and operate the NETCON Small System Controller.

The information contained in this manual has been carefully checked and is believed to be entirely reliable. However, as General DataComm improves the reliability, function, and design of their products, the possibility exists that information may not be current.

If you require updated, or any other General DataComm product information, contact:

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Organization

This manual is divided into ten primary chapters:

Overview (Chapter 1),
Installation (Chapter 2),
Using the System (Chapter 3),
Alarms Menu (Chapter 4),
Configuration Menu (Chapter 5),
Control Menu (Chapter 6),
Diagnostics Menu (Chapter 7),
Reports Menu (Chapter 8),
Restoral Menu (Chapter 9), and
System Menu (Chapter 10).

Document Conventions

Level 1 paragraph headers introduce major topics.

Level 2 paragraph headers introduce subsections of major topics.

Level 3 paragraph headers introduce subsections of secondary topics.

This typewriter font shows output that is displayed on the screen or input entered by you.

This bold font is used when referring to window names and menu selections. Related Publications

A complete listing of associated documents are described below.

Applicable Documents	
Publication Name	Publication Number*

*For publication numbers, REV is the hardware manual revision (for example, -001, -002, etc.) VREF is the software revision (for example, V120 - this would read, Version 1.2) and corresponds to the most current revisions. IS (for example, -02) is the most current issue of the document. When ordering documentation, request the most current issue.

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Safety Information

The DANGERS, WARNINGS and CAUTIONS that appear throughout this manual are not only preventative measures designed to uphold the safety of both the service engineer and operator, but also enhance equipment reliability.

The definitions and symbols for DANGER, WARNING and CAUTION comply with ANSI Z535.2, American National Standard for Environmental and Facility Safety Signs, and ANSI Z535.4, Product Safety Signs and Labels, issued by the American National Standards Institute.

The following examples show the symbols and definitions of DANGER, WARNING, CAUTION, *Note* and *Important* as they are used in this manual.

Note *Indicates a note. It is something you should be particularly aware of; something not readily apparent. A note is typically used as a suggestion.*

Important *Indicates an emphasized note. It is something you should be particularly aware of; something not readily apparent. Important is typically used to prevent equipment damage.*



CAUTION *Indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury. It may also be used to alert against unsafe practices.*



WARNING *Warning indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.*



DANGER *Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.*

Chapter 1: Overview

Introduction

The NETCON[®] Small System Controller (SSC) is an intelligent, PC-based network management controller for small dataset networks. With it you can manage a network of NMS-compatible network elements from a central point. The SSC Main Menu lends access to the following:

- Alarms management
- Configuration
- System control routines
- Diagnostics
- Report generation
- Restoral functions
- System routines
- Help

Organization of This Manual

This manual is organized primarily around the menus. Each section discusses a menu, e.g., Reports, and its options. Section 2 provides information on system installation. (Appendix A provides a quick method of installation.) Section 3 is intended to familiarize you with use of the SSC. Topics covered include:

- System Security
- Opening a Menu
- Selecting Parameters
- Window Operations
- Keyboard Alternates to a Mouse
- System-Wide Features
- The Current Network Element
- On-Line Help
- System Shutdown

Devices Supported

Table 1-1 lists the devices that the SSC currently supports and the publication numbers of the manuals for these devices.¹

Table 1-1 Devices Supported

DEVICE	PUBLICATION NUMBER
DBU-79	064R121-000
DBU-89	058R705-000
DBU-56FW	058R525-000
FTM-6400	044R120-800
FTS-6400	044R122-800
MTU-26A (Ext. output only)	058R425-000
NMS-464	058R515-000
NMS-564	058R517-800
NMS-500D/UXR	058R508-800
NMS-510	058R512-000
NMS-510/C	058R512-000
NMS-520	058R519-000
NMS-553D-1	058R525-000
NMS-553D IFP	058R526-000
NMS-2418	058R501-800
NMS-4800	058R448-800
NMS-9600	058R496-800
NMS-9610	058R466-800
NMS-14433	058R103-000
NMS-19202A	058R500-800
RCU-54R	058R405-000
TDC-2	044R121-000

System Menus

Alarms

The Alarms Menu contains two options: Alarm Summary and Alarm Scan Management. These options let you:

- Display selected active alarms or historical alarms.
- Sort alarms for display.

¹. The following may be of help – *Configuration Guide for NMS Modems And Data Service Units*, Publication Number 058R705-000.

- Initiate an alarm scan.

Alarm Summary opens the Alarm Summary window. The upper part, defined by the Alarm Summary Criteria Group Box, lets you configure a filter. Alarms meeting filter criteria are displayed in the lower part.

Alarm Scan Management lets you:

- Enable or inhibit an alarm scan on any or all system ports.
- Enable or inhibit the audible alarm feature.

Alarm Scan – lets you initiate or terminate an alarm scan on selected ports. When you terminate the scan on a port, the system ceases monitoring the port and updating the alarms database for the port.

Audible Alarm – lets the system issue an audible signal when a new alarm arrives. This alerts you to the new alarm.

You can define components of an alarm. For example, you may want an alarm reported on a network element if that element experiences Data Carrier Detect Loss more than five times within 30 seconds. The Configuration Menu's Configuration option contains setup parameters that define alarms. For further information concerning alarm definitions, see the topic Configuration in Section 5 – THE CONFIGURATION MENU.

For further information, see Section 4 – THE ALARM MENU.

Configuration

The Configuration Menu contains two options: Configuration and Network.

Configuration lets you configure network elements. This includes designating network elements that the system is to monitor for alarms.

Configuration routines consist of the following windows:

- Top Level
- Alarm Parameters
- Option Parameters
- Restoral Equipment
- Multiport
- Associated Network Element

Each window has a series of Command and Flow buttons. Command buttons let you execute window operations, e.g., EXIT dismisses a window. Flow buttons move you from window-to-window within configuration routines, e.g., ALARMS moves you to the Alarms Parameter window.

Network lets you list some or all defined network elements. You can list all elements, just those on a given circuit or just those of a specific type.

For further information, see Section 5 – THE CONFIGURATION MENU.

Control

Many Control options download settings to the current network element, e.g., Fallback rate.

The Control Menu contains the following options:

- Active Config(uration) – sets the active configuration of a multiport.
- ACE Calibration – adjusts the gain, and high/low frequencies of equalization of the current network element.
- DBU 56FW – lets you set various functions regarding the DBU-56FW such as enabling or disabling the dial or test buttons, and selecting the test pattern.
- DCD Password – permits a TDC-2 to communicate with a DTE through an FTM when the FTM is optioned for a password and the modem used to dial the call is a non-GDC modem.
- Dial Backup – controls the state of the current TDC-2s A port.
- External – controls both outputs of the current network element.
- Fallback – selects the fallback rate and enables fallback control at the current network element.
- Front Panel – enables or inhibits the front panel control switch on the current network element.
- Master List – provides a list of active and/or installed nodes off a master. (NMS-464/NMS-564 multiport only.)
- Netcon – breaks in-bound and/or out-bound NETCON communications at the current network element.
- Network Re-synch(ronization) – sends a resynchronization signal to all elements on the line. (NMS-464/NMS-564 multiport only.)
- Reset – resets the current network element to the configuration stored in non-volatile memory.
- Service – places the current network element in or out-of-service.
- Streaming – enables or inhibits streaming control at the current network element.
- User Resettable Alarms – lets you reset latched alarms which, when set, require your intervention for a reset.
- What – displays identifying information on the current network element.

For further information, see Section 6 – THE CONTROL MENU.

Diagnostics

Diagnostics lets you check the integrity of the system. Among the tests you can run are:

Interfering Tests

- Analoop/Selftest
- Channel Loop
- Digital Loop

- End To End
- Local P/L
- Remote P/L
- Reset Test To Normal

Noninterfering Tests

- Circuit Quality
- NE Quality (Drop ID)
- Round Trip Delay
- Local S/N
- Remote S/N
- Line Availability
- Test Dial
- Monitor Test Dial
- Monitor EIA Status

For further information, see Section 7 – THE DIAGNOSTICS MENU.

Reports

Network Element Configuration lets you generate a configuration report on any element in the network.

24 Hour Reports lets you display, in 15 minute intervals, a summary of errors over the last 24 hours. (This applies to the NMS-553 only.)

Scheduled Performance Reports displays a report of errors for the last 4 seconds. (This applies to the NMS-553 only.)

For further information, see Section 8 – THE REPORTS MENU.

Restoral

Restoral contains three options: Group and Pool Association, Group and Pool Definition and Restoral.

Restoral lets you execute a series of dial backup routines. With it you can perform the following:

- Dial – initiate dial backup.
- Status – check the status of the dial backup.
- Switch Line – switches the primary line to a private or switched-line network.
- Terminate – end a dial backup call.

For further information, see Section 9 – THE RESTORAL MENU.

System

The System Menu lets you perform a number of utility operations, e.g., you can designate a new password using the Change Password operation.

The System Menu contains the following options:

- About – displays general system information, e.g., SSC software version.
- Backup – copies the system database to diskette. This copy is used in restoring the database if necessary.
- Change Password – changes the existing password.
- I/O Test – checks the I/O port card.
- Level – sets the receive path delay of the system.
- NETCON Console – starts a terminal emulation program.
- Restore – copies the database from diskette to hard drive. (The diskette is one produced using the Backup option mentioned above.)
- Shutdown – terminates the system program.

For further information concerning the System Menu, see Section 10 – THE SYSTEM MENU.

Minimal And Optional Components

The following are minimal hardware requirements for the system. (See Tables 1–2 and 1–3 for detailed specifications and part numbers):

Hardware

- IBM™ compatible personal computer
- Four or more megabytes of main memory (RAM)
- Minimum of 40 megabytes of free hard drive storage
- DigiBoard to provide ports for communicating with network elements. (There are two types of DigiBoards that can be used: PC/4 – 4-port or PC/8– 8-port.)
- 1 – 16 DigiBoard Adaptors
- 1 Modular loopback connector
- 1 – 16 Eight-pin modular-to-modular cables
- VGA color graphics monitor or better
- 3.5 inch (1.4 megabytes) high density disk drive
- Microsoft® or Microsoft-compatible mouse

This includes mouse documentation.

The mouse requires a serial or bus port on system.

Software

The following are the minimal software requirements for the system:

- NETCON SSC software package
- MS DOS version 5.0 or higher
This includes the manual.
- Microsoft Windows™ 3.1 or higher (including manual)

Optional

The following are system options:

- Graphic-capable Printer installed for MS Windows.

For installation instructions, see Section 2 – INSTALLATION. When installation is complete, read Section 3 – USING THE SYSTEM.

Table 1-2 Minimum System Specifications

Hardware	IBM compatible personal computer with: Windows compatible mouse One parallel port for printer (optional) One 4-port serial I/O card: Each port can support 128 lines Each line can support 32 drops System can support a maximum of 1024 network elements VGA color graphics monitor Minimum 40 megabytes free space on the hard drive 8 megabytes of main memory (RAM) for DOS 6.x/WIN 3.x 16 megabytes of main memory (RAM) for WIN 95 Microsoft mouse or compatible One 3.50 inch double density floppy disk drive
Software	DOS 6.x/Windows 3.x, or Windows 95 or Windows 98 operating system and following utilities: BACKUP.COM RESTORE.COM FORMAT.COM
Options	Parallel printer with graphics capability

Table 1-3 Equipment List

Equipment	GDC Part No.
SSC with PC:	
Software: 3.50-inch diskette format	058U098-301A
Hardware: DigiBoard	058K075-001
SSC without PC:	
Software: 3.50-inch diskette format	058U098-301A
Hardware: DigiBoard	058K075-001

Chapter 2: Installation

Introduction

The first part of this chapter covers hardware installation while the latter covers software installation. For those who have previously installed an SSC and have a working knowledge of the procedure, you might want to use the Quick Start procedure in Appendix A. The Quick Start procedure outlines what is developed in this section.

The root directory of installation diskette number 1 contains a file named README.DOC. This file may contain last minute information not contained in this manual. Read it before installing your system.

Hardware

Installing a Modem

The COM1 serial port on your computer is for a modem used in remote maintenance. For information concerning modem installation consult your modem documentation.

Installing a Mouse

The COM2 port on your computer is for a Microsoft or Microsoft-compatible serial mouse. For information concerning mouse hardware installation, consult your mouse documentation. After installing mouse hardware, install mouse software. For this, see the topic Installing Mouse Software in this section.

Installing a Printer

The LPT1 port of your computer is for a parallel printer. For information concerning printer installation, consult both your printer and Windows manuals.

Installing a DigiBoard™

Before installing the DigiBoard(s), option it as shown in Figure 2–1. For an illustration of switch and jumper locations, and instructions on board installation, consult your DigiBoard INSTALLATION GUIDE REFERENCE MANUAL.

PC I/O Ports Definition

The PC port requirements are as follows:

- 1 four port or 1 or 2 eight-port serial I/O card(s) for communication with the network elements – LPT2
- 1 serial or bus port for mouse – COM2 (None if Bus Mouse)
- 1 parallel port for printer – LPT1 parallel port (recommended)
- 1 serial port for Netcon Console or TOAC server – COM1

The interrupt layout is as follows:

<u>PC PORT</u>	<u>INTERRUPT</u>	<u>DEVICE</u>
COM1	IRQ4	MODEM
COM2	IRQ3	MOUSE (None if Bus Mouse)
LPT1	IRQ7	PRINTER
LPT2	IRQ5	DIGIBOARD 4-PORT SERIAL I/O CARD
		DIGIBOARD 8-PORT SERIAL I/O CARD
		TWO DIGIBOARD 8-PORT SERIAL I/O CARDS

Cables

Connection to NMS devices is via a modular cable P/N 830-028-8xx, where xx is the length of the cable – 7, 14, or 25 feet.

NMS modems also require the 058P059-001 modular interface adapter. Note that the NMS-564 and DBU-56FW standalone require the 058P143-001 modular interface adaptor.

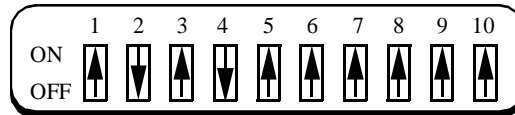
To connect the SSC to an older NMS modem that uses a 058P039-001A interface adapter (BERG style), you must use a modular-to-BERG cable part number 024H135-0xx (where xx is the length of the cable - 7, 14, or 25 feet).

Switch Settings

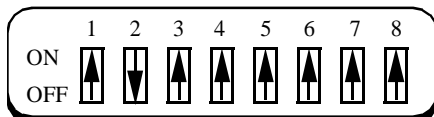
For the default system addresses, set option switches exactly as illustrated in Figure 2-1. When there are two DigiBoards, identical settings are used for both DS 1 switchbanks.

For the first board installed:

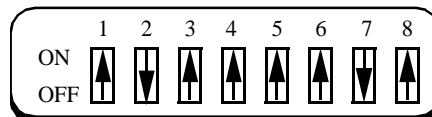
DS 1 sets address of status register.



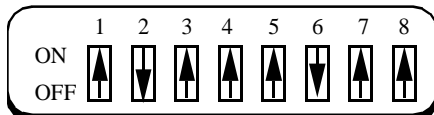
DS 2 sets the DigiBoard port 1 addr.



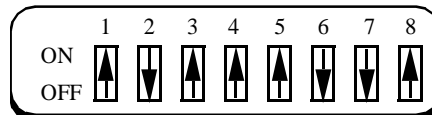
DS 3 sets the DigiBoard port 2 addr.



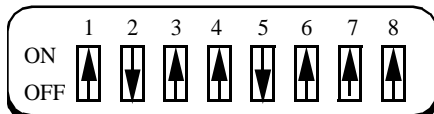
DS 4 sets the DigiBoard port 3 addr.



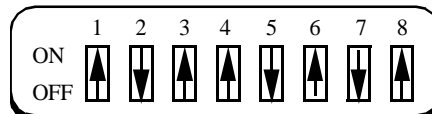
DS 5 sets the DigiBoard port 4 addr.



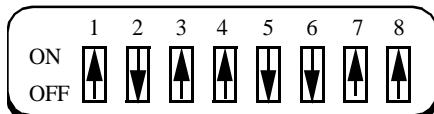
DS 6 sets the DigiBoard port 5 addr.



DS 7 sets the DigiBoard port 6 addr.



DS 8 sets the DigiBoard port 7 addr.



DS 9 sets the DigiBoard port 8 addr.

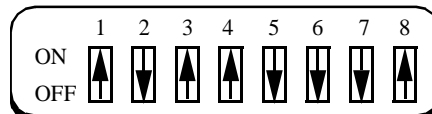
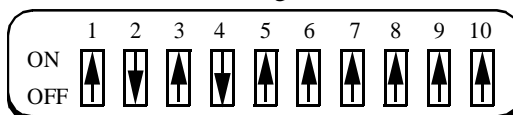


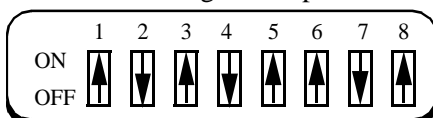
Figure 2-1 DigiBoard Switch Settings (1 of 2)

For the second board installed:

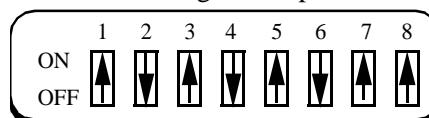
DS 1 sets address of status register.



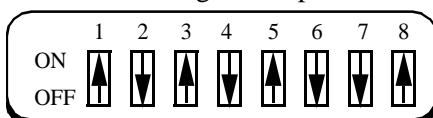
DS 2 sets the DigiBoard port 9 addr.



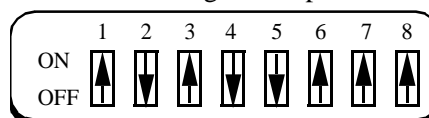
DS 3 sets the DigiBoard port 10 addr.



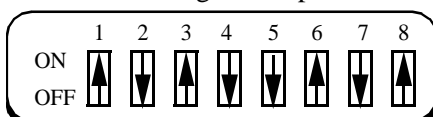
DS 4 sets the DigiBoard port 11 addr.



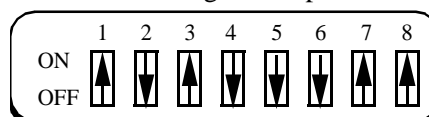
DS 5 sets the DigiBoard port 12 addr.



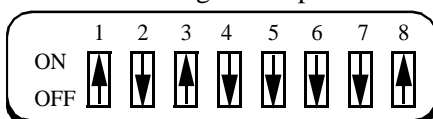
DS 6 sets the DigiBoard port 13 addr.



DS 7 sets the DigiBoard port 14 addr.



DS 8 sets the DigiBoard port 15 addr.



DS 9 sets the DigiBoard port 16 addr.

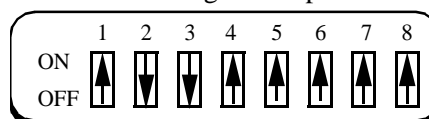


Figure 2-1 DigiBoard Switch Settings (2 of 2)

The default addresses should be sufficient for most installations. If a port does experience an addressing conflict, you can change its address by resetting its switchbank and editing the SSCSYS.INI file to add a line under the section name adr_8250.

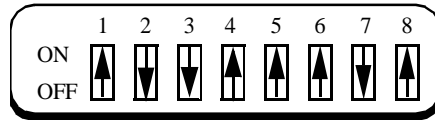
In the default condition there are no entries under the adr_8250 section name in the SSCSYS.INI file. When you make an entry, it overrides the SSC default.

The following list shows the default addresses for the (up to) 16 DigiBoard ports. They correspond to the switch settings shown in Figure 2-1. Two alternative addresses and their switch settings appear on the next page.

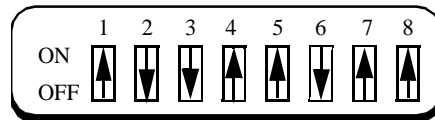
[adr_8250]			
port1=256	port2=264	port3=272	port4=280
port5=288	port6=296	port7=304	port8=312
port9=328	port10=336	port11=344	port12=352
port13=360	port14=368	port15=376	port16=384

If there is an addressing conflict on a DigiBoard port, shut down the SSC and change the port's address to one of the following:

On the DigiBoard, set the port's switchbank:



or



In the SSSYS.INI file, add the following line under the adr_8250 section name:

portx=392

portx=400

Then restart the SSC.

Jumper Settings

Option jumper blocks exactly as below. For questions on these settings, see your DigiBoard INSTALLATION GUIDE REFERENCE MANUAL. If you have a second board, you must order special daisy-chain cables from DigiBoard. You may have one or two DigiBoards in your system. In a single-board system, you can use a 4 or 8-port board. In a dual-board system, both must be 8-port boards. Set jumpers as follows:

For single DigiBoard systems:

- Jumper pins 1 and 2 on blocks J1 – J4 on a 4-port board. Jumper pins 1 and 2 on blocks J1 – J8 on an 8-port board. This sets odd interrupts at ports 1 – 4 and 1 – 8, respectively.
- Jumper pins 2 and 3 on blocks J9 – J10 to set the DigiBoard identification number. This identifies it as 'board 0'.
- Jumper both pins on block J86 to option the DigiBoard for port LPT2 at interrupt address IRQ5. Remove all other jumpers from other blocks, i.e., J85 and J87 – J90.
- Jumper pins 2 and 3 on connectors P2 and P3. See Figure 2–2.

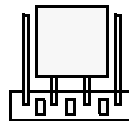


Figure 2-2 P2, P3 Jumper Settings for One Board

For two DigiBoard systems:

- For both boards, jumper pins 1 and 2 on blocks J1 – J8 to set odd interrupts on ports 1 – 8.
- For the first board, jumper pins 2 and 3 on blocks J9 – J10 to set the board identification number. This identifies it as 'board 0'.

- For the second board, jumper pins 2 and 3 on block J9 and pins 1 and 2 on block J10, to set the DigiBoard identification number. This identifies it as 'board 1'.
- Jumper both pins on block J86 to option the DigiBoard for port LPT2 at interrupt address IRQ5. Remove all other jumpers from other blocks, i.e., J85 and J87 – J90.
- Remove jumpers from pin P2 on both boards and connect pins P2 together using the DigiBoard daisy-chain cable.
- Jumper pins 2 and 3 on connectors P3.

DigiBoard/Modem Connection

Each DigiBoard has a 4 or 8-wire multicable with DB-25 connectors. One end connects to the DigiBoard in the computer; the other to an 8-pin modular DigiBoard adapter. One end of the modular cable connects to the 8-pin modular DigiBoard Adapter, the other to the Interface Adapter. The Interface Adapter connects to the modem. See Figure 2-3.

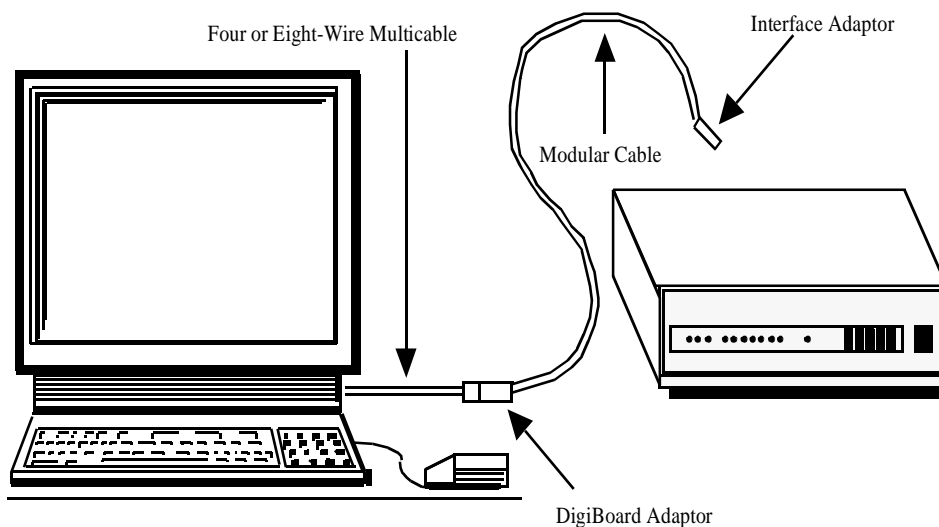


Figure 2-3 DigiBoard/Modem Connection

Software

Computers purchased from General DataComm[®] have the required software installed. This includes: DOS, DOS Utilities, Windows, SSC, AUTOEXEC.BAT and CONFIG.SYS files. If you want system options, e.g., a printer, you must provide and install the software for these options.

If purchasing only SSC software from General DataComm, you need to use the software installation instructions that follow.

Required Software

The following is a list of software required by the SSC.

- DOS 5.0 or higher
- Microsoft Windows 3.1 or higher

- NETCON SSC software

Note that if the DOS utility SHARE.EXE is available do not use it as it may cause system error.

We recommend that you use a disk optimizer on your hard drive before installing Microsoft Windows or SSC software. Remember to backup your hard drive before using any disk optimizer.

Formatting the Hard Drive

Formatting prepares the C drive for information storage. If it is unformatted, you must format it. Consult your DOS manual for instructions.

Partitioning the Hard Drive

It is permissible to use a computer having more than one hard drive. You must, however, dedicate the C drive to DOS, Windows, and the SSC.

Consider carefully partition size selection. (A minimum of 16 megabytes is required.) If you select an insufficient partition size, you will need to increase its size (and reformat it) as the database grows large. We recommend that you choose the largest possible partition size. Should you reinstall the system, you will need 10 megabytes of free disk.

For information concerning partitioning, consult your DOS manual.

DOS

The SSC requires DOS 5.0 or higher. Install DOS before installing system software.

Comments On DOS

- The installation asks if you want to install DOSSHELL. *Do not install it.*

Installing Microsoft Windows

The SSC runs in a Windows 3.1 environment. Install Windows according to your Windows documentation.

Comments On Windows Installation

- Install Windows before installing system software. Use Windows defaults.
- Windows offers a disk-caching program called SMARTDrive. (Consult your Windows documentation.) You are urged to use it provided you have a minimum 4 megabytes of RAM. With less RAM, SMARTDrive use outweighs its benefits.
- Windows installation asks if you want the AUTOEXEC.BAT and CONFIG.SYS files modified. Let the installation modify them. If you choose otherwise, you may have to modify these files later.

AUTOEXEC.BAT File

Your AUTOEXEC.BAT file must contain the following commands:

```
PATH C:\WINDOWS;C:\
SET TEMP=C:\TEMP
```

(Check to see that you have a \TEMP directory. If not, refer to your DOS manual for the proper command and create the directory. The following is valid in many cases: **mkdir \temp.**)

Comments On AUTOEXEC.BAT

- Include in the PATH command the drive and subdirectory(ies) where DOS and the required DOS files (utilities) reside.
- If this file contains the SHARE.EXE statement, remove it. Also, do not use the SHARE.EXE DOS utility as it may cause system error.

For information concerning the PATH command and AUTOEXEC.BAT, consult your DOS manual.

CONFIG.SYS File

It is suggested that CONFIG.SYS contain the following commands:

```
FILES=40
```

```
BUFFERS=20
```

For information concerning CONFIG.SYS, consult your DOS manual.

Installing SSC Software

To install or upgrade system software:

1. Load the system software diskette into the A or B drive.
2. If you are running Windows 3.x -

Start Windows by typing **win** at the DOS prompt and pressing Return, then select **FILE** from the Windows Program Manager and select **RUN** under FILE.

If you are running Windows 9x -

Click on the Start button and select Run.

3. Type **A:install** or **B:install** then press Return.
4. Follow the instructions on the installation window.

During installation, the program creates the requisite subdirectories and loads the software in these subdirectories.

Dial-In Technical Support

Supplementary software is automatically loaded as part of SSC installation. It grants customers having a service contract with VITAL Network Services access to dial-in technical support from our Technical Operations Assistance Center (TOAC).

When you subscribe to VITAL's software maintenance contract service, TOAC service personnel can view files that reside on your SSC. With this facility our technical personnel can assist you with suspected software problems.

For further information on VITAL, consult the Preface of this manual.

Installing Mouse Software

There are two environments from which to install a mouse: Windows or DOS. Installation from each is discussed below. For further information consult your Windows manual.

Mouse Installation From the Windows Environment

As part of Windows Setup, you are presented a list of mouse types. If your mouse is listed, select it; if not, return to DOS and run Windows Setup. (See the topic *Mouse Installation From the DOS Environment* below.)

Mouse Installation From the DOS Environment

Run the Windows Setup procedure from DOS. (For information concerning this, consult your Windows documentation.) You are presented with a list of mouse types. If your mouse is listed, select it; if not, select the Other option. In the latter case, a prompt requests that you load the mouse manufacturer's diskette in the disk drive.

Starting the SSC

To start the system from DOS:

- At the DOS prompt type **NETSSC** then press Enter.

To start the system from Windows:

1. Select the **Program Manager**.
2. Select the **GDC/DSC** group.
3. Select the **GDC icon labeled NETCON SSC**.

The Main Menu appears. From this you can select other menus or options. For further information on selecting menus and their options, see the topic **OPENING A MENU** in Section 3 – USING THE SYSTEM.

Changing the Number of Ports and Port Baud Rates

The SSC supports 1, 4, 8, or 16 ports. With 1 port COM1 or 2 may be used depending if it is used for the mouse or modem for DSC support. See the topic *PC I/O Ports Definition* in this section.

To change the number of ports on the SSC:

1. Launch the Communications System function:
 - A. If using Windows 3.1, minimize the SSC main menu and any other applications that obscure the screen, then double click on the Communications System Icon.
 - B. If using Windows 95 or Windows 98, click on the Comm button in the Task Bar.
2. Select the Ports option, then select the number of ports installed on the system.
3. Shut Down the SSC for the changes to occur.

To change the Baud rate of a port on the SSC:

1. Launch the Communications System function:
 - A. If using Windows 3.1, minimize the SSC main menu and any other applications that obscure the screen, then double click on the Communications System Icon.
 - B. If using Windows 95 or Windows 98, click on the Comm button in the Task Bar.
2. Select the Port number option then select the baud rate that port should be running at.
3. Shut Down the SSC for the changes to occur.

If the System Does Not Work

If your system does not work, perform the following:

1. Review the setup and configuration of the PC hardware.

Minimal hardware requirements are:

IBM compatible PC

Forty megabytes of available hard drive space

One 3 1/2 high density disk drive

Four or more megabytes of RAM

VGA monitor or better

PC Port addressing must be as follows:

COM1 = NETCON CRT (or Modem)

COM2 = Serial mouse (or PS2 style)

LPT1 = Printer

LPT2 (IRQ5) = DigiBoard

Note

If this addressing conflicts with existing options installed on your PC, either remove the existing options or readdress them.

2. See that DOS boots. If not, consult your DOS documentation.
3. See that Windows starts. If not, consult your Windows documentation.
4. See that you have correct versions of DOS and Windows: MS/PC DOS version 5.0 or higher, and Microsoft Windows 3.1 or higher.
5. Check the size of the DOS partition on the C drive. It must be a minimum of 16 megabytes.
6. View AUTOEXEC.BAT and CONFIG.SYS files. See they contain the proper commands. For further information, see The AUTOEXEC.BAT File and The CONFIG.SYS File in Section 2 – INSTALLATION.
7. Perform the I/O TEST. Use the System Menu. For further information, see Section 10 – THE SYSTEM MENU.
8. If the SSC fails to operate after performing steps 1 – 5, check for proper PC operation by running diagnostic routines if provided with your PC.
9. If the SSC fails to operate after performing steps 1 – 6, record the following information on the PC Information Form.

PC INFORMATION FORM

PC PROVIDED BY: (Check one)

___ GDC

___ CUSTOMER

Provide the following information:

Make: _____

Model: _____

Hard Drive Size: _____ Megabytes

Amount of RAM: _____ Megabytes

Options currently in PC:

Indicate the option and interrupt address, e.g., MOUSE/IRQ5. Where current options conflict with SSC requirements indicate a new address for the current option, e.g., MOUSE/IRQ5 change to IRQ3).

OPTIONS: _____

Version of DOS: _____

Version of WINDOWS: _____

For further assistance you can contact VITAL Network Services as described in the Preface of this manual. Be certain the software is loaded, and be prepared to operate the PC as required by support personnel.

Testing

After installing hardware and software, perform a Loopback test on all 4, 8 or 16 ports.

To perform a Loopback test:

1. Install the Loopback Test plug (provided) into one of the DigiBoard adapters.
2. Type **NETSSC** at the DOS prompt then press Enter.
3. Press the F5 key and enter the system password.
4. Select **I/O TEST** from the System Menu.
5. Select the port that you want to test (the one with the test plug) from the pop-up that opens.
6. Repeat this procedure for the other ports.

If any of the port tests fail, perform the following:

- Check cable connections.
- Check pin and jumper optioning.
- Remove any non-SSC options from your computer then retest.

Chapter 3: Using the System

Introduction

This section details what you need to know to use the system. It discusses:

- System Security
- Opening a Menu
- Selecting Parameters
- Window Operations
- Keyboard Alternatives to a Mouse
- System-Wide Features
- The Current Network Element
- On-Line Help
- System Shutdown

System Security

User-Status

User-status defines system features that you can use. It provides a degree of security by allowing only those with privileged user-status to access and use important system operations.

The system has two levels of user-status: privileged and non-privileged.

- Privileged user-status grants access to all system features.
- With non-privileged user-status you can display information and execute non-interfering tests only.

To obtain privileged user-status you must log on the system. You can still use the system without it but with the restrictions of non-privileged status.

Obtaining Privileged User-Status

When the system is first set up, use the password *ssc* to log on. You may then change it. For further information, see the topic Changing the System Password in this section.

To log on the system:

1. Press the F5 key.
A pop-up displays the user-status.
2. Type *ssc* in the appropriate field then press Return or the Tab key.

Note *The password is case sensitive.*

If you press Enter, you enter the password and dismiss the pop-up.

If you press the Tab key, the pop-up remains open. A message indicates if you successfully logged on. To dismiss the pop-up, select Exit.

If you successfully log on, the system grants you privileged user-status.

Changing the System Password

You may need to change the password from time-to-time for security reasons. If so, proceed according to the following instructions.

Note *If you forget the new password, contact VITAL Network Service as described in the Preface of this manual.*

To change the system password:

1. Select the **System Menu** from the Main Menu.
2. Select the **CHANGE PASSWORD** option.
3. Enter the current password in the pop-up that opens then press the Tab key.
4. Enter the new password in the pop-up that opens then press the Tab key.
5. To verify the new password, enter it in the pop-up that opens then press the Tab key.
6. Select the EXIT button to dismiss the pop-up.

For further information on changing the password, see the topic Change Password in Section 10 – THE SYSTEM MENU.

Table 3–1 lists a series of system options/buttons. The Menu column lists system menus. The Option column lists certain options on that menu. The Button column lists operations (buttons).

The Button column lists buttons requiring privileged user-status. In some cases you can execute a portion of an option without having privileged user-status, e.g., under Configuration you can execute Verify.

If an option has no buttons listed in the Button column, privileged user-status is needed to execute it, e.g., *Digital Loop* (Diagnostics). However, while you do not need privileged user-status to select the *Configuration* option, you need it to use certain buttons in the Configuration window.

Table 3-1 Options/Buttons Requiring Privileged User Status

Menu	Option	Button
CONFIGURATION	Configuration	DELETE ERASE UPDATE SAVE/ADD
CONTROL	Reset Master List Network Re-Sync All other options	RESET REMOVE REMOTE RE-SYNC SET
DIAGNOSTICS	Analoop/Selftest Digital Loop Channel Loop End To End Reset Test To Normal Local P/L Remote P/L	
RESTORAL	Restoral	DIAL SWITCH LINE TERMINATE
SYSTEM	I/O Test Level NETCON Console Restore Shutdown	

Opening A Menu

The Main Menu appears when the system starts. At the top of the Main Menu are menu titles. There are two methods of opening a menu:

To open a menu and select an option using a mouse:

1. Select a menu title.
This opens the menu.
2. Select an option.

<u>A</u> larms	<u>C</u> onfiguration	<u>C</u> ontrol	<u>D</u> iagnosics	<u>R</u> eports
<u>A</u> LARMS	Alarm Summary			
<u>M</u> ANAGE	Alarm Scan Management			

Figure 3-1 Opening a Menu

Selecting Parameters

Group Boxes

Many windows contain items that are grouped in a specific category and contained in a group box.

Text Boxes

A text box lets you type information into a field, e.g., the name of a network element.

To enter text:

1. Click the left mouse button in the text box to position an insertion point (flashing vertical bar).
2. Type in the text.

List Boxes

Option windows contain various methods for selecting parameters. One is the list box that contains a list of values available for selection.

To scroll through a list box and select an item:

1. Click on the appropriate scroll bar (top or bottom-right of the window) until the desired value appears in the list box. See Figure 3–2.
2. When the desired value appears, click the left mouse button on it.

This highlights your selection.

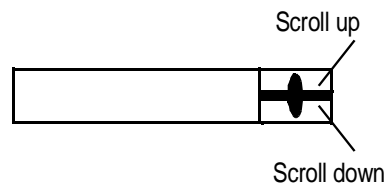


Figure 3-2 List Box and Scroll Bars

Combo Boxes

A combo box is a list box that you can open (pull down). When closed, it displays a single item. When open, it displays a list of items. If the number of items in the list exceeds the size of the opened box, a scroll bar appears.

To select an item from a combo box:

1. Select the scroll control.

This opens the combo box and displays the items contained therein.

2. Select an item.

This selects the item and closes the box.

Check Boxes and Radio Buttons

Some windows contain check boxes or radio buttons for optioning fields. The following are some aspects of boxes and buttons that you should be aware of.

Check boxes

- An 'X' indicates that the associated field is selected.
- A blank, unshaded box indicates that the associated field is not selected.
- Shaded text indicates that the field is not selectable.

Radio buttons

- A darkened center indicates that the associated field is selected.
- A blank, unshaded center indicates that the associated field is not selected.
- Shaded text indicates that the field is not selectable.

Window Operations

Command Buttons

Each window contains buttons that grant access to basic operations, e.g., SAVE, that lets you store your input. There are aspects of some basic operations that you should be aware of and are discussed in the appropriate sections of this manual. For example, there are situations where SAVE downloads configuration data to a network element.

Some windows 'freeze' user operations. To 'unfreeze' these operations, you must complete what you are doing in such windows then dismiss them.

Flow Buttons

Flow buttons, located at the bottom of Configuration windows, let you move to other windows. For example, TOP moves you to the Top Level window.

Scroll Bars

Scroll bars let you scroll through a list of items. A scroll bar appears only if the number of items displayed extends beyond the window. For example, the List Network Elements option in the Configuration Menu lets you list network elements. If you display five elements, a scroll bar does not appear. If you display 56 elements, it appears.

To scroll through a list box:

- Select the appropriate bar (up or down).

Main Menu Operations

There is a bar in the upper left corner of the Main Menu. If you click the left mouse button it, a menu opens displaying the following options:

- Restore – returns a window to its last position and size.
- Move – repositions a window with respect to the screen.
- Size – resizes a window.

- Minimize – reduces a window to an icon.
- Maximize – opens an icon to a full-sized window.

For further information concerning these options, consult your Windows manual.

Keyboard Alternatives to a Mouse

We require that you use a mouse to facilitate system use. You may use the keyboard as it also serves as an interface to the system. The following are some keyboard alternatives.

Alt Key

This key lets you select (highlight) or cancel selection for the Alarms Menu title. It also lets you cancel selection for any menu that is selected.

To select the Alarms Menu title:

- Press the Alt key.

If no menu title is selected, this selects the Alarms Menu. If another title is selected, this cancels the selection.

To cancel selection for a menu title:

- Press the Alt key.

To close a menu:

- Press the Alt key.

This closes the menu and selects its title.

Right/Left Arrow Keys

These keys let you select an adjacent menu title.

To select an adjacent menu title:

1. Select a menu title.
2. Press the right or left arrow key to select the right or left adjacent title, respectively.

Up/Down Arrow Keys

These keys let you open a menu and choose an option from it.

To open a menu:

1. Select the menu that you want to open.
If no titles are selected, press the Alt key to select the Alarms title. To select another title, use the right/left arrow keys.
2. Press the down arrow key to open the menu.
3. Press the up or down arrow key to select the option of your choice.

Tab Key

This key lets you move from one field or button to another (in most windows). For example, to move to a Flow or Command button just press the Tab key until you position the cursor on the desired button.

For more information on keyboard alternatives, consult your Windows manual.

System-wide Features

Hot Keys

Hot keys provide access to a variety of pop-ups as detailed below. Note that some windows temporarily deactivate the Hot keys. In such a case, you must finish with the window then dismiss it.

F1 opens the Help window. For further information concerning On-Line Help, see the topic ON-LINE HELP in this section.

F2 opens a pop-up (Figure 3–3) that lets you select an element as the current network element. To select the current network element, enter the name or port/line/drop of the element in the text box. (If you designate an element while a window is open, the system dynamically updates that window.)

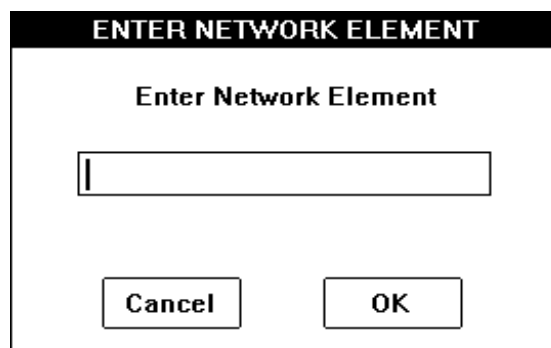


Figure 3-3 Selecting the Network Element

For further information concerning the current network element, see the topic THE CURRENT NETWORK ELEMENT in this section.

F3 opens a pop-up (Figure 3–4) that indicates the name, port/line/drop, status, and type of the current network element.

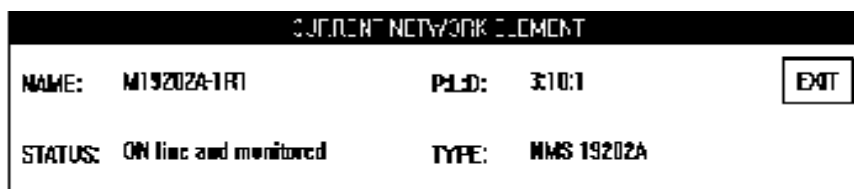


Figure 3-4 Current Network Element Window

F4 opens the Alarm Event Summary pop-up (Figure 3–5). This pop-up displays the two most recent

alarms; the top alarm being the most recent.

Alarm Event Summary				
<u>Exit</u>				
Severity	Date	Name	PLD	Problem Code
Major	Wed Nov 17 15:19:50 1993	MASTER 2	2:1:0	No Response
Major	Wed Nov 17 15:19:49 1993	MASTER 1	1:1:0	No Response
Scan	OH	Total History: 2	Total Active: 2	

Figure 3-5 Alarm Event Summary Window

F5 opens a pop-up that lets you log on the SSC. Logging on grants privileged user-status. Non-privileged user-status is in force until you log on. The initial password for Privileged user-status is *ssc*.

Note *The password is case sensitive.*

This pop-up also indicates whether you have privileged or non-privileged user-status. For further information concerning privileged status, see the topic **SYSTEM SECURITY** in Section 3 – USING THE SYSTEM.

There is a second password, **FORCE ONLINE**. This password lets you place units Online that are not responding to configuration commands. Entering this password does not change the privilege mode. There is no feedback that the password has been entered correctly. You must shutdown the SSC to disable this password.

F6 opens a read-only pop-up that displays the date and time.

Note *You can change the system date or time from either DOS or Windows.*

F9 prints the screen.

Shading

Shaded fields are not selectable, often because they are inapplicable to the current situation. For example, if you are configuring a non-multiport, you will note that fields applicable to multiports are shaded.

NETCON Communications Control Override

This feature applies to network elements that have an intelligent front panel. It lets you take control of NETCON communications. For example, if you are trying to communicate with such an element, and coincidentally so is someone else, the system opens a pop-up. With it, you can assume control of NETCON communications.

Current Network Element

The current network element is the element which the system is working with. As you move from window-to-window, each window will display the name and port/line/drop of the current network element.

To designate a network element as the current network element, use any of the following methods:

- Use the F2 key. (This opens a pop-up with which to select the current network element.)
- Enter a name or port/line/drop in the Name or PLD field, respectively, of the Top Level window.
- Double click the left mouse button on a network element in the Circuit Elements list (Circuit Information group box of the Top Level window), or in the Network Element List screen.
- If in a Configuration window, use the SAVE operation. The network element indicated in the Name field is then designated as the current network element.

On-Line Help

The system offers on-line Help. The Help Menu offers:

- an index to on-line Help
- basic information concerning system use
- information on using on-line Help

At the upper right of the Main Menu is the Help Menu title. With it you can open the Help Menu. From this Menu you can open a Help window. Alternately, you can open a Help window using the F1 key.

Figure 3–6 illustrates the Help Menu.

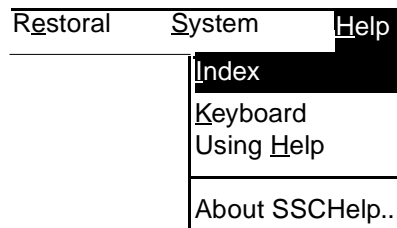


Figure 3-6 Help Menu

To open the Help window directly (without using the Help Menu):

- Press F1.

To open and select from the Help Menu:

1. Select **H**elp or use the Alt key to highlight **H**elp then use the arrow keys to open the menu.
2. Select an option using the mouse or by pressing the underlined letter.

This opens the Help window.

To display information on a particular topic:

- Select underlined text.

To close the Help window:

1. Select the **File Menu** title to open the File Menu.

2. Select the **Exit** option.

Help Options and Buttons

The Help Menu contains the following options:

Index – is an alphabetical list covering all the Help topics.

Keyboard – is a table of keyboard combinations you can use with the active application.

Using Help – is a tutorial that contains information concerning the use of Help.

The Help window contains the following buttons:

Index – displays the Help index for the application.

Back – displays the previous Help information. It, in effect, lets you retrace your path through the Help topics back to the index.

Browse – (there are two browse buttons. One lets you view the previous topic while the other lets you view the next topic.)

Search – locates information concerning a topic that you select.

The Help window contains options, e.g., File. For further information on these buttons, see the topic Notepad in your Windows documentation.

System Shutdown

To shut down the system properly, you must select the SHUTDOWN option from the System Menu. This requires privileged user-status. You must confirm your shutdown request, in which case, the system returns you to the Windows environment.

Chapter 4: Alarms Menu

Introduction

The Alarms Menu contains options that let you:

- Display selected (filtered) active alarms or historical alarms.
- Sort alarms for display.
- Control an alarm scan.

The system stores alarms it receives (up to 2500) in its alarms database. This includes both active and cleared alarms.

Figure 4–1 illustrates the Alarms Menu.

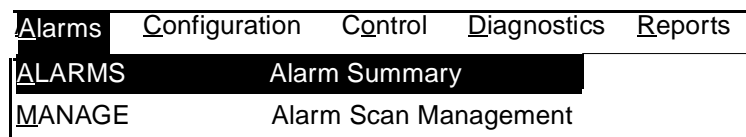


Figure 4-1 Alarms Menu

The Alarm Summary option opens the Alarm Summary window. This window has two parts. The upper part, as defined by the Alarm Summary Criteria Group Box, contains fields that let you configure a filter through which only those alarms meeting the criteria displayed. The lower part is the alarm list that displays filtered alarms.

The bottom of the Alarm Summary contains a message bar. The message bar displays four fields: Display, Total History, Total Active, and Total Displayed. These are read-only displays.

Buttons And Menu Options

The buttons below apply to the Alarms windows.

Command Buttons

OK indicates that you are finished with selecting the filter criteria and want the alarm list displayed.

CANCEL cancels any input performed in the window but not saved.

DEFAULT sets all fields in the window to their defaults.

Menu Options

Menu options are located near the top of the window. Each contains a pull-down menu. To select an option, select the desired menu option to open its menu then select accordingly.

Exit closes the Alarm Summary window.

Delete removes alarms from the database. There are two options: All Database Alarms and All Display Range Item(s). The All Database Alarms options removes all alarms from the database. The All Display Range Item(s) option removes all alarms displayed in the alarm list.

Display Mode determines if the alarm summary list is updated when a new alarm arrives. It presents two options: Dynamic and Static. Dynamic permits updating only if the new alarm meets filter criteria. Static does not permit updating. Note that if Dynamic is selected to replace Static, the system updates the display with any new alarms.

Print prints alarms of a selected type, i.e., active or historical. There is one option: Print displayed alarms which prints all the alarms that are displayed in the alarm list.

Figure 4-2 illustrates the Alarm Summary window.

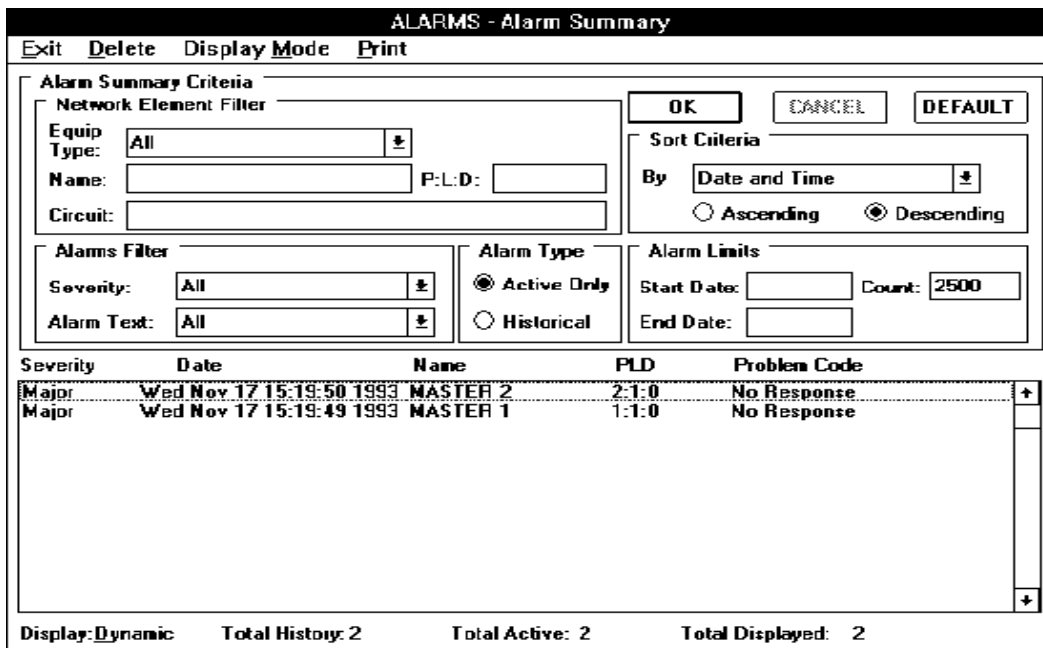


Figure 4-2 Alarm Summary Window

Fields

Network Element Filter

Equip Type – lets you select the equipment type to display, e.g., NMS-510.

Name – lets you display the alarms charged against network element(s) of a given name. If you leave this field blank, the system displays all alarms charged against network elements that meet the other criteria. This field accepts wildcards: an asterisk '*' and a question mark '?'.

An asterisk instructs the system to search for all characters that follow it. For example, if you enter the name – NMS-64 m*, the system will display all elements that begin with NMS-464 m.

A question mark '?' instructs the system to search for any character that occupies the position of the '?'. For example, if you enter the name – NMS- 464 m5?1, the system will list all elements that begin with NMS-464 m5, end with 1, and have any character between.

P:L:D: – lets you display alarms charged against network elements off a given port/line/drop. If you leave this field blank, the system displays all alarms charged against network element port/line/drops that meet the other criteria. This field accepts an '*' wildcard and operates as does the Name field with this wildcard.

Circuit – lets you display alarms charged against network elements in a given circuit. If you leave this field blank, the system displays all alarms charged against network element circuits that meet the other criteria. This field accepts an '*' wildcard and operates as does the Name field with this wildcard.

Alarms Filter

Severity – lets you display alarms according to their severity, i.e., All, Cleared, Information, Warning, Minor, Major, and Critical.

Problem Code – lets you display alarms according to their Problem Code.

Note

Appendix B contains a list of active and historical problem codes and alarm descriptions.

Alarm Type

Active Only – lets you display only active alarms. (All severities except Cleared are valid filters.)

Historical – lets you display both active and historical alarms.

Sort Criteria

By – lets you display alarms in one of the following sorted formats: Date and Time, Name, PLD, and Severity.

Ascending – sorts alarms in an ascending fashion. Note that if you sort in an Ascending fashion and By Severity, the system display alarms in the following way:

Indeterminate	top
Warning	
Minor	
Major	
Critical	bottom

Descending – sorts alarms in a descending fashion. Note that if you sort in an Descending fashion and By Severity, the system display alarms in the following way:

Critical	top
Major	
Minor	
Warning	
Indeterminate	bottom

Alarm Limits

Start Date – indicates the earliest date for alarms you want displayed.

End Date – indicates the latest date for alarms you want displayed.

Note *Enter Start Date and End Date in the month/day/year format: MM/DD/YYYY. You must type the separators and enter all four digits of the year.*

Count – indicates the maximum number of alarms you want displayed. The range is 1 to 2500.

Alarm List

The Alarm List displays alarms that meet selected alarm summary criteria. There are five columns: Severity, Date, Name, PLD and Problem Code.

Severity indicates the severity level of an alarm.

Date indicates the date and time of alarm occurrence.

Name indicates the network element that the alarm is charged against.

PLD indicates the port, line and drop.

Problem Code indicates the type of problem that generated the alarm, e.g., DTR Loss.

Alarm Detail Window

If you want further detail on a specific alarm, double click the mouse on that alarm in the Alarm List. This opens an Alarm Detail window. Figure 4–3 illustrates the Alarm Detail window.

The screenshot shows a window titled "Alarm Detail Window" with an "EXIT" button in the top right corner. The window is divided into three vertically stacked sections, each with a title and a list of fields:

- Alarm Information**
 - Severity:
 - Alarm Type:
 - Alarm Class:
 - Alarm Text:
 - Problem Type:
- Equipment Information**
 - NE Name:
 - Equip Type:
 - Serial Number:
 - Circuit:
 - P:L:D:
 - Restoral Type:
- Administrative Information**
 - Location:
 - Inventory:
 - Contact:
 - Phone Number:

Figure 4-3 Alarm Detail Window

The Alarm Detail window contains three group boxes of information: Alarm, Equipment and Administrative.

Alarm Information Group Box

Severity – indicates the severity level of the alarm.

Alarm Type – indicates the specific alarm type, e.g., DCD Loss.

Alarm Class – indicates the class of alarm, e.g., Equipment (alarm).

Problem Code – indicates the problem that generated the alarm, e.g., No Response.

Problem Type – indicates the type of alarm problem, e.g., Trunk Card.

Equipment Information Group Box

NE Name – indicates the network element against which the alarm is charged.

Equip Type – indicates the equipment type of the network element against which the alarm is charged, e.g., NMS-510.

Serial Number – indicates the serial number of the network element that the alarm is charged against.

Circuit – indicates the network element circuit against which the alarm is charged.

P:L:D: – indicates the network element port/line/drop against which the alarm is charged.

Restoral Type – indicates the restoral type of the network element, e.g., DBU.

Administrative Information Group Box

Location – indicates the site where the alarm occurred.

Inventory – indicates information deemed pertinent to the network element against which the alarm is charged. For example, the network element's model number.

Contact – indicates the person or organization to contact concerning the alarm.

Phone Number – indicates the telephone number of the Contact.

Message Bar

The message bar at the bottom of the window has four fields: Display, Total History, Total Active, and Total Displayed.

Display indicates the Display Mode of the window, i.e., Static or Dynamic.

Total History indicates the total number of alarms in the database.

Total Active indicates the total number of active alarms in the database.

Total Displayed indicates the total number of alarms displayed.

Comments On Alarm Summary Window

- Initiate an alarm scan on all ports before opening an Alarm Summary window to assure an up-to-date report. For further information, see the topic Manage in this section.
- The system, if so programmed, issues an audible alarm when a new alarm arrives. For further information concerning audible alarms, see the topic Manage in this section.
- The alarm scan must be running on network elements having a DBU-89 or DBU-56 to ensure database and Restoral List accuracy. For further information concerning the Restoral List, see the topic Restoral List in Section 9 – THE RESTORAL MENU.

Manage

This option lets you:

- enable or inhibit an alarm scan on any or all system ports.
- enable or inhibit the audible alarm feature.

Alarm Scan – lets you initiate or terminate an alarm scan on selected ports. When you terminate the scan on a port, the system ceases monitoring the port and updating the alarms database for the port.

If you request an active alarms window on a port after terminating the scan, the window displays alarms charged to that port which were reported before the scan was terminated. Therefore, for the latest network alarm status on a port, ensure an alarm scan is running on that port before requesting an active alarms window.

Audible Alarm – lets the system issue an audible signal when a new alarm arrives. This alerts you to the new alarm.

You can define components of an alarm. For example, you may want an alarm reported on a network element if that element experiences Data Carrier Detect Loss more than five times within 30 seconds. The Configuration Menu's Configuration option contains setup parameters that define alarms. For further information concerning alarm definitions, see the topic Configuration in Section 5 – THE CONFIGURATION MENU.

For information concerning network element alarm configuration, see the topic Alarm Parameters in Section 5 – THE CONFIGURATION MENU.

Comments On Manage

- If you shutdown the system while an alarm scan is active, upon system restart, the scan resumes on those ports where it was active before the shutdown.
- For an alarm scan to monitor a network element, the element must be configured as Online and Alarms Monitored in the Top Level window of the Configuration Menu.

Chapter 5: Configuration Menu

Introduction

The Configuration Menu lets you define, erase, update, verify, and delete a network element configuration. Several windows compose the configuration process. The first window you encounter is the Top Level window.

At the bottom of this window are Flow buttons that let you select other windows in the configuration process.

Note that you must have privileged user-status to save changes from any Configuration window. (For further information concerning privileged user-status, see the topic **SYSTEM SECURITY** in Section 3 – USING THE SYSTEM.)

Figure 5–1 illustrates the Configuration Menu.

Alarms	C onfiguration	Control	Diagnostics	Reports	Restoral
	C ONFIGURATION			Network Element Configuration	
	N ETWORK			List of Network Elements	

Figure 5-1 Configuration Menu

For questions concerning devices that the system supports, especially as they relate to configuration, see the topic **Devices Supported** in Section 1 – INTRODUCTION. It contains a list of devices and publication numbers for their documentation.

Options

Configuration

The Configuration option lets you define, delete, erase, update, and verify a network element configuration using the Top Level window. Other windows that are part of this option deal with:

- Alarms Parameters
- Option Parameters
- Restoral Equipment
- Multiports
- Associated Network Element

For further information concerning configuration windows, see the topic **CONFIGURATION WINDOWS** in this section.

Fields in configuration windows are case sensitive, therefore, you must enter the proper case for each character. For example, some fields require that you enter the name of a network element in order to retrieve information concerning that element. Here you must enter each character of the name in the proper case, i.e., upper or lower.

Note When configuring the system, you may want to refer to the *Configuration Guide For NMS Modems And Data Service Units, Publication number 058R705–000*.

Buttons

The following buttons are under the Configuration option windows. Note that not all buttons appear in every window.

Command Buttons

ADD stores your input. This button replaces the SAVE button when you are adding a network element to the system database.

DELETE removes the current network element from the system database.

ERASE changes the current network element configuration from Online to Offline, stores these changes in the system database, instructs the current network element to overwrite its configuration with a default configuration.

UPDATE downloads configuration data to the current network element. If you reconfigure the current network element and use Update before saving your changes, the system saves those changes to the database as part of the Update.

VERIFY compares the configuration of the current network element as stored in the system database with the ‘real-world’ configuration of the element, i.e., the configuration stored in the element itself.

CANCEL dismisses edits to the current network element and returns the last saved configuration.

SAVE stores your input in the system database and downloads it to the current network element (if on-line).

EXIT dismisses the window.

Flow Buttons

Flow buttons let you move from window-to-window. For example, if you are in the Alarms Parameters window, you can move to the Option Parameters window by clicking on **OPTIONS**.

The following are Flow buttons that you may encounter while using Configuration option routines.

ALARMS opens the Alarms Parameters window.

ALARMS (Multiport) opens the Multiport Channel Alarms window.

ALRM THRS opens the Alarm Thresholds window.

ASSOC. NE opens the Associated Network Element window.

CHAN. CONF. opens the *Channel Configuration* window.

DBU89 TOP opens the Restoral Equipment – DBU89 window.

DBU56 TOP opens the Restoral Equipment – DBU56 window.

DIAL MODIFIER INFO opens the DBU-89/DBU-56 Dial Modifiers window.

EIA OPTIONS opens the *Channel EIA Options* window.

MULTIPOINT opens the Multipoint window.

ORIG PHONE NUMBERS opens the Originating Phone Numbers window.

OPTIONS opens the Option Parameters window.

OPTIONS I opens the Multipoint Channel Options Set One window.

OPTIONS II opens the Multipoint Channel Options Set Two window.

RESTORAL opens the Restoral Equipment window.

TOP opens the Top Level window.

Basic Configuration Operations

Following are some operations you will perform. Fields used are discussed in this section under the topic CONFIGURATION WINDOWS.

In some operations below, you may be asked to select an element as the current network element. Perform this in any of the following ways:

- In the Top Level window under the Network Element Information category, enter the name of a network element in the Name field or its port/line/drop in the PLD field then press the Tab key. Enter a colon or semicolon between the port/line/drop, e.g., 1:2:3 or 1;2;3.

or

Use the F2 key.

or

In the Top Level window double click the left mouse button on a network element displayed in the Circuit Element list box.

For further information concerning the Top Level window, see the topic **Top Level** under CONFIGURATION WINDOWS in this section.

Copying a Network Element

The copy procedure lets you use a network element configuration as a template for others as yet to be configured.

To copy an existing configuration to another:

1. Select **CONFIGURATION** from the Configuration Menu.
2. Select as the current network element, the element you want to serve as a template.
3. Using the Top Level window, change the values in the PLD field.

For further information concerning the Top Level window, see the topic **Top Level** under CONFIGURATION WINDOWS in this section.

4. Enter a new name in the Name field.
5. Reconfigure the Communication State if necessary. If you select Online, enter a valid serial

- number in the Serial Number field.
6. Select the ADD button.

Configuring a Network Element

To configure a network element:

1. Select **CONFIGURATION** from the Configuration Menu.
2. In the Top Level window in the Name field under the Network Element Information category, enter the name of the network element you want to configure.

For further information concerning the Top Level window, see the topic **Top Level** under CONFIGURATION WINDOWS in this section.
3. Enter the port/line/drop of the network element in the PLD field under the Network Element Information category. Enter either a colon (:) or semicolon (;) between the port/line/drop, e.g., 1:2:3 or 1;2;3.

The ranges of addressing are:

port: 1 – 16 (If so equipped)

line: 1 – 128 (You can assign a maximum of 128 lines to a port.)

drop: 0 – 31

Important Assign only a master to drop 0 (zero). Remotes can be assigned to drops 1 – 31.

4. Enter the appropriate information in the fields that follow.

*For information concerning these fields, see the topic **CONFIGURATION WINDOWS** in this section.*
5. Select the ADD button when finished.

Note When you configure a network element as Online, the system downloads configuration data apropos to that element. For information concerning Online configuration, see the topic **Communications Information** in this section.

Deleting a Network Element

Deletion removes a network element configuration from the database.

To delete a network element configuration:

1. Select **CONFIGURATION** from the Configuration Menu.
2. Select the current network element.
3. When the Top Level window displays the network element configuration, select the DELETE button.

or

Use the Tab key to position the cursor over the DELETE button then press the Space Bar.

For further information concerning the Top Level window, see the topic **Top Level** under CONFIGURATION WINDOWS in this section.

Comments On Network Element Deletion

- When an NMS-464/NMS-564 multipoint remote is deleted, the system instructs the NMS-464/NMS-564's master to remove the remote from its internal poll list.
- Deleting a network element removes it from the SSC database; it does not erase the configuration in the network element itself. The following paragraphs explain how to erase a network element.

Erasing a Network Element

When you erase a network element configuration, the system:

- sets communication state of the current network element to Offline.
- stores the configuration in the database.
- resets the current network element configuration to a factory default.

To erase a network element configuration:

Note

For you to erase a network element configuration, it must be configured with an Online communication state.

*For instructions on erasing a master NMS-464/NMS-564, see the topic **Erasing a Master NMS-464/NMS-564** in this section.*

1. Select **CONFIGURATION** from the Configuration Menu.
2. Select the current network element.
3. When the Top Level window displays the network element configuration, select the ERASE button.

or

Use the Tab key to position the cursor over the ERASE button then press the Space Bar.

For further information concerning the Top Level window, see the topic **Top Level** under CONFIGURATION WINDOWS in this section.

Comments On Network Element Erasure

- When an NMS-464 multipoint remote is erased, the system instructs the NMS-464's master to remove the remote from its internal poll list.

Erasing a Master NMS-464/NMS-564

To erase a master NMS-464/NMS-564 configuration:

1. Remove all remotes off the master using the Control Menu's Master List option.

This configures and saves the remote communication states as Offline.

For further information concerning the Master List, see the topic **Master List** in Section 6 – THE CONTROL MENU.

2. Select **CONFIGURATION** from the Configuration Menu.

3. Select the master as the current network element.
4. When its configuration appears in the Top Level window, select the ERASE button.

or

Using the Tab key, position the cursor over the ERASE button then press the Space Bar.
For further information concerning the Top Level window, see the topic **Top Level** under CONFIGURATION WINDOWS in this section.
5. Reconfigure the master's communication state as Online.
6. Select each remote individually as the current network element and set its communication state to Online.

Replacing a Master NMS-464/NMS-564

To replace a master NMS-464/NMS-564:

1. Remove all remotes off the master using the Control Menu's Master List option.
This configures and saves the remote communication states as Offline.
For further information concerning the Master List, see the topic **Master List** in Section 6 – THE CONTROL MENU.
2. If the master is non-responsive to commands in step 1, configure each remote as Offline using the Top Level window then save it.
For further information concerning the Top Level window, see the topic **Top Level** under CONFIGURATION WINDOWS in this section.
3. Replace the master.
4. Select the old master as the current network element.
5. Using the Top Level window, change its serial number, configure its communications state as Online then save the new configuration.
6. Individually select each remote that was off the old master as the current network element then set its communications state to Online.

Verifying a Network Element

Verify compares the current element's configuration residing in the database with the configuration residing in the element itself. If a match, a message indicates such; if a mismatch, direction is given to the category of the mismatch.

To verify a network element configuration:

1. Select **CONFIGURATION** from the Configuration Menu.
2. Select the current network element.
3. When the Top Level window appears select the VERIFY button.

or

Using the Tab key, position the cursor over the VERIFY button then press the Space Bar.

For further information concerning the Top Level window, see the topic **Top Level** under

CONFIGURATION WINDOWS in this section.

4. A pop-up displays categories for comparison. To select items, use the SET ALL button. To clear all items, use CLEAR ALL. To customize the Verify, select the items of your choice.
5. Select the START button to begin the verify.

A pop-up indicates the items compared, and the match/mismatch results.

Configuration Windows

Top Level

This window contains the following informational categories:

- Network Element Information
- Administrative Information
- Circuit Information
- Communication State

Each category contains fields that constitute part of the network element’s configuration. See Figure 5-2.

Figure 5-2 Network Element Configuration Top Level Window

Fields

Network Element Information

Name – is the current network element.

Equip Type [Equipment Type] – selects the current network element type, e.g., NMS-9600.

PLD – is the port/line/drop of the current network. Include a colon (:) or semicolon (;) between port/line/drop information, e.g., 1;2;1.

Note *When using an MTU-26A in a network, you must assign the standby network element to a unique drop on the same port and line as the primary network element.*

Restor Type [Restoral Type] – designates the type of restoral (dial backup) equipment used by the current network element, e.g., a DBU-79.

Some equipment or template changes modify the contents or validity of this box. In those cases, restoral equipment selection is set to None because the existing selection may not be valid for the new equipment or template chosen. A pop-up indicates this.

Database Template – contains templates for configuring the current network element. Templates facilitate network element configuration. This saves the time of defining parameters separately. Each template contains a:

- Network element type, e.g., NMS-9600
- Operating mode, e.g., V.29
- Network configuration, i.e., point-to-point, multipoint
- Transmission protocol, i.e., synchronous, asynchronous
- Network function, i.e., master, remote

The template appearing in the template list box is a function of the equipment selected using the Equip Type list box. When you select the equipment type, the system updates the template list box, which in turn, lists templates appropriate to your selection. For example, if you select NMS-9600 as your equipment type, the templates listed apply to the NMS-9600.

Note *A. For NMS-510s that are remotes or NMS-553s, the template 'Mltipt, Sync Auto-Rate, Remote' must be used.*

*B. When you configure a network element communication state as Online, the system downloads all configuration data apropos to that element when you save your input. For information concerning Online configuration, see the topic **Communications Information** in this section.*

Serial Number – is the serial number of the current network element. When you first add a network element, the system addresses that element by its serial number when you save your input. After this the system addresses that element in terms of its port/line/drop.

If you change the serial number of the current network element configuration, the system downloads all configuration data apropos to that network element when you save your input.

Important *When configuring the communications state of the current network element as Online, you must enter a valid serial number in the Serial Number field to save the configuration. When configuring it as Offline, you need not enter a serial number to save the configuration.*

The system uses the serial number with the port to communicate. That is, the system uses the port indicated in the PLD field to determine which port to use as a channel for communication. It then communicates with devices off that channel to determine if any have the serial number. If one does, it downloads the configuration to that device.

If you enter a serial number that corresponds to another element on the same port, the system downloads the configuration to the device matching that serial number.

Administrative Information

Location – is the site of the current network element.

Inventory – contains information that you deem pertinent to the current network element. For example, its model number, date installed, etc.

Contact – is the person that you would contact concerning the current network element.

Phone Number – is the telephone number of the person that you would contact concerning the current network element.

Circuit Information

Name – is the circuit where the current network element resides.

Circuit Elements – lists network elements that are part of the same circuit as the current network element. For each circuit element a name and port/line/drop appear in the list box.

If you double click the left mouse button on a network element in this list box, the system retrieves that element's configuration and displays it in the *Top Level* window. This element now becomes the current network element. You can also use this list box to reassign the current network element to another circuit.

To reassign the current network element to another circuit:

1. In the circuit Name field, enter the name of a circuit.
2. To reassign the current network element to this circuit, select the SAVE button.

Note *If you EXIT instead of SAVE, the system asks if you want to discard pending edits. If you respond YES, the system cancels the reassignment and does not save the pending edits for the current network element. If you respond NO, the system cancels the EXIT and returns the window.*

Communication State

-
- Note**
- A. An alarm scan monitors those elements designated as *Online and Alarms Monitored*. (Online means that the network element is capable of communicating with another device.)
 - B. When configuring the current network element as *Offline*, you need not enter a serial number to save the configuration. The system does not download information to an *Offline* element when you save the element's configuration.
- When configuring the communication state of the current network element as *Online*, you must enter a valid serial number in the *Serial Number* field to save the configuration. The reason – the system downloads all configuration information apropos to that element when you save the configuration. It uses the serial number to identify the network element.
-

Online and Alarms Monitored – configures the current network element as Online and monitored by alarm scans.

Online and not Monitored – configures the current network element as Online and not monitored by alarm scans.

Offline – configures the current network element as Offline and not monitored by alarm scans.

-
- Note**
- When an NMS-464/NMS-564 multipoint remote is changed from an *Online* to *Offline* communication state, the system sends the NMS-464/NMS-564's master a command to remove the remote from its internal poll list.
-

Alarm Events

The Alarm Events window is used to define the constituents of an alarm.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

The fields below may not appear in all event windows. For example, NMS-520 modems have an event window different from other modems. See Figure 5–3 (1 and 2).

CONFIGURATION - Alarm Events

NE Name: 9600 M1 PLD: 2:20:0

<p>Events Reported</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Auto Fallback</td> <td><input type="checkbox"/> Last Gasp</td> </tr> <tr> <td><input type="checkbox"/> DBU Call Failed</td> <td><input checked="" type="checkbox"/> Line Loss</td> </tr> <tr> <td><input type="checkbox"/> DBU Call Timeout</td> <td><input type="checkbox"/> On DBU</td> </tr> <tr> <td><input type="checkbox"/> DBU H/W Failure</td> <td><input checked="" type="checkbox"/> RxD Loss</td> </tr> <tr> <td><input type="checkbox"/> DTP Loss</td> <td><input checked="" type="checkbox"/> Streaming</td> </tr> <tr> <td><input checked="" type="checkbox"/> DTR Loss</td> <td><input type="checkbox"/> Test Mode</td> </tr> <tr> <td><input checked="" type="checkbox"/> EEPROM</td> <td><input checked="" type="checkbox"/> TxC Loss</td> </tr> <tr> <td><input type="checkbox"/> Ext. Input</td> <td><input type="checkbox"/> TxD Loss</td> </tr> </table>	<input type="checkbox"/> Auto Fallback	<input type="checkbox"/> Last Gasp	<input type="checkbox"/> DBU Call Failed	<input checked="" type="checkbox"/> Line Loss	<input type="checkbox"/> DBU Call Timeout	<input type="checkbox"/> On DBU	<input type="checkbox"/> DBU H/W Failure	<input checked="" type="checkbox"/> RxD Loss	<input type="checkbox"/> DTP Loss	<input checked="" type="checkbox"/> Streaming	<input checked="" type="checkbox"/> DTR Loss	<input type="checkbox"/> Test Mode	<input checked="" type="checkbox"/> EEPROM	<input checked="" type="checkbox"/> TxC Loss	<input type="checkbox"/> Ext. Input	<input type="checkbox"/> TxD Loss	<p>Event Control</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Report DBU-89 Events</td> </tr> <tr> <td><input type="checkbox"/> Report Multiport Events</td> </tr> </table>	<input type="checkbox"/> Report DBU-89 Events	<input type="checkbox"/> Report Multiport Events
<input type="checkbox"/> Auto Fallback	<input type="checkbox"/> Last Gasp																		
<input type="checkbox"/> DBU Call Failed	<input checked="" type="checkbox"/> Line Loss																		
<input type="checkbox"/> DBU Call Timeout	<input type="checkbox"/> On DBU																		
<input type="checkbox"/> DBU H/W Failure	<input checked="" type="checkbox"/> RxD Loss																		
<input type="checkbox"/> DTP Loss	<input checked="" type="checkbox"/> Streaming																		
<input checked="" type="checkbox"/> DTR Loss	<input type="checkbox"/> Test Mode																		
<input checked="" type="checkbox"/> EEPROM	<input checked="" type="checkbox"/> TxC Loss																		
<input type="checkbox"/> Ext. Input	<input type="checkbox"/> TxD Loss																		
<input type="checkbox"/> Report DBU-89 Events																			
<input type="checkbox"/> Report Multiport Events																			

Figure 5-3 Alarm Events Window (1 of 3)

CONFIGURATION - Alarm Events

NE Name: 520M100 PLD: 1:30:0

<p>Events Reported</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> CSU Loopback</td> <td><input type="checkbox"/> CTS Shorted</td> <td><input type="checkbox"/> DBU Call Failed</td> </tr> <tr> <td><input type="checkbox"/> DBU H/W Failure</td> <td><input checked="" type="checkbox"/> DCD Loss</td> <td><input type="checkbox"/> DCD Shorted</td> </tr> <tr> <td><input type="checkbox"/> DSR Loss</td> <td><input type="checkbox"/> DSR Shorted</td> <td><input checked="" type="checkbox"/> DTP Loss</td> </tr> <tr> <td><input checked="" type="checkbox"/> DTR Loss</td> <td><input checked="" type="checkbox"/> EEPROM</td> <td><input type="checkbox"/> Ext. Input</td> </tr> <tr> <td><input checked="" type="checkbox"/> Inactive Channel Status</td> <td><input checked="" type="checkbox"/> Line Loss</td> <td><input type="checkbox"/> Line Pairs Reversed</td> </tr> <tr> <td><input checked="" type="checkbox"/> No Signal</td> <td><input type="checkbox"/> No Network Current</td> <td><input type="checkbox"/> On DBU</td> </tr> <tr> <td><input type="checkbox"/> RXC Shorted</td> <td><input type="checkbox"/> RxD Loss</td> <td><input type="checkbox"/> RXD Shorted</td> </tr> <tr> <td><input type="checkbox"/> Sec Chan Streaming</td> <td><input type="checkbox"/> Streaming</td> <td><input checked="" type="checkbox"/> Test Mode</td> </tr> <tr> <td><input type="checkbox"/> TM Shorted</td> <td><input type="checkbox"/> Transmitter Inoperable</td> <td><input type="checkbox"/> TxC Loss</td> </tr> <tr> <td><input type="checkbox"/> TXC Shorted</td> <td><input type="checkbox"/> TxD Loss</td> <td></td> </tr> </table>			<input checked="" type="checkbox"/> CSU Loopback	<input type="checkbox"/> CTS Shorted	<input type="checkbox"/> DBU Call Failed	<input type="checkbox"/> DBU H/W Failure	<input checked="" type="checkbox"/> DCD Loss	<input type="checkbox"/> DCD Shorted	<input type="checkbox"/> DSR Loss	<input type="checkbox"/> DSR Shorted	<input checked="" type="checkbox"/> DTP Loss	<input checked="" type="checkbox"/> DTR Loss	<input checked="" type="checkbox"/> EEPROM	<input type="checkbox"/> Ext. Input	<input checked="" type="checkbox"/> Inactive Channel Status	<input checked="" type="checkbox"/> Line Loss	<input type="checkbox"/> Line Pairs Reversed	<input checked="" type="checkbox"/> No Signal	<input type="checkbox"/> No Network Current	<input type="checkbox"/> On DBU	<input type="checkbox"/> RXC Shorted	<input type="checkbox"/> RxD Loss	<input type="checkbox"/> RXD Shorted	<input type="checkbox"/> Sec Chan Streaming	<input type="checkbox"/> Streaming	<input checked="" type="checkbox"/> Test Mode	<input type="checkbox"/> TM Shorted	<input type="checkbox"/> Transmitter Inoperable	<input type="checkbox"/> TxC Loss	<input type="checkbox"/> TXC Shorted	<input type="checkbox"/> TxD Loss	
<input checked="" type="checkbox"/> CSU Loopback	<input type="checkbox"/> CTS Shorted	<input type="checkbox"/> DBU Call Failed																														
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<input type="checkbox"/> Report Multiport Events																																

Figure 5-3 Alarm Events Window (2 of 3)

Events Reported Group Box

- Auto Fallback – lets the current network element automatically re-establish communication at a lower rate with a remote when communication has degraded past threshold.
- CSU Loopback – Telco or the Central Office has placed the CSU in loopback (current reversal).
- CTS Shorted – indicates that CTS is shorted to ground or any other output.
- DBU Call Failed [Dial Backup Unit Failure] – indicates that the current network element initiated an unsuccessful call.
- DBU Call Timeout – indicates that the current network element was on dial backup longer than the configured time and, as a result, the call was terminated.
- DBU H/W Failure – indicates a hardware problem with the current network element.
- DCD Loss – Data Carrier Detect is absent at the current network element for more than 1 second.
- DCD Shorted – indicates that DCD is shorted to ground or any other output.
- DSR Loss – loss of Data Set Ready at the current network element.
- DSR Shorted – indicates that DSR is shorted to ground or any other output.
- DTP Loss [Data Terminal Power Loss] – indicates a low or absent power level at the data terminal connected to the current network element.
- DTR Loss [Data Terminal Ready Loss] – indicates an absent Data Terminal Ready at the current network element.
- EEPROM – indicates EEPROM (memory storage device) failure in the current network element. The configuration stored therein is unusable.
- Ext. Input – indicates an ON state at one of the current network element external inputs.
- Inactive Channel Status – enables or disables reporting of the following Telco-generated alarms: DSU Loopback, Channel Loopback, MUX Out-of-Sync, Test Code, Unassigned MUX.
- Last Gasp – indicates power failure at a remote that is reported by the master.
- Line Loss – indicates loss of NETCON communications receive carrier by a remote for 5 or more seconds. (This is the same as Rmt Lost Netcon Chnl. See Appendix B – Alarm Descriptions for further information.)
- Line Pairs Reversed – indicates that transmit/receive lines are reversed.
- No Network Current – indicates no current between Telco and drop at the current network element.
- No Signal – indicates line loss between the current network element on a DDS network.
- On DBU – indicates that the current network element is on dial backup.

Note *To ensure Restoral List accuracy, enable this field for network elements having dial backup equipment. For further information, see the topic **Restoral List** in Section 9 – THE RESTORAL MENU.*

RXC Shorted – indicates that RXC is shorted to ground or any other output.

RxD Loss [Receive Data Loss] – indicates loss of primary receive data reported by a multipoint master.

RXD Shorted – indicates that RXD is shorted to ground or any other output.

Sec Chan Streaming – indicates a streaming condition on the secondary channel of the current network element.

Streaming – lets the current network element monitor Request to Send duration at a data terminal. If Request to Send exceeds threshold, the element ignores Request to Send and drops carrier.

Test Mode – indicates that the current network element is in the test mode.

TM Shorted – indicates that TM is shorted to ground or any other output.

Transmitter Inoperable – indicates an inoperable DSU transmitter.

TxC Loss [Transmit Clock Loss] – indicates that the current network element (if configured for external timing) has lost transmit clock.

TXC Shorted – indicates that TXC is shorted to ground or any other output.

TxD Loss [Transmit Data Loss] – indicates loss of transmit data by the current network element remote on a multipoint network.

Event Control Group Box

Report DBU-89 Events – enables or disables reporting of DBU-89 alarms. When disabled, events listed in the Events Reported group box pertaining to the DBU-89 are not reported even if the appropriate check box shows the event as enabled.

Report Multipoint Events – enables or disables the reporting of multipoint alarms. When disabled, events listed in the Events Reported group box pertinent to the multipoint are not reported even if the appropriate check box shows the event as enabled.

NMS-553 Alarms Configuration Window

The window (Figure 5-3 [3 of 3]) has the following alarms configuration options:

CONFIGURATION NIM8553 Alarms

NE Name: _____ PLD: _____

Network	Window	Threshold
<input checked="" type="checkbox"/> BPV	0	
<input checked="" type="checkbox"/> CRC	0	
<input checked="" type="checkbox"/> LOS		
<input checked="" type="checkbox"/> OOF		
<input checked="" type="checkbox"/> YEL		
<input checked="" type="checkbox"/> AIS		
<input checked="" type="checkbox"/> USS		
<input checked="" type="checkbox"/> XSD's		
<input checked="" type="checkbox"/> LAD		
<input checked="" type="checkbox"/> CFS		

Cascade	Window	Threshold
<input checked="" type="checkbox"/> BPV	0	
<input checked="" type="checkbox"/> CRC	0	
<input checked="" type="checkbox"/> LOS		
<input checked="" type="checkbox"/> OOF		
<input checked="" type="checkbox"/> YEL		
<input checked="" type="checkbox"/> AIS		
<input checked="" type="checkbox"/> USS		

Network Element

TMNG LOSS

STAT CHNG

TEST MODE

Figure 5-3 Alarm Events Window (3 of 3)

Network Group Boxes

BPV – (Bipolar violation) indicates that the current network element has received two or more consecutive bits from the network that do not alternate between signal polarities as required by the network for Alternate Mark Inversion (AMI) line coding.

CRC – indicates that the CRC-6 code calculated at the receiving end does not match the CRC-6 code calculated by the transmitting end.

LOS – (Loss of Signal) indicates that the current network element senses an absence of network signal. A signal with loss greater than 30 dB (± 2.5 dB) for longer than 150 milliseconds constitutes no signal.

OOF – indicates that the current network element has missed two out of four network framing bits.

YEL – (Yellow alarm) indicates that the current network element has detected an OOF error lasting a minimum of 2.5 seconds. If the current network element detects uninterrupted resumption of incoming carrier for approximately 12.5 seconds, it will no longer see the yellow alarm.

AIS – indicates that the current network element has received an AIS (Alarm Indication Signal: a keep alive signal of continuous, unframed 1s filling the unused bandwidth) from the network.

USS – indicates that the current network element has sensed an unavailable signal state.

XSD's – indicates that the current network element has transmitted a signal with a corrected pulse density in accordance with the selection for the Ones Density option. Excessive Zeros is a count of the number of times the equipment is in a zeros violation. The threshold for this counter is dependent on the selection of the Ones Density option (maximum of 15 or 39 zeros), defining the maximum number of consecutive zeros transmitted before a “one” is inserted.

LAD – indicates that the current network element has transmitted a signal with an average pulse density less than that selected with the Ones Density option (minimum of N ‘ones’ per 8(N+1) bits, where N = 1 to 24).

CFS – indicates that the current network element has received a replication or deletion of one DS1 frame.

Network Element Group Box

TMNG LOSS – indicates that the current network element has lost its primary timing source. Note that the network element may or may not be using the fallback timing source.

STAT CHNG – indicates that the current network element has changed.

TEST MODE – indicates that the current network element is in the Test mode.

Alarm Thresholds Window

This window lets you define alarm thresholds and integration levels.

- Integration Interval is the time frame within which the event must occur, e.g., 5 minutes.
- Threshold is the limit that must be exceeded within a given integration interval, e.g., 3 DCD Losses occur within 5 minutes. The threshold can have a variety of units, e.g., it may define the number of times a condition must occur.

Be sure to enable (select) an option as well as selecting a threshold for it.

The fields below may not appear in all event windows. For example, NMS-520 modems have an event window different from other modems. See Figure 5–4 (1 and 2).

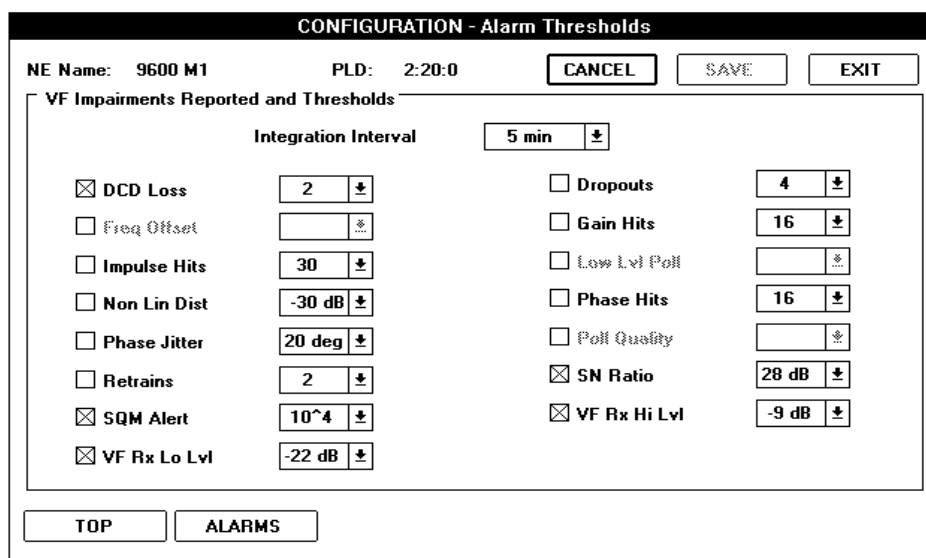


Figure 5-4 Alarm Thresholds Window (1 of 2)

CONFIGURATION - Alarm Thresholds

NE Name: 520M100 PLD: 1:30:0 [CANCEL] [SAVE] [EXIT]

Line Impairments Reported and Thresholds:

Integration Interval	5 min	↑	↓
<input type="checkbox"/> Bi-Polar Violations	10	↑	↓
<input type="checkbox"/> Frame Loss	2	↑	↓
<input type="checkbox"/> Jitter	9%	↑	↓
<input type="checkbox"/> Low Rec Level	-33 dBm	↑	↓
<input type="checkbox"/> S/N Ratio	0 dB	↑	↓

Sentry Timers:

Sentry Time (min)	60	↑	↓
Alarm Hysteresis Time (secs)		↑	↓
M.P. Remote Resp Interval Time (sec)		↑	↓

[TOP] [ALARMS]

Figure 5-4 Alarm Thresholds Window (2 of 2)

VF Impairments Reported and Thresholds Group Box

Bipolar Violation – indicates that data do not follow normal AMI data transmission at the current network element.

DCD Loss [Data Carrier Detect Loss] – indicates that Data Carrier Detect is absent at the current network element for more than 1 second.

Dropouts – indicate negative gain hits at the current network element that decrease the amplitude of a signal by more than 12 dB and last 10 or more milliseconds.

Frame Loss – indicates detection of frame bit losses at the current network element.

Freq Offset [Frequency Loss] – indicates deviation between expected and received frequencies at the current network element.

Gain Hits – indicate unwanted positive or negative variations in signal amplitude of more than 3 dB lasting more than 20 milliseconds at the current network element.

Impulse Hits – indicate unwanted positive or negative variations in signal amplitude of more than 3 dB lasting fewer than 20 milliseconds at the current network element.

Integration Interval – lets you select the time frame within which an event must occur to qualify as one requirement for alarm generation.

Low Lvl Poll [Low Level Poll] – indicates the number of polls that fall below threshold during an integration level.

Low Rec Level – indicates receive signal at the current network element that is below selected threshold.

Non Lin Dist [Non Linear Distortion] – indicates harmonic and intermodulation distortion of analog signals due to non-linear abnormalities in the transmission path.

(Phase) Jitter – indicates rapid variation of signal phase.

Phase Hits – indicate the presence of unwanted shifts of 15 or more degrees in signal phase lasting 4 or more milliseconds at the current network element.

Poll Quality – represents the percentage deviation between an 'ideal' and 'actual' data pattern gathered by polling.

Retrains – indicate attempts by the current network element to adjust equalization in an effort to condition itself for data reception.

SN Ratio [Signal-to-Noise Ratio] – is the ratio of the average signal level to the average noise level at the current network element.

SQM Alert [Signal Quality Monitor] – indicates a Signal Quality Monitor alert which represents the percentage of errors in blocks of receive data. If the percentage exceeds threshold, an SQM alert results.

VF Rx Hi Lvl [VF Receive High Level] – indicates that receive signal amplitude at the current network element exceeds receive level threshold.

VF Rx Lo Lvl [VF Receive Low Level] – indicates the receive signal amplitude at the current network element is below receive level threshold.

Sentry Timers Group Box

Sentry Time (min) – is the interval of unsolicited alarm reports between the current network element and the master in point-to-point configurations.

Alarm Hysteresis Time (sec) – is the minimum interval between alarm reports from the current network element.

MP Remote Resp Interval Time (sec) – is the interval of unsolicited alarm reports between the current network element and the master in multipoint configurations.

Option Parameters

This window is for selecting option parameters. See Figure 5–5 (1 to 4).

Figure 5-5 Option Parameters Window (1 of 4)

Figure 5-5 Option Parameters Window (2 of 4)

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

STANDARD Group Box

Analoop DSR [Analoop Data Set Ready] – controls the state of Data Set Ready (On/Off) during an ANALOOP test. Off prevents the terminal or other device from receiving the control signal during the ANALOOP test.

Auto Anti Strm [Automatic Anti-Streaming] – lets the current network element monitor duration of uninterrupted Request to Send. If Request to Send exceeds 45 seconds at the current network element, the element drops its transmit carrier.

CTS Delay [Clear to Send Delay] – establishes a delay between the Clear to Send and Request to Send. This delay permits the current network element sufficient time to establish a reliable communications link before data transmission begins.

DSR [Data Set Ready] – informs the DTE that the current network element is ready to accept information. The DSR On option forces Data Set Ready to a state of constantly on. The DSR=DTR option makes Data Set Ready a function of Data Terminal Ready, that is, when Data Terminal Ready drops, so does Data Set Ready; when Data Terminal Ready goes to a logic high, so does Data Set Ready.

RTS/CTS Ext [Request to Send/Clear to Send Extension] – permits increased delay between Request to Send and Clear to Send for the current network element. This delay is in addition to that of the CTS Delay.

Timing – selects the timing option for the current network element. These options are internal, receive, or external to the network element.

Daisy – selects the diagnostic channel speed between either a master or remote NMS-520, and a midmaster.

DTE Interface

Auto – selects an automatic mode for an NMS-520, i.e., the system senses the interface being used and selects that for its use.

RS 232 – selects an RS 232 interface for an NMS-520.

V.35 – selects a V.35 interface for an NMS-520.

PRIVATE LINE Group Box

Holdover – if the current network element is operating in the Constant Carrier mode, this option instructs it to maintain carrier should receive carrier fall below threshold. If receive carrier returns to detect threshold within 1 second, the current network element resumes normal operation.

Soft Turn Off – instructs the current network element to insert a 900 Hz tone at the end of its transmit data. This tone acts as an end-of-transmission indication. For example, if a remote detects that a DTE drops Request to Send, it inserts a 900 Hz tone at the end of its transmit data. When the master detects this tone, it drops Carrier Detect and clamps its receive data to mark. This suppresses invalid information thereby preventing it from being read as valid.

TX Level [Transmit Level] – sets the VF transmit level of the current network element.

Retrain Mode – sets the mode of retraining. If the current network element loses synchronization, it tries to retrain on data by one of two methods: Train On Data and Sig Qual R/R. In the latter case, the element trains on a known data sequence; in the former it trains on receive data.

ASYNC MODE Group Box

Char Size [Character Size] – sets the format for asynchronous transmission by defining word size.

Speed Adj [Speed Adjust] – increases the rate (above the normal) by 1.0 or 2.3% at which the current network element handles receive data. It accomplishes this by deleting stop bits from the receive data.

Suppression – lets the current network element transmit and/or monitor asynchronous receive data for an end-of-transmission (EOT) character. Select one of the following options:

- The Rx Path option monitors receive data for an EOT. It increases receive path delay thus granting time needed for monitoring EOT characters.
- The Tx Path option inserts an EOT at the end of its transmit data.
- The Tx + Rx option monitors receive data for an EOT and insert an EOT in transmit data. It increases receive path delay thus granting the time needed to monitor for EOT characters.

Data Rate Adapt – lets the asynchronous data rate of a DTE vary as a function of the data line rate.

Automatic Rate Control Group Box (Figure 5-5 [1 of 4])

(This group box replaces the DDS OPTIONS Group Box when the equipment type is an NMS-19202A. It is available only if the Auto Rate database template has been selected.)

Retrain Threshold – is the number of retrains per minute that, if exceeded, lets the current network element fall back to the next lowest enabled data transmission rate.

(Fallback Rates)

Autorate 16.8 Kbps – when checked and the retrain threshold is exceeded, lets the current network

element fall back to 16.8 Kbps.

Autorate 14.4 Kbps – when checked and the retrain threshold is exceeded, lets the current network element fall back to 14.4 Kbps.

Autorate 9.6 Kbps – when checked and the retrain threshold is exceeded, lets the current network element fall back to 9.6 Kbps.

(Accelerate Rates)

Autorate 19.2 Kbps – when checked, the current network element can accelerate to 19.2 Kbps.

Autorate 16.8 Kbps – when checked, the current network element can accelerate to 16.8 Kbps.

Autorate 14.4 Kbps – when checked, the current network element can accelerate to 14.4 Kbps.

DDS OPTIONS Group Box (Figure 5–5 [2 of 4])

Circuit Assurance – lets the current network element drop Clear to Send when it is not receiving a signal.

System Status – forces Data Set Ready off at the current network element when the element is receiving an out-of-service code or no signal at all.

Internal Transmit Buffer Clock – specifies the internal clock of the current network element as its timing source when externally timed.

Termaloop Only – if enabled, allows a local (terminal) loopback test. If inhibited, allows both local and line loopback tests.

510 Mode – runs an NMS-520 in an NMS-510 mode, i.e., this is used to upgrade a 510 circuit to a 520 circuit. The 520 runs in a quiet mode so as not to interfere with data when a DDS1 line is used. The SSC cannot configure the 520 in this mode. The 520 must be configured on-site.

External Transmit Buffer Clock – enables buffering between network and DTE clocks.

Line Type – indicates line type.

Data Rate – indicates line baud rate. If the current network element is in automatic mode, this field is read-only; if in manual mode, it is a list box.

Constant RTS – sets constant RTS on remotes.

LPDA – lets you enable or inhibit Link Problem Determination Aid. (This button applies to the NMS-520 only.) When you select this button the LPDA options pop-up opens. It contains the following fields:

Disable/Enable – these buttons let you enable or disable LPDA. LPDA can only be set from the master. For remotes, the buttons are shaded and set to the same state as the master. Note that the Disable and Enable options apply to both ‘hard’ and ‘soft’ LPDA, however, the configuration options apply only if the unit has ‘soft’ LPDA software.

DTE/TAIL – these buttons let you indicate whether the interface is a DTE or tail circuit.

Single/Multi – these buttons let you select single or multiple addressing. The High/Low boxes set the high and low nibble of the address, (0 – F).

CONFIGURATION - DBU 56FW		
NE Name: DBU56 FW	PLD: 8:10:0	<input type="button" value="CANCEL"/> <input type="button" value="ADD"/> <input type="button" value="EXIT"/>
Answer Phone No: <input type="text"/>	Password: <input type="text"/>	
Dialing Options Max Restoral Time: <input type="text" value="48 Hrs"/> <input type="button" value="↓"/> Fault Timeout: <input type="text" value="20 Secs"/> <input type="button" value="↓"/> Auto-Heal Timeout: <input type="text" value="5 Min"/> <input type="button" value="↓"/> Call Timeout: <input type="text" value="30 Secs"/> <input type="button" value="↓"/> Answerback Delay: <input type="text" value="3 Secs"/> <input type="button" value="↓"/> Answer Mode: <input checked="" type="radio"/> Auto <input type="radio"/> DTR <input type="checkbox"/> Security Callback	Operation Timing: <input type="text" value="Receive"/> <input type="button" value="↓"/> Auto Anti Strm: <input type="text" value="Inh/45 sec"/> <input type="button" value="↓"/> Service: <input type="text" value="NMS Restoral"/> <input type="button" value="↓"/> Restoral Mode: <input type="text" value="Netcon Only"/> <input type="button" value="↓"/> VPN Mode: <input type="radio"/> Enable <input checked="" type="radio"/> Inhibit Tx Buf Clk: <input checked="" type="radio"/> Int <input type="radio"/> Ext DTE Interface: <input checked="" type="radio"/> V.35 <input type="radio"/> RS 232	Alarms Reported <input checked="" type="checkbox"/> Auto Restoral Fail <input checked="" type="checkbox"/> Restoral Time Exp <input checked="" type="checkbox"/> Restoral Active <input type="checkbox"/> Streaming <input checked="" type="checkbox"/> No Signal <input checked="" type="checkbox"/> CSU Loopback <input checked="" type="checkbox"/> Front Panel Active
<input type="button" value="TOP"/>	<input type="button" value="ALARMS"/>	<input type="button" value="OPTIONS"/> <input type="button" value="MULTIPOINT"/> <input type="button" value="ORIG PHONE NUMBERS"/>

Figure 5-5 Option Parameters Window (3 of 4)

The *Options Parameters – DBU-56FW* window (Figure 5-5 [3 of 4]) is used to configure a DBU-56FW as either a standalone unit, or as restoral equipment (using the Restoral button on the Top Level Configuration window).

The following fields apply to the DBU-56FW.

Dialing Options Group Box

Max Restoral Time – designates the amount of time the current network element remains on dial backup provided the situation that initiated the backup is not corrected.

Fault Timeout – sets a time frame for fault detection, e.g., if a 20 second value is selected, dial backup begins after a DCD Loss of 20 seconds.

Auto-Heal Timeout – designates the amount of time the primary channel must be good before the current network element terminates dial backup.

Call Timeout – designates the amount of time the originating device waits for call completion.

Answerback Delay – selects the amount of time that the current network element waits for a valid signal from the unit it is calling before terminating the call.

Answer Mode – lets the current network element answer a call unattended (Auto), or answer it only if DTR is asserted (DTR).

Security Callback – allows the current network element to terminate an established call, in order to permit the called unit to initiate a return call to the current network element.

Operation Group Box

Timing – select the timing source for the current network element.

Auto Anti Strm – lets the current network element monitor the duration of uninterrupted Request to Send from another network element. If Request to Send exceeds the selected value for this field, the element drops its transmit carrier.

Service – designates how the current network element is used, i.e., for restoral purposes or as a stand alone.

Restoral Mode – selects the type of automatic or manual restoral.

VPN Mode Group Box

Enable/Inhibit – enables or disables the VPN mode. When enabled, an inband scrambled tone, sent during the handshake sequence, disables network echo cancellers.

Tx Buf Clk

Int – selects an internal timing source for the transmit buffer clock.

Ext – selects an external timing source for the transmit buffer clock.

DTE Interface Group Box

V.35 – selects the V.35 interface for the current network element.

RS 232 – selects the RS 232 interface for the current network element.

Alarms Reported Group Box

Auto Restoral Fail – indicates that automatic dial backup was unsuccessful.

Restoral Time Exp – indicates that the current network element has exceeded maximum restoral time.

Restoral Active – indicates that the current network initiated dial backup.

Streaming – indicates that the current network element dropped carrier because Request to Send at a DTE exceeded a given time threshold.

No Signal – indicates a line loss between the current network element and another network element on the network.

CSU Loopback – indicates that Telco or the Central Office has placed the current network element in loopback (current reversal).

Front Panel Active – indicates that a test button on the front panel of the current network element is engaged.

NE Name: m553d3 PLD: 1:4:0 CANCEL SAVE EXIT

Line Parameters

Timing Sources: Receive FB Tmg Source: Receive

Network

Frame: [] Code: AMI Pre Equalization: []

Line Build - Out: Auto Ones Density: No Enforcement FDL Mode: None

FDL Diagnostics:

Cascade

Frame: [] Code: AMI Pre Equalization: None

Diagnostic Modem

Modem Available

Answer Phone Number: []

Inband Loop

Framed: Unframed:

AJS Loopdown Time: Inhibit Loopback Config: Inhibit Loop

Diag Propagation Rate: [] Shelf Commander:

TOP ALARMS RESTORAL CHAN. CONF. ASSOC. N.E.

Figure 5-5 Option Parameters Window (4 of 4)

Figure 5-5 (4 of 4) is used for configuring the Option Parameters for the NMS-553.

Line Parameters Group Box

Timing Sources – selects the timing source of the unit.

FB Tmg Source – selects the alternate timing source. (This source becomes the timing source if the regular timing source fails.)

Network Group Box

Frame – selects the framing type for the network interface.

Code – selects the code type for the network interface.

Pre Equalization – selects the equalization type for the network interface.

Line Build - Out – selects the build-out parameter for the network interface.

Ones Density – selects the enforcement type of ones density for the network interface.

FDL Mode – selects the mode for the 4 Kbps data link channel available with ESF frame format.

FDL Diagnostics – enables use of the FDL link for the NMS diagnostics channel when FDL is available.

Cascade Group Box

- Frame – selects the framing type for the cascade interface.
- Code – selects the code type for the cascade interface.
- Pre Equalization – selects the equalization type for the cascade interface.

Diagnostic Modem

- Modem Available – when checked, indicates if a diagnostics modem is available.
- Answer Phone Number – is the number of the diagnostic modem.

Inband Loop Group Box

- Framed – selects a framed format for inband loop.
- Unframed – selects an unframed format for inband loop.
- AIS Loopdown Time – selects the time the current network element can receive an AIS signal before terminating a loopback.
- Loopback Config – selects the loopback type.
- Diag Propagation Rate – selects the data rate of the remote-out diagnostic channel interface.
- Shelf Commander – when checked, indicates that the current network element is a shelf commander.

(NMS-553) Channel Configuration Window

This window (Figure 5-6) lets you configure the channels of the current network element.

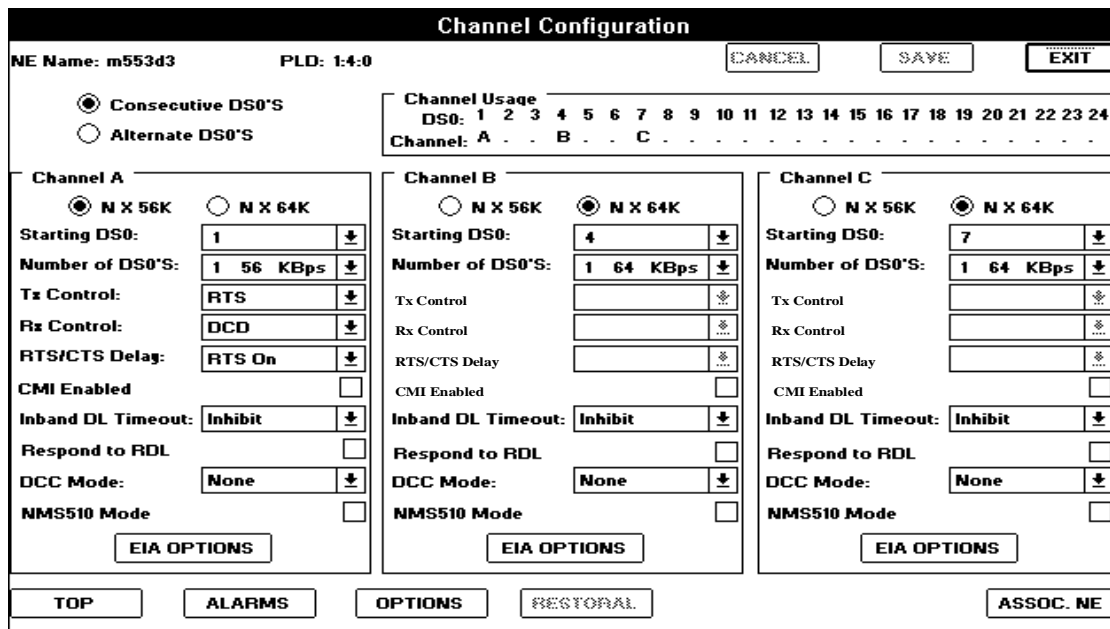


Figure 5-6 Channel Configuration Window

Consecutive/Alternate DS0's – selects whether consecutive or alternate DS0s are used for assigning bundles to channels.

Channel Usage Group Box

This box indicates what DS0s have been assigned to what channels.

Channel A/B/C Groups Boxes

N x 56K/N x 64K – selects the base data rate for the channel.

Starting DS0 – selects the beginning DS0 of the channel's bandwidth.

Number of DS0's – selects the number of DS0s used for the channel.

Tx Control/Rx Control – when operating in the N x 56 Kbps mode, the channel can be optioned to pass a control.

RTS/CTS Delay – selects the RTS/CTS delay for the channel.

CMI Enabled – if checked, enables CMI Control for the channel.

Inband DL Timeout – selects the length of digital loop timeout for the channel.

Respond to RDL – if checked, allows the channel to respond to an inband digital loopback or remote digital loopback request.

DCC Mode – indicates that the channel has diagnostic control channel.

NMS510 Mode – if checked, allows the channel to emulate an NMS-510.

Restoral Equipment

The restoral window for the DBU-79/RCU-54 contains the following.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Remote Receive – is the number of a remote receive line upon which the master dials and transmits data during dial backup. Use the text box to enter the number. Enter only numbers. Other characters are invalid.

Note *An '*' is a valid character for a DBU-79 or RCU-54. An '*' yields a delay of 5 seconds. This applies to both the Remote Receive and Remote Transmit fields.*

Remote Transmit – is the number of a remote transmit line upon which the master dials and receives data during dial backup. Use the text box to enter the number. Enter only numbers. Other characters are invalid.

Auto Answer – lets the current network element, one with a dial backup unit, answer a call automatically. Use the check box to option this field.

Auto Transfer – lets the current network element, one with a dial backup unit, switch the primary channel of its private line to a switched network line upon call completion. Use the check box to option this field.

Password – is a code required by the master and remote to establish communications with each

other during dial backup.

(The following options apply to the NMS-19202A only.)

Auto DBU Enabled – lets the current network element perform Auto DBU after 10 seconds of carrier loss or after retrain count is exceeded. (The latter is performed only if an Auto Rate database template is selected.)

Auto DBU Inhibited – prevents the current network element from performing Auto DBU.

Auto DBU Receive – is the receive line telephone number upon which the current network element dials and transmits data during Auto DBU. Enter only numbers in this text box.

Auto DBU Transmit – is the telephone number of the transmit line upon which the current network element dials and receives data during Auto DBU. Enter only numbers in this text box.

Maximum Time of Dial Backup – is the maximum time the current network element remains on dial backup provided the situation that initiated the backup is not corrected. To inhibit, select 0.

Intrusive Private Line Lookback Interval – is the frequency at which the current network element performs an intrusive private line test to determine the necessity of maintaining dial backup. To inhibit, select 0.

The restoral window for the DBU-89 contains the following.

Answer Phone No. – is the telephone number of the remote DBU.

Restoral Mode – selects dial backup mode: automatic or manual. To select manual, select the Auto DBU Inhibited or Front Panel DBU options. In this mode you use the front panel button to initiate dial backup. For the other options, select automatic mode.

Password (optional) – requires an originating unit to supply a code to the DBU in order to establish communications.

DBU Data Rate Group Box

Auto Rate – allows the DBU to select a data rate based upon rates selected in this group box, e.g., 14.4, 12.0 Kbps.

Forced Rate – forces the DBU to a particular data rate. This rate should be set to the data rate of the multipoint master.

Auto DBU Group Box

Fault Detection – is the type of fault that initiates automatic dial backup.

Fault Timeout – sets a time frame for fault detection, e.g., if a 20 second DCD Loss is selected, dial backup begins after a DCD Loss of 20 seconds.

Lookback Timeout – sets the time interval that the system waits before checking to see if the private line has been restored.

Operation Group Box

Switched Network – indicates that the communications line is part of a switched-line network.

DBU Timing – indicates DBU timing source.

In analog circuits timing is typically set as:

- multipoint master-Internal

- spare masters on an NMS MAU and their DBU-89's-External
- remotes and their DBU-89's-Receive

In digital circuits timing is typically set as:

- multipoint master-Receive
- spare masters on an NMS MAU and their DBU-89's-External
- remotes and their DBU-89's-Receive. See Figure 5-7.

DC296B Compatible – indicates DBU compatibility with GDC DC296B modems.

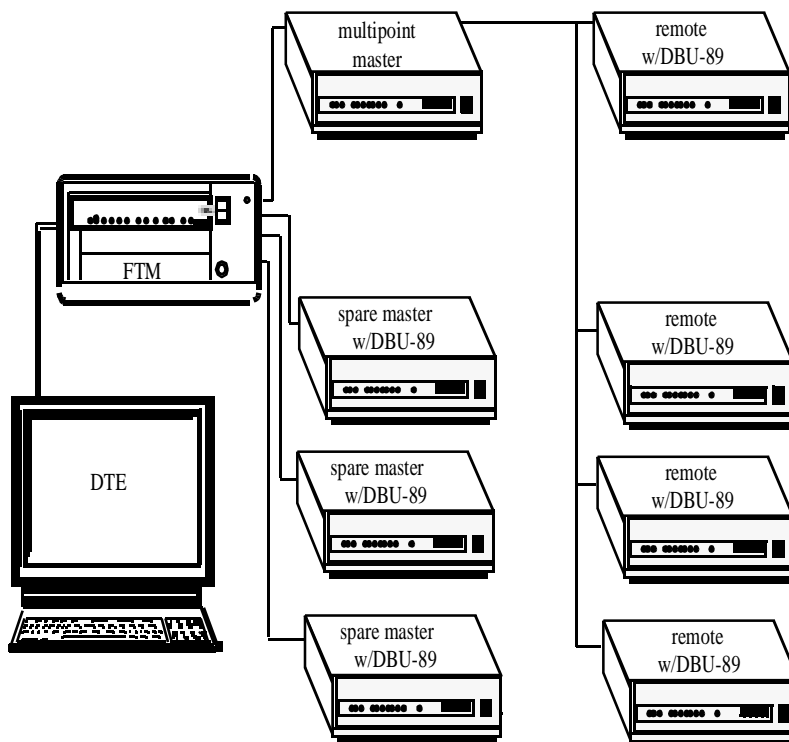


Figure 5-7 Typical Multipoint Setup with Dial Backup

Alarms Reported Group Box

DBU FallBack – enables or disables reporting of DBU fallback alarms.

Rate Change – enables or disables reporting of rate change alarms.

Retrains – enables or disables reporting of retrain alarms.

SNR – enables or disables reporting of signal-to-noise ratio alarms. Note that generation of these alarms varies as a function of the DBU data rate. The greater the rate, the more probable the report of an alarm.

VF RX Low – enables or disables reporting of alarms generated when the receive signal amplitude is below a set threshold.

Originating Phone Numbers

This window lets you assign up to 10 telephone numbers that the current network element dials upon initiating automatic dial backup. If a call is not completed, the element places another using the next cell number. This process terminates after the last cell is dialed.

Phone Number – is a telephone number that the current network element dials when initiating automatic dial backup.

The space character () and – can be added for clarity. They have no effect on the dialing process.

No. of Redial Attempts – indicates the number of times the current network element is to place a given call if that call is not completed.

Dial Modifiers

This window lists the dial modifiers that you can use in the Originating Phone Numbers window (case is not important.).

DBU-89 Modifiers:

* # A B C D	DTMF special characters.
P	forces pulse dialing for characters that follow.
T	forces tone dialing for numbers that follow.
W	waits for dial tone before continuing to dial.
!	initiates a half-second hookflash.
,	initiates a dialing pause of 5 seconds.
@	initiates a dialing pause wherein dialing continues after an uninterrupted period of 5 seconds of silence.

DBU-56 Modifiers:

,	initiates a dialing pause of 5 seconds.
!	initiates a half-second hookflash.
\$	security callback required.
^	non-NMS type unit (bypass handshake entry)

Associated Network Element

The following is intended to clarify the purpose of network element association. Following this discussion are descriptions of the configuration fields.

Dedicated Restoral

In cases where a master places a remote on dial backup, dialing equipment is found by default. In multipoint circuits that require multiple remotes on dial backup simultaneously, restoral operations must have a method of finding available switched network modems.

In cases where ICS-6400 equipment, i.e., TDC-2s and FTM/S-6400s, performs dial backup, you must associate the equipment involved. This includes associating remote site equipment as well as master site equipment. Association ‘informs’ restoral operations of elements that are involved.

Figure 5–8 is a case where the master has a chain of TDC-2s along with multiple remotes, each having an FTM. Here, to grant restoral operations the ability to place say remote #2 on dial backup and use TDC-2 #2 to initiate the process, you must:

- associate remote #2 with its FTM.
- associate the master with TDC-2 #1 then associate TDC-2 #1 with TDC-2 #2.

Without the association, the master is unaware that remote #2 has an FTM (and hence is capable of dial backup), nor can it locate TDC-2 #2.

When associating links in a master’s restoral chain, you must supply the ‘previous’ and ‘next’ links of the current network element. (In Figure 5–8 the links are the three TDC-2s.) As a rule, consider the ‘previous’ link as the element between the current network element and master. Consider the ‘next’ link as the element beyond the current network element, wherein the current network element is between the master and ‘next’ link. In Figure 5–8, for example, suppose the current network element is TDC-2 #2. Here you would enter TDC-2 #1 as the ‘previous’ link and TDC-2 #3 as the ‘next’ link. If the current network element were TDC-2 #1, there would be no ‘previous’ link, while the ‘next’ link would be TDC-2 #2. If the current network element were TDC-2 #3, the ‘previous’ link would be TDC-2 #2 and there would be no ‘next’ link.

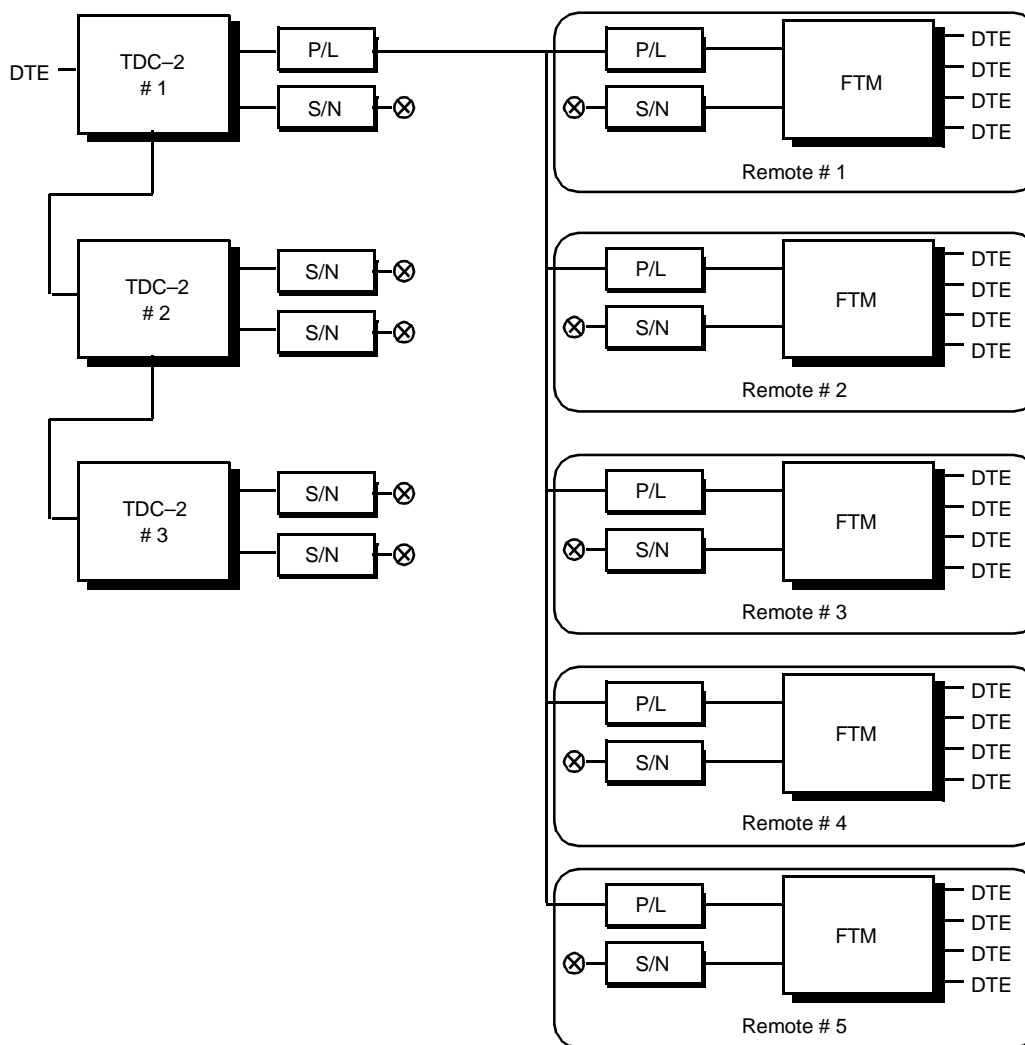


Figure 5-8 TDC-2 to FTM Dedicated Multipoint Restoral

The master need not use ICS-6400 equipment if single-call dial backup is performed. Here no association is required at the remote drop. If however, the master site had spare modems with DBU-79s or 89s and you wanted dedicated multipoint restoral, you would associate the master with the chain of spare modems. For example, using Figure 5–9, you would select the master as the current network element and then associate it with spare #1. Next, you would select spare #1 as the current network element and associate it with spare #2. Finally, you would select spare #2 as the current network element and associate it with spare #3.

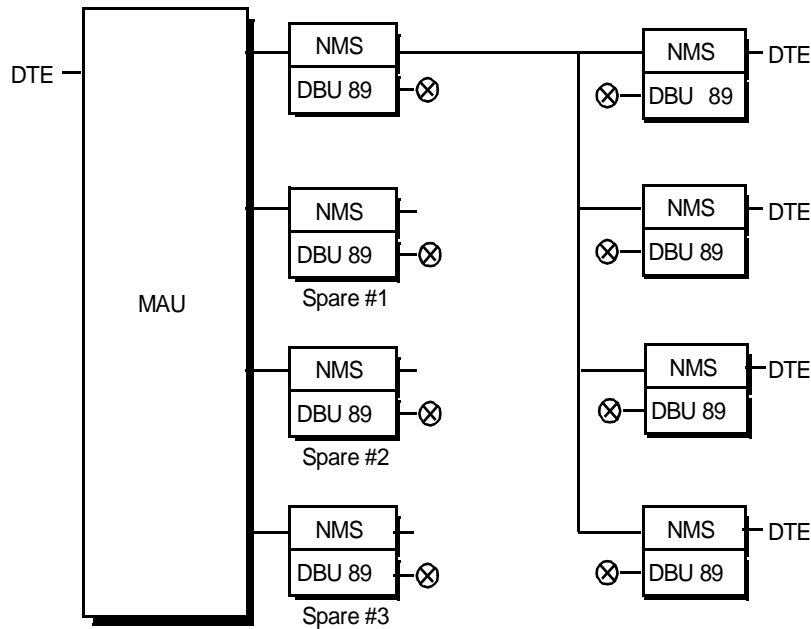


Figure 5-9 Master Association for Dedicated Restoral

Non-dedicated Restoral

If spare modems are not bridged to a specific line, i.e., not connected to a MAU, but are attached to a front end processor, then one type of non-dedicated restoral is possible. (In non-dedicated restoral, spare modems are not connected to a specific line, rather they are available for use on lines having similar types of equipment.) Figure 5–10 illustrates this. To allow non-dedicated restoral you would create a pool of available modems through the process of association. Here you must associate each master modem with those modems that you will use in the pool. For example, using Figure 5–10, you would select master #1 as the current network then associate it with NMS #1. Next you would select NMS #1 as the current network element and associate it with NMS #2, etc. This establishes a pool of modems. You can then repeat the procedure using master #2.

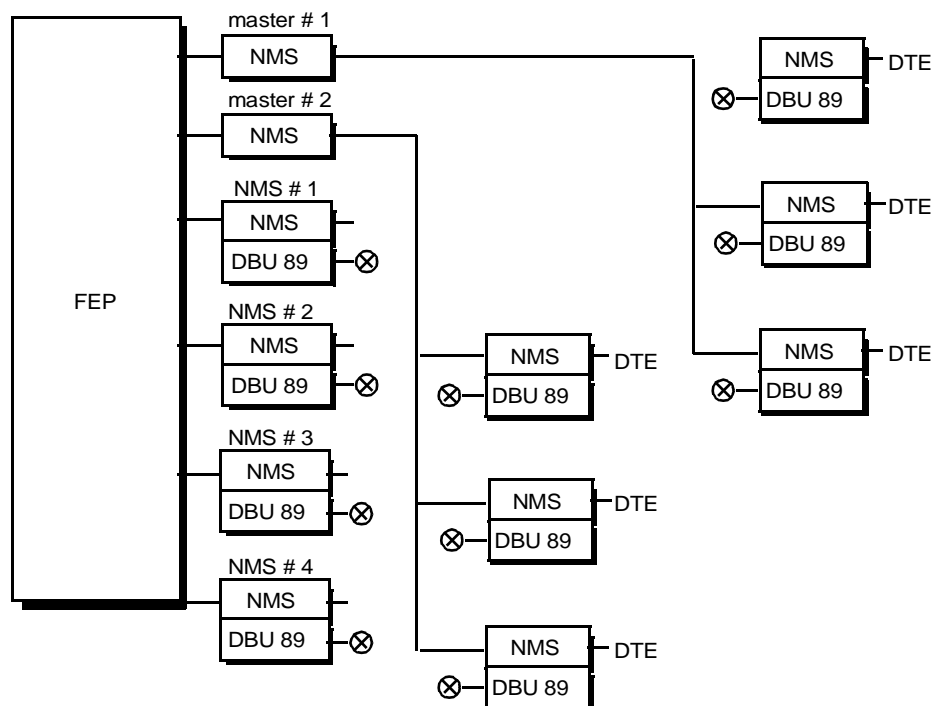


Figure 5-10 Non-Dedicated Restoral

The Associated Network Element window lets you associate the current network element with an FTM/S or TDC-2. This is a two-step process:

- associate the network element with an FTM/S or TDC-2.
- associate the FTM/S or TDC-2 with the network element.

To associate a network element and FTM/S or TDC-2:

1. Use the Top Level window to display the network element configuration.
This designates the network element as the current network element.
2. Select the ASSOC. NE button to open the Associated Network Element window. Enter the name and port/line/drop of the FTM/S or TDC-2 in the Associated Name and Associated PLD fields, respectively.
3. Designate the FTM/S or TDC-2 as the current network element using the F2 key.
4. When a new Associated Network Element window opens, enter the appropriate information.

The TDC-2 Associated Network Element window is different from that of an FTM/S or modem. For a description of these fields, see below.

Important *The system does not validate the associated network element fields below, i.e., it does not check to see if the elements are defined in the database. Therefore, be sure that the network elements you enter are defined in the database.*

Fields (For a modem or FTM/S that is the current network element.)

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Associated Name – is the network element, FTM/S or TDC-2 connected to the current network element. If it is a modem, enter the name of the FTM/S or TDC-2 that you want to associate with it. If it is an FTM/S, enter the name of the modem that you want to associate with it.

Associated PLD – is the port/line/drop of the FTM/S, TDC-2 or network element, connected to the current network element. If it is a modem, enter the PLD of the FTM/S or TDC-2 that you want to associate with it. If it is an FTM/S, enter the PLD of the modem that you want to associate with it.

Fields (For a TDC-2 that is the current network element.)*Associated TDC Group Box*

Some group boxes may be shaded depending upon the network's configuration, e.g., if the network has only one TDC-2, the Previous and Next fields are shaded.

Previous

Name – is the TDC-2 connected immediately before the current network element (TDC-2).

PLD – is the port/line/drop of the TDC-2 connected immediately before the current network element (TDC-2).

Next

Name – is the TDC-2 connected immediately after the current network element (TDC-2).

PLD – is the port/line/drop of the TDC-2 connected immediately following the current network element (TDC-2).

Port Associated Network Elements Group Box

Port A/Port B

Name – is the network element connected to port A/B of the current network element (TDC-2).

PLD – is the port/line/drop of the network element connected to port A/B of the current network element (TDC-2).

Associated Network Element for the NMS-553

The following applies to the NMS-553 only.

Associations indicate the logical connections between interfaces. Some associations indicate how the diagnostic channel is routed through bundles. Others indicate how the carrier routes bundles through the network, e.g., Channel A of one NMS-553 to Channel C of another. While the concept of master and remote does not exist for data paths, there is a master/remote concept for the diagnostic channel. A DCC Master is one where the diagnostic data comes from the daisy chain input of the unit, usually directly from the SSC, but it can be from a DCC Remote if it is a second level master. A DCC Remote is one that the diagnostic data is in the DCC channel of the user data. Certain associations are required along with a bundle having a DCC in order to communicate with a DCC Remote. These are indicated in their description. The others are required for proper operation of diagnostics using two units, e.g., End-To-End test.

When you use the Command Buttons below, the system open pop-ups that request certain information, e.g., Name, PLD. Enter this information as appropriate. Figures 5-11 illustrates one of

the windows that you will use to associate a DCC Remote with other network elements.

Note that when associating a master NMS-553 to a remote NMS-510 or NMS-520, you must associate the channel that has the DCC to the remote even though no association is required from the remote to the master. The channel pop-up dialog screen requests a channel ID of the remote. You must perform a selection even though channel does not apply. The master must be drop 0.

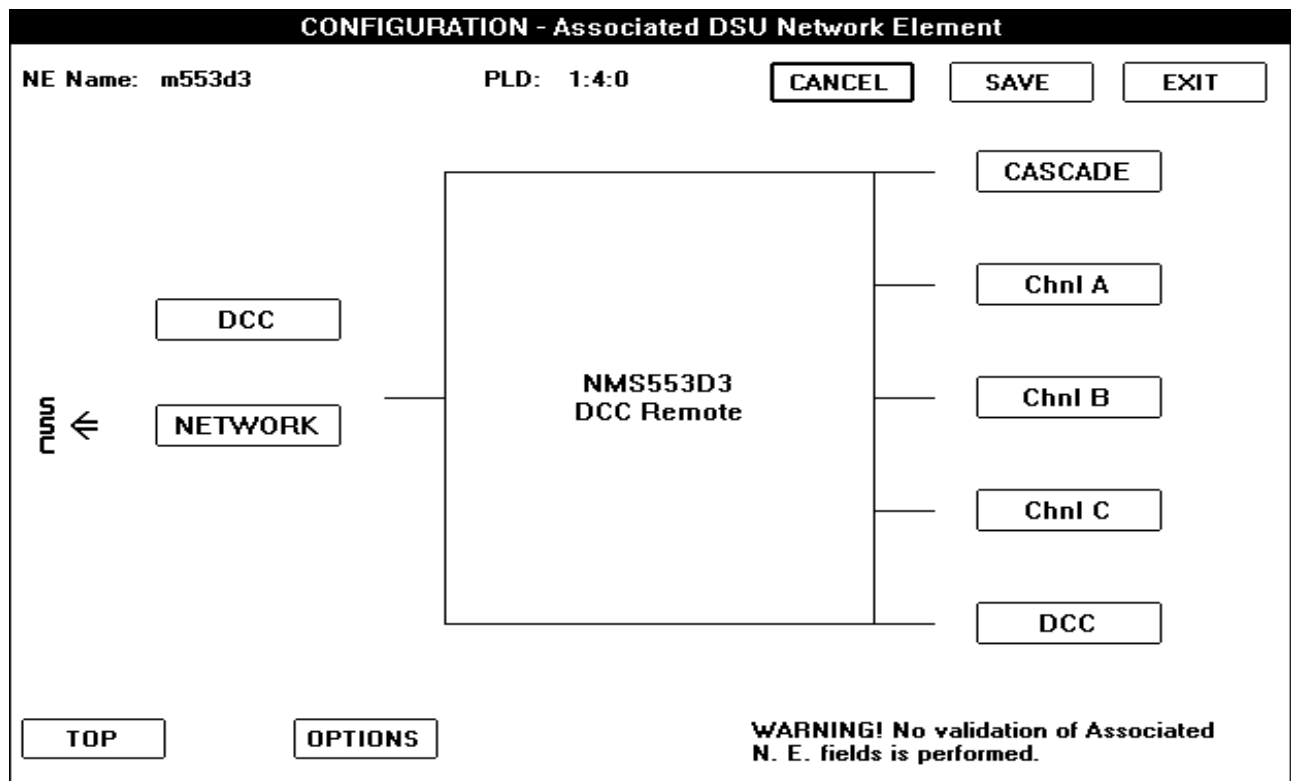


Figure 5-11 Associated DSU Network Element Window

Command Buttons

CASCADE associates the cascade port of the current network element with the Network port of a cascade element.

For diagnostics to work properly you must select, as the current network element, the ‘cascade’ network element. Next, you must associate the Network port of the new current network element, using the NETWORK button, with the Cascade port of the previous current network element.

Chnl A associates Channel A of the current network element with a channel port of another network element, e.g., Channel A or B. See Figure 5–12.

For diagnostics to work properly you must select, as the current network element, the ‘other’ network element. Next, you must associate the appropriate channel (in our example, Channel B) of the new network element with Channel A of the previous current network element.

Chnl B associates Channel B of the current network element with a channel port of another network element, e.g., Channel C.

For diagnostics to work properly you must select, as the current network element, the 'other' network element. Next, you must associate the appropriate channel (in our example, Channel C) of the new network element with Channel B of the previous current network element.

Chnl C associates Channel C of the current network element with a channel port of another network element, e.g., Channel A.

For diagnostics to work properly you must select, as the current network element, the 'other' network element. Next, you must associate the appropriate channel (in our example, Channel A) of the new network element with Channel C of the previous current network element.

DCC (SSC side) (used for a second level DCC Master) associates the DCC port of the current network element with the DCC port of another network element. (This is not used for a first level DCC Master.)

For diagnostics to work properly you must select, as the current network element, the 'other' network element. Next, you must associate its DCC port with DCC port of the previous current network element.

DCC (Network Side) (used for a DCC Remote) associates the DCC port of the current network element with the DCC port of the Master supplying diagnostic data. The channel of the DCC Master associated with this unit must have a DCC assigned to it. For an NMS-553C, a DCC must be assigned. (This not used for a DCC Master.)

For diagnostics to work properly you must select, as the current network element, the 'other' network element. Next, you must associate its DCC port with the DCC port of the previous current network element. See Figure 5-12.

NETWORK associates the Network port of the current network element with the Cascade port of another network element.

For diagnostics to work properly you must select, as the current network element, the 'cascade' network element. Next, you must associate the Network port of the new current network element, using the NETWORK button, with the Cascade port of the previous current network element.

When an NMS-553 is the current network element and is physically connected to either the Cascade or Network port of another device, enter the PLD of the other device when associating that device and the current network element.

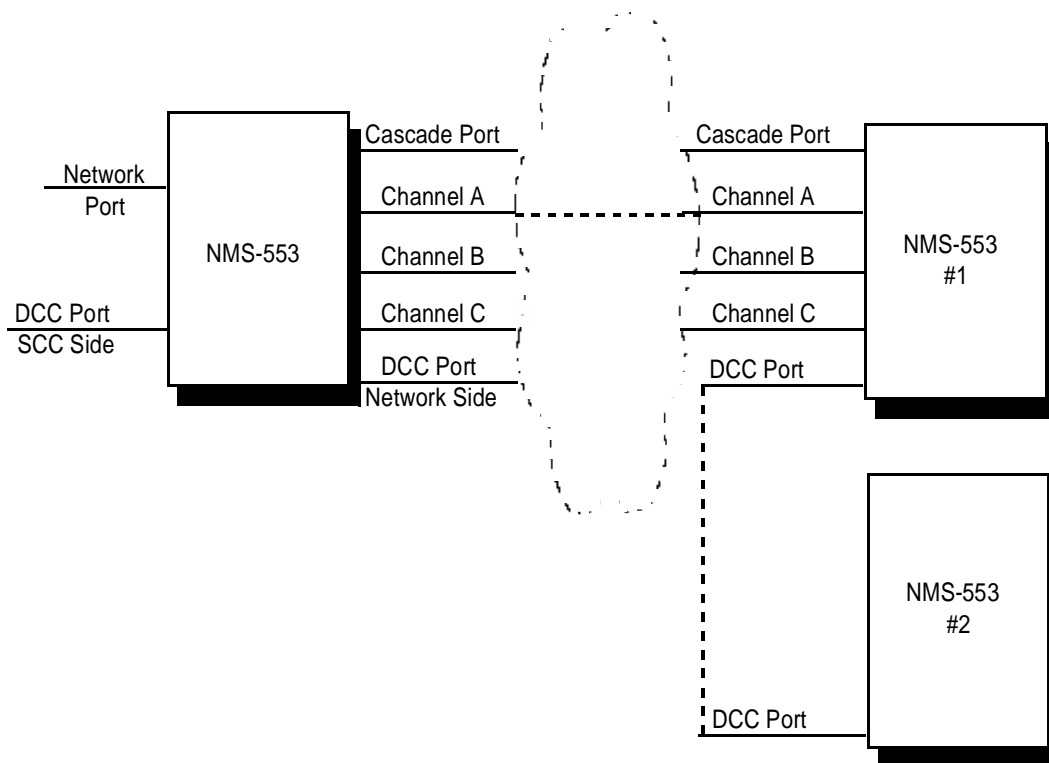


Figure 5-12 Port Association

FTM/S-6400 Option Parameters

This window lets you select options for an FTM/S.

Fields

NE Name – is the current network element (FTM/S). (This is a read-only field.)

PLD – is the port/line/drop of the current network element (FTM/S). (This is a read-only field.)

S/N Modem RTS/CTS Delay [Request to Send/Clear to Send Delay] – establishes a delay between Clear to Send and Request to Send for the switched-line network element. This delay grants the FTM/S time to establish a reliable communications link before data transmission begins.

Sync Buffer Bit Delay [Synchronous Buffer Bit Delay] – sets a data delay of 2 or 32 bits.

FTM/S Timing Source – lets you select the timing source for the FTM/S. (For further information, see the FTM/S Timing Source description under Port Control Group Box in this section.)

Async Charsize [Asynchronous Character Size] – sets the format for asynchronous transmission by defining the size of a word.

Phone Number – is the dial backup number that the FTM/S is attached to. Enter only numbers, other characters are invalid, e.g., a hyphen.

Port Control Group Box

Enable – enables or inhibits the port indicated to the left of this box.

Auto Anti-Strm [Automatic Anti-Streaming] – lets an FTM/S monitor duration of uninterrupted Carrier Detect or Request to Send (RTS) from a DCE and compare it with a threshold (20 seconds). If duration exceeds threshold, the FTM/S blocks RTS or Carrier Detect between the device and common port.

Port Timing – lets you select the timing source of a port: Receive Timing if connected to a DCE or Terminal Timing if connected to a DTE.

FTM/S Timing Source – when you select one of these options, the port assumes the value in the FTM/S Timing Source combo box as its timing source. If the port is connected to a DCE, you cannot select this option.

Password Group Box

Password Type – offers three options: none, random, default. If you do not want a password, select none. If you want a system-generated password, select random. If you want the default password, select default.

Data Rate Group Box

Primary – determines the transmission rate, in bits per second, of the primary port on the current network element. (The primary port is connected to the private line.)

Secondary – determines the transmission rate, in bits per second, of the secondary port on the current network element. (The secondary port is connected to the switched-line.)

Status of EIA Interface Program Plugs and Hard Option Switch Setting Group Box (The following fields are read-only.)

Port (One, ..., Four) To – indicates how program plugs are optioned in the FTM/S.

Hard/Soft option – indicates FTM/S optioning. When powering up after a power failure, the system uses the EEPROM configuration for a soft-optioned FTM/S and the defaults (ignores EEPROM) for a hard-optioned FTM/S.

Common Port To – indicates FTM/S Common Port program plug optioning.

TDC-2 Option Parameters

This window lets you select options for a TDC-2.

Fields

NE Name – is the current network element (TDC-2).

PLD – is the port/line/drop of the current network element (TDC-2).

TDC Options Group Box

DL1 Timing Source [Digital Line 1 Timing Source] – sets the timing source of the TDC-2 for DL1.

DL2 Timing Source [Digital Line 2 Timing Source] – sets the timing source of the TDC-2 for DL2 – future use.

Port A/Port B Categories

Enable – activates the port.

NMS Device – indicates whether the port is attached to an NMS device.

Auto Anti-Strm [Automatic Anti-Streaming] – lets the TDC-2 monitor duration of uninterrupted Carrier Detect from a network element. If Carrier Detect exceeds a threshold of 20 seconds, the TDC-2 blocks RTS or Carrier Detect to the DTE.

Modem Internal Timing – indicates that the network element is using an internal timing source.

DTMF Dial [Dual Tone Multi-Frequency Dial] – indicates DTMF as the dialing mode. If you do not select this option, Pulse dialing is used.

Data Rate – indicates the rate of data transmission in bits per second.

Async Charsize [Character Size] – sets the format for asynchronous transmission by defining the size of a character.

Multiport

This window lets you select the following options for a multiport. See Figure 5–13.

Figure 5-13 Multiport Configuration Top Level Window

Fields

Active Configuration – indicates the configuration in use by the current network element provided the element is configured with a communication state of Online.

Displayed Configuration – lets you display a standard configuration for the current network element. For example, if you select Day Normal, the window displays a Day Normal configuration. You can then change any of its values.

Aggregate Options Group Box

Auto Recovery – lets the current network element automatically attempt re-establishment of communication with a multipoint remote if communication is lost.

Clock Source – indicates the clocking source for the current network element.

Polynomial – selects the polynomial to turn off carrier in response to Request to Send. The V.13 polynomial is specific to Multipoint II. Select it unless the Multipoint II is used in an SDLC application, in which case, use the GDC Internal polynomial.

Channels Enabled Group Box

Channel (One, ..., Eight) – enables or disables the appropriate communications channel.

Aux. Channel – enables or disables the auxiliary channel.

Network Delay Shift Alarm Criteria Group Box

Integration Interval – establishes a time frame within which an event must occur for that event to meet alarm interval criteria.

Alarm Threshold – establishes a threshold that an event must exceed in order for that event to meet alarm threshold criteria.

Network Delay Shift Reported – indicates that an alarm is reported to the system when the Central Office varies network delay that meets criteria established by the Integration Interval and Alarm Threshold in this group box.

Aggregate Alarms Reported Group Box

DCD Loss – indicates absence of Data Carrier Detect at the current network element for more than 1 second.

EEPROM – indicates failure of an EEPROM (memory storage device) at the current network element. The configuration stored therein is no longer usable.

Inactive Remote – indicates that the current network element has lost carrier for at least 5 seconds.

Rate Error – indicates that the base card data rate of the current network element does not match the aggregate rate setting.

RxC Loss – indicates that the Receive Clock signal passing from the network element to a terminal is absent.

Channel Four DTE Interface Group Box (NMS-464 only)

Auto – lets the current network element determine the interface, i.e., RS232 or V.35 between its channel four and the DTE. You must select this option for an NMS-464 that has a firmware level of less than D. You may also select it for one with a firmware level of D or higher.

RS232 – indicates that channel four of the current network element uses an RS232 interface with the DTE. Do not select this option for an NMS-464 that has a firmware level of less than D.

V.35 – indicates that channel four of the current network element uses a V.35 interface with the DTE. Do not select this option for an NMS-464 that has a firmware level of less than D.

Multiport Channel Options Set One

This window lets you select the following multiport channel options. See Figure 5–14.

MULTIPORT CONFIGURATION - Channel Options Set One

NE Name: _____ PLD: _____

Active Configuration: _____ Displayed Configuration:

	Digital Bridge	Swap Chnl	Data Rate	Timing	Transmission Mode	Character Size	Speed Adjust	Suppression
1	... <input type="button" value="v"/>	CH1 <input type="button" value="v"/>	Auto <input type="button" value="v"/>	Int/Rec <input type="button" value="v"/>	Sync <input type="button" value="v"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
2	... <input type="button" value="v"/>	CH2 <input type="button" value="v"/>	Auto <input type="button" value="v"/>	Int/Rec <input type="button" value="v"/>	Sync <input type="button" value="v"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
3	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
4	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
5	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
6	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
7	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
8	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

Aux. Chan. *

Figure 5-14 Multiport Channel Options Set One Window

Fields

Active Configuration – indicates the configuration in use by the current network element provided the element is configured with a communication state of Online.

Displayed Configuration – lets you display default configuration for the current network element. For example, if you select Day Normal, the window displays a Day Normal default configuration. You can then change these values.

Digital Bridge – indicates the common channel used in a digital bridge arrangement. The number adjacent (left) indicates the channel assigned to the bridge group. For example, if you select CH1 in the Digital Bridge column next to channel 2, you would assign multiport channel 2 to channel 1. (An asterisk next to this number indicates that the channel is configured as disabled per the

Channels Enabled group box on the MULTIPORT CONFIGURATION – Top Level window.)

Swap Chnl – indicates the channel on another network element that is to be swapped with the displayed channel (indicated all the way to the left of the screen, e.g., 1, 2, etc.) on the current network element. This option is used where NMS-564s are multipoint remotes to a master NMS-464. An explanation is in order. In most cases, channel 1 of a given network element is connected to channel 1 of another; channel 2 is connected to channel 2 of the other, etc. This option lets you redirect these channels. Therefore, if you select a 2 in the Swap Chnl field for channel 1 of the current network element, the information from channel 1 of the current network element goes to channel 2 of the other network element.

Data Rate – indicates the baud rate for a given multiport channel.

Timing – indicates the timing source for synchronous multiport channels. In the RX/Int mode, the multiport's modem section supplies timing, receive or internal, depending on the strapping. In the External mode, the current network element uses timing supplied by another device.

Transmission Mode – indicates the method of transmission, synchronous or asynchronous, of the current network element channels.

Character Size – sets the format for asynchronous transmission by defining the size of a word.

Speed Adjust – increases the rate (above the normal) at which the current network element handles receive data, by deleting stop bits from the data.

Suppression – lets the current network element transmit and/or monitor its receive data for an end-of-transmission (EOT) character in asynchronous data. Select one of the following options.

- The Rx Path option monitors receive data for an EOT. It increases receive path delay thus granting time needed for monitoring EOT characters.
- The Tx Path option inserts an EOT at the end of its transmit data.
- The Tx + Rx option monitors receive data for an EOT and insert an EOT in transmit data. It increases receive path delay thus granting the time needed to monitor for EOT characters.

Aux. Channel – defines the data rate, timing, transmission mode and the number of data bits, stop bits and parity of the auxiliary channel.

Multiport Channel Options Set Two

This window lets you select the following multiport channel options. See Figure 5–15.

MULTIPOINT CONFIGURATION - Channel Options Set Two

NE Name: m464 PLD: 2:1:0

Active Configuration: DAY NORMAL Displayed Configuration: ▾

Channel Options		Digital Bridge	Simulated RTS-DCD	RTS-CTS Delay	Simulated DTR Control	DSR Control	Auto Anti Streaming	Rate Indicator
1	<input type="button" value="..."/>	<input type="button" value="Inhibit"/> ▾	<input type="button" value="CTS On"/> ▾	<input type="button" value="Inhibit"/> ▾	<input type="button" value="Normal"/> ▾	<input type="button" value="Inhibit"/> ▾	<input type="button" value="..."/>	
2	<input type="button" value="..."/>	<input type="button" value="Inhibit"/> ▾	<input type="button" value="CTS On"/> ▾	<input type="button" value="Inhibit"/> ▾	<input type="button" value="Normal"/> ▾	<input type="button" value="Inhibit"/> ▾	<input type="button" value="..."/>	
3	<input type="button" value="..."/>	<input type="button" value="Inhibit"/> ▾	<input type="button" value="CTS On"/> ▾	<input type="button" value="Inhibit"/> ▾	<input type="button" value="Normal"/> ▾	<input type="button" value="Inhibit"/> ▾	<input type="button" value="..."/>	
4	<input type="button" value="..."/>	<input type="button" value="Inhibit"/> ▾	<input type="button" value="CTS On"/> ▾	<input type="button" value="Inhibit"/> ▾	<input type="button" value="Normal"/> ▾	<input type="button" value="Inhibit"/> ▾	<input type="button" value="..."/>	
	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	
	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	
	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	
	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="..."/>	
Aux. Chan.	=	<input type="button" value="Inhibit"/> ▾	<input type="button" value="CTS On"/> ▾	<input type="button" value="..."/>	<input type="button" value="..."/>	<input type="button" value="Inhibit"/> ▾	<input type="button" value="..."/>	

Figure 5-15 Multipoint Channel Options Set Two Window

Fields

Active Configuration – indicates the configuration in use by the current network element provided the element is configured with a communication state of Online.

Displayed Configuration – lets you display a standard configuration for the current network element, e.g., if you select Day Normal, the window displays a Day Normal configuration. You can then change these values.

Digital Bridge – indicates the common channel used in a digital bridge arrangement. The adjacent (left) number indicates the channel assigned to the group. For example, if you select CH1 in the Digital Bridge column next to channel 2, you assign channel 2 of the multipoint to channel 1. (An asterisk next to this number indicates that the channel is configured as disabled as per the Channels Enabled group box on the MULTIPORT CONFIGURATION – Top Level window.)

Simulated RTS-DCD – selects simulated Request to Send/Data Carrier Detect. With this the opposite-end network element toggles its DCD as a function of RTS at the current network element.

RTS-CTS Delay – establishes a delay between Request to Send and Clear to Send, thus granting the network elements sufficient time to establish a communications link before data transmission begins.

Simulated DTR Control – determines if Simulated DTR acts as the controlling function of DSR. Multipoint configuration offers two options: Inhibit and Tx, and point-to-point offers four: Inhibit, Tx, Rx and Tx+Rx. (This is the only point-to-point option available for the NMS-19202A.) For further information concerning the use of this option with the *DSR Control* option, consult your

network element documentation.

DSR Control – determines if DSR is a function of Simulated DTR. The Normal option makes DSR a function of Simulated DTR; the On option forces DSR on (hence not a function of Simulated DTR).

DTR/DSR Control – replaces DSR control for the NMS-19202A. The Off option makes DSR a function of Simulated DTR. The DSR On option forces DSR to a state of constantly on (hence not a function of Simulated DTR). The DTR On option forces DTR to a state of constantly on. The On option forces DTR and DSR to a state of constantly on. For further information concerning use of this option with Simulated DTR Control, consult your network element documentation.

Auto Anti Streaming – lets the current network element monitor duration of uninterrupted Request to Send. If Request to Send exceeds threshold set by this option, the current network element drops transmit carrier.

Rate Indicator – Future use.

Aux. Channel – defines the Simulated RTS-DCD, RTS-CTS Delay, DSR Control, and Auto Anti-Streaming of the auxiliary channel.

Multiport Channel Alarms

This window lets you select the following alarm options for a multiport. See Figure 5–16.

MULTIPOINT CONFIGURATION Channel Alarms

NE Name: **uir** PLD: **3:128:1**

Alarms Reported

	Buffer Overflow	DTP Loss	DTR Loss	RxD Loss	Streaming	TxC Loss	TxD Loss
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 5-16 Multiport Channel Alarms Window

Fields

Channel Alarms Reported Category

Buffer Overflow – indicates that the current network element, while operating in synchronous mode, has an over or under flow of information.

DTP Loss – indicates a low or absent power level at the DTE connected to the current network element.

DTR Loss – monitors for loss of Data Terminal Ready.

RxD Loss – indicates loss of primary receive data reported by a multipoint master.

Streaming – monitors for Streaming alarms.

TxC Loss – monitors for loss of Transmit Clock.

TxD Loss – monitors for loss of primary Transmit Data.

Aux Channel Alarms Reported Category

RxD Loss – monitors for loss of primary Receive Data.

Streaming – monitors for Streaming alarms.

TxD Loss – monitors for loss of primary Transmit Data.

Network

This option lets you list database elements. Displayed for each element is a port/line/drop, serial number, state, equipment (type), name and circuit name.

Command Buttons

ALL lists all network elements defined in the database.

CIRCUIT opens a pop-up requesting the circuit whose elements you want listed.

EQUIP opens a list box requesting the type of equipment you want listed.

EXIT dismisses the window.

To display a list of network elements:

1. Select **List of Network Elements** from the Configuration Menu.
2. Select the **ALL** button to list all elements in the database, or the **CIRCUIT** button to list elements in a given circuit.

*If you select the **CIRCUIT** button, a pop-up opens requesting a circuit name. If you select the **EQUIP** button, a pop-up opens listing equipment types from which you are to select.*

Above the display is a read-only field indicating the circuit name and another indicating the number of network elements found.

Comments On Network

- If you double click on an element in the display, it becomes the current network element.
- The state is reported as MON, ON or OFF.
 - MON indicates an element configured as Online and monitored for alarms.
 - ON indicates an element configured as Online and not monitored for alarms.
 - OFF indicates an element configured as Offline and not monitored for alarms.

Chapter 6: Control Menu

Introduction

Control Menu options let you control particular aspects of network elements. For example, with the Service option you can place the current network element in-service or out-of-service.

Figure 6–1 illustrates the Control Menu.

Control	Diagnostics	Reports	Restoral	System
ACTIVE CONFIG	Set Multiport Active Configuration			
CALIBRATION	Calibration of ACE			
DBU 56FW	DBU 56FW Control			
DCD PASSWORD	TDC-2 DCD Password Mode Control			
DIAL BACKUP	TDC-2 Port Control			
DLX SWITCH	DLX-1 Switch Control			
EXTERNAL	External I/O			
FALLBACK	Set Rate/Enable Fallback Control			
FRONT PANEL	Front Panel Switch Control			
MASTER LIST	List of Remote Drops			
NETCON	Netcon Channel Control			
NETWORK RE-SYNC	Multiport Network Re-Synchronization			
RESET	Reset Network Element			
REAL TIME CLOCK	Set NMS553 Real Time Clock			
SERVICE	Network Element In/Out of Service			
STREAMING	Streaming Control			
USER RESETABLE ALARMS	Reset Latched Alarms			
WHAT?	What Are You? - Identifies Unit Type			

Figure 6-1 The Control Menu

Buttons

Command Buttons

READ retrieves information from the current network element that is required for the present window or application.

REMOVE REMOTE instructs the master to ignore one of its network elements.

RESET instructs the current network element to load the configuration last stored in its non-volatile memory.

SET downloads information in the window to the current network element.

EXIT dismisses the window.

Note In some cases downloaded information is stored in the volatile memory of the current network element. If the element loses power, it loses this information. When it regains power, it replaces the lost information with information from non-volatile memory.

The following options load information into volatile memory: Dial Backup, External I/O, Front Panel Control, Reset, Service, and Streaming.

Options

The Control Menu contains the following options.

Active Config

This option lets you select the active configuration of the current network element (multiport), e.g., Night Restoral. See Figure 6–2.

CONTROL - Multiport Active Configuration Control

NE Name: M19202A-1R1 PLD: 3:10:1 **READ** **EXIT** **SET**

Active Configuration:

Selections

DAY NORMAL DAY FALLBACK

NIGHT NORMAL NIGHT FALLBACK

Figure 6-2 Multiport Active Configuration Control Window

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Active Configuration – is the configuration assumed by the current multiport master if it is on-line.

Day Normal – is the configuration assumed by the current multiport when passing data over the private line.

Night Normal – is an alternate configuration assumed by the current multiport when passing data over the private line.

Day Restoral – is the configuration assumed by the current multiport when passing data over the switched network.

Night Restoral – is an alternate configuration assumed by the current multiport when passing data over the switched network.

Data Rate – indicates the baud rate for the respective configuration. (For the NMS-19202A that is configured with an Auto Rate database template, the configuration and Data Rate fields are shaded. This template is found in the Top Level Configuration window. For further information, see the topic Top Level under CONFIGURATION WINDOWS in the section entitled The Configuration Menu.)

The data rate is the aggregate of channel baud rates (selected using the Multiport Channel Options Set One window under the Top Level Configuration window). The system selects an aggregate as a function of data rate channel selections. For example, if you select a baud rate of 9600 for channel 1, and 2400 for channel 2, the system sums these and selects an aggregate based on the sum. (The system may round upward. In our example the sum is 12000. The system does not have a rate of 12000 available. In this case, it would select the next highest rate available. This selection appears in the Active Config window in the Data Rate field.)

Calibration

This option lets you calibrate VF transmission of a line. ACE (Adaptive Compromise Equalization) calibration lets the current network element adapt its transmit analog signal to compensate for some types of VF line impairment. See Figure 6-3.

CONTROL - Ace Calibration

NE Name: M19202A-1R1 PLD: 3:10:1 **READ** **EXIT** **SET**

WARNING!
ACE calibration is an interfering operation. It disrupts data communications.

Automatic **Manual**

	GAIN	LOW FREQ EQUALIZER	HIGH FREQ EQUALIZER
MASTER	[] ↑ [] ↓	[] ↑ [] ↓	[] ↑ [] ↓
REMOTE	[] ↑ [] ↓	[] ↑ [] ↓	[] ↑ [] ↓

Figure 6-3 ACE Calibration Window

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Automatic – automatically calibrates the line that the current network element is using. This option is not applicable to a master. For a master use manual calibration.

Manual – lets you manually calibrate the line that the current network element is using.

The following fields constitute two categories: master and remote. Use these as appropriate, e.g., if the current network element is a master, use the Master category when setting related parameters.

Gain – sets the gain on a line.

Low Freq Equalizer – varies amplitude and phase at the low end of the transmission signal.

High Freq Equalizer – varies amplitude and phase at the high end of the transmission signal.

Run an End to End test to check your calibration. For further information, see the topic *End To End* in Section 7 – THE DIAGNOSTICS MENU.

DBU-56FW

This option lets you set various functions regarding the DBU-56FW as detailed below. Figure 6–4 illustrates the DBU-56FW Control window.

Figure 6-4 DBU-56FW Control Window

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

V.54 Loopbacks – selects the type of V.54 Loopback test to be performed.

Front Panel Control

Dial Button Enabled – when selected, lets you dial using the Dial button on the front panel.

Test Button Enabled – when selected, enables operation of the Test buttons on the front panel.

Test Pattern

511 – selects a 511 test pattern.

2047 – selects a 2047 test pattern.

DTE Control

DTR Dial Enabled – when selected, lets the DBU-56FW initiate a dial when the DTR goes active.

Test Input Enabled – when selected, enables operation of EIA test inputs.

DCD Password

This option lets a TDC-2 communicate with a DTE through an FTM if:

- The FTM is optioned for a password.
- The modem used to dial the call is a non-GDC modem.

The FTM must be hard-optioned for a password wherein it uses a default password. When the modem raises DCD, the TDC-2 transmits the password to the FTM, which responds accordingly. The TDC-2 opens a connection with the DTE when it receives proper response from the FTM. In this case, neither the TDC-2 nor SSC are aware of the dialing process.

Dial Backup

This option connects or disconnects the private line modem on port A of the current network element (TDC-2) from digital line 1 or 2. Do not connect digital port 2. This is a future option and should not be used.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Port A/Port B Connect DL1 – lets you connect port A of the current network element (TDC-2) to digital line 1.

Port A/Port B Connect DL2 – lets you connect port A of the current network element (TDC-2) to digital line 2.

Port A/Port B Disconnect – lets you disconnect the specified port of the current network element (TDC-2) from both digital line 1 and 2.

External

This option sets the external output state (On/Off) of the current network element and displays the external input.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

External One/Two – sets the state (On/Off) of the current network element external output.

Note *If a primary network element fails and you have an MTU-26A and spare network element that you want to switch to, use the External option.*

To switch from the primary element to the spare:

- With the spare network element selected as the current network element, set its External Output 1 to On.

To switch from the spare element to the primary:

- With the spare network element selected as the current network element, set its External Output 1 to Off.

Fallback

The Input field is read-only and displays external input information. This option selects a fallback rate for the current network element. Note that the current network element must be a master modem. The Fallback rate applies to all network elements off the master.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

The Mode field displays the present operating mode (Fallback or Normal) of the current network element. This is a read-only field.

The Normal Data Rate field displays the normal data rate of the current network element. This is a read-only field.

The Current Data Rate field contains a list of selectable Fallback rates.

Comments On Fallback

- Avoid using this option when a DBU-89 is on dial backup since the DBU-89 is not notified of the change in the data rate.

Front Panel

This option enables or inhibits control of the front panel test switch on the current network element.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Enable – enables front panel test switch on the current network element.

Inhibit – disables front panel test switch on the current network element.

Note *When the unit has a DBU-56FW as a piggyback option, the Front Panel for this is disabled separately under the Control option DBU-56FW.*

Master List

This option lists installed and/or active remotes off an NMS-464/NMS-564 master. When you select the READ button the system queries the current network element's master for the presence of installed and/or active elements off it. (An active element is one that is on a master poll list.) The system checks its database for records of these and other elements off the same port and line. It displays the information described below under Fields.

An element can be installed off a master using an intelligent front panel without the system's knowledge. There can be an installed or active, but undefined element off a master. If the system finds one, it displays the element's Drop, Installed, and Active field information. Under the Defined field it displays 'No' and leaves NE Name and Comm Status fields blank. You can configure these elements using configuration routines.

You can remove an installed or active element using the REMOVE REMOTE button. Once an element is removed, the master ignores it, the system then tags it as 'off-line' and stores this information in its database.

To remove a network element:

- Select an element in the display then the REMOVE REMOTE button.

or

Double click on the element.

In either case, the system requests verification.

You can use the Add Remote button to add a remote that is defined in the system database but is not installed in the master's poll list.

To add a remote:

- Select an element in the display then click on the ADD REMOTE button.

Comments On Adding a Remote

- Remotes are saved with a communications status of 'Online and not Monitored'.
- Use the configuration routines to configure a unit as 'Online and Monitored' if need be.
- Do not use the Add Remote button to add a remote that has not been previously configured as 'Online'.

Fields (The following are read-only fields.)

NE Name – is the current network element.

PLD – is the port/line/drop of the current network element.

Drop – is the drop where a network element is located. The system derives this information from the master.

Installed – indicates the network elements installed off the master. The system derives this information from the master.

Active – indicates the network elements being polled. The system derives this information from the master.

Defined – indicates that the network element is defined in the database.

NE Name – is the network element off a given port/line/drop. The system derives this information from its database.

Comm Status – indicates the status of an element: Off (off-line), On Line (on-line and not monitored), Monitored (on-line and monitored). The system derives this information from its database.

Netcon

This option lets you connect or disconnect a NETCON communications channel by selectively enabling and inhibiting outbound and inbound signals on the current network element. (Outbound signals travel away from the system and inbound travel toward it.)

Figure 6–5 illustrates a case where a secondary channel is disconnected (indicated by a broken arrow) between a remote and its mid-master. Remote outbound communication is inhibited and inbound is enabled.

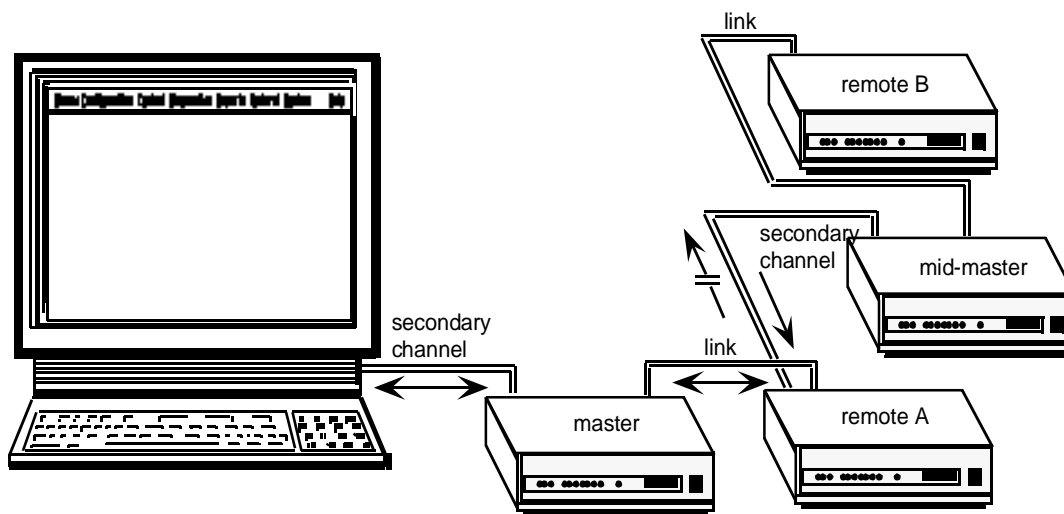


Figure 6-5 Breaking Communications

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Enable Inbound – enables inbound NETCON communications on the current network element.

Enable Outbound – enables outbound NETCON communications on the current network element.

Inhibit Inbound – disables inbound NETCON communications on the current network element.

Inhibit Outbound – disables outbound NETCON communications on the current network element.

Network Re-Sync

This option sends a resynchronization signal to all elements on the same line as the current network element. This option applies to the NMS-464/NMS-564 only.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Reset

This option resets the current network element and maintains the configuration stored in the element's non-volatile memory.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Note *Resetting a network element disrupts information flow between it and the devices it is communicating with.*

Reset NE – resets the entire current network element.

Reset Multiport – resets only the multiport portion of the current network element. This option applies to the NMS-464 only.

Real Time Clock

This option lets you read and set the real time clock (and date) of the current network element. To set date or time, just click on the up or down arrows in the appropriate group window. This option applies to the NMS-553 only.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Date – displays the date. The arrow buttons let you set a new date.

Time – displays the time. The arrow buttons lets you set a new time.

Service

This option places the current network element in or out-of-service, and applies to a private line only, i.e., it does not function during dial backup.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

In Service/Out of Service – places the current network element in or out-of-service. When the element is out-of-service, it enters an inhibit state, i.e., it does not pass data.

Streaming

This option enables or inhibits Streaming control of the current network element that is part of a multipoint circuit. It overrides Auto Anti-Streaming settings made using Configuration windows.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Enable/Inhibit – enables or inhibits streaming control of the current network element. This information is stored in the volatile memory of the current network element.

User Resettable Alarms

This option lets you reset latched alarms. If automatic timer reset were permitted, the unit would go on dial backup for an extended period, with you being unaware. This may result in a condition recurring of which you should be aware. Intervention results in your awareness of the situation. See Figure 6–6.

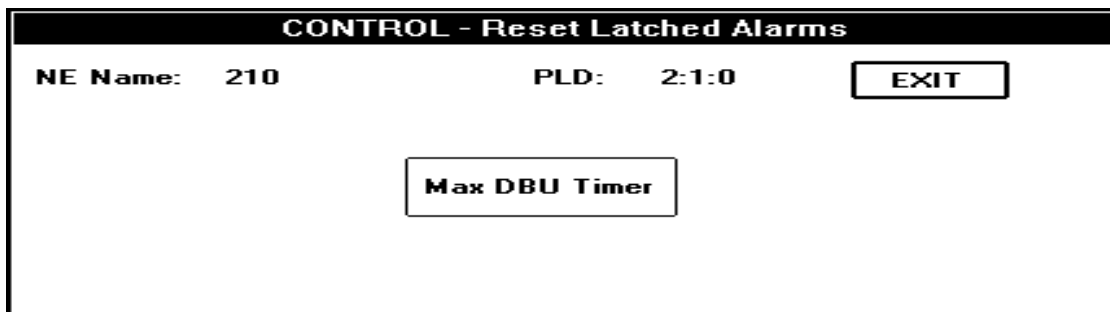


Figure 6-6 Reset Latched Alarms Window

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Max DBU Timer – resets the Max DBU timer and alarm on the DBU-56FW and NMS-19202A. When this alarm is set, the unit has been on dial backup for the maximum amount of time.

What?

This option displays the following information about the current network element. Note that fields not applicable to a given unit are shaded.

Fields (The fields below are all read-only.)

NE Name – is the current network element.

PLD – is the port/line/drop of the current network element.

Network Element Group Box

Equipment Type – reports the current network element type, e.g., NMS-9600.

Firmware Level – is the version of firmware installed in the current network element.

Interface Adapter – reports whether an optional interface adapter card is installed on the current network element.

Netcon Channel – reports the channel on which the current network element receives its diagnostic channel.

RTS/CTS Ext – indicates whether the current network element supports RTS/CTS Delay.

VF Loopback – indicates the state (enabled/disabled) of VF Loopback for the current network element.

Serial Number – is the serial number of the current network element.

Restoral Group Box

Equipment Type – indicates if an RCU-54, DBU-79 or DBU-89 is attached.

Switch – indicates the position of the primary/secondary switch on the current network element (Restoral unit). If the switch is set to Primary, the unit is configured as a master.

Firmware Level – indicates the firmware level.

Make/Break Ratio – indicates the make/break ratio.

Auxiliary Switch – indicates the status (on/off) of the Aux 1 switch.

Inter-Digit Time – indicates the interdigit time in milliseconds.

Multi-Port Group Box

Equipment Type – indicates the current network element (multiport) equipment type.

Expander Card – indicates if an expander card is installed.

Firmware Level – indicates the version of firmware in the current network element (multiport).

Number of Ports – indicates the number of ports on the current network element (multiport).

Channel A/B/C Type – indicates the type of interface for the NMS-553.

SMDS Option Card – indicates if the SMDS option card is installed on the NMS-553.

Cascade Interface – indicates if the cascade Interface card is installed on the NMS-553.

External Modem – indicates if the external modem is connected to the NMS-553.

Chapter 7: The Diagnostics Menu

Introduction

The Diagnostics Menu contains a list of diagnostic tests that may or may not apply to a given type of network element. For further information concerning these tests as they relate to a specific type of network element, consult the documentation provided with that network element.

Figure 7–1 illustrates the Diagnostics Menu.

DIAGNOSTICS	Diagnostics Test
CIRCUIT QUALITY	Diagnostics Circuit Quality
NE QUALITY	Diagnostics NE Quality
ALARM STATUS	NMS 553 Alarm History Status
ALARM COUNTS	NMS 553 Alarm Counts Status
MONITOR EIA STATUS	EIA Interface Status

Figure 7-1 Diagnostics Menu

Buttons

The buttons below apply to the Diagnostics window (Figure 7–2).

Command Buttons

ALL lists, in the NE list display, all the network elements.

CIRCUIT lists, in the NE list display, all the network elements of a selected circuit.

EQUIP lists, in the NE list display, all the network elements of a selected equipment type.

RUN TEST executes the selected test on the current network element. (You select the test from the Select Test To Run display.)

ABORT TEST terminates the test in progress on the current network element.

REPEAT TEST repeats the most recently executed test on the current network element.

EXIT exits the Diagnostics window.

NE List

This display lists all the network elements in: the database, a selected circuit or equipment type. It is from here that you select the current network element upon which to perform a test.

Select Test To Run

This display lists the diagnostic tests that you may perform on the current network element.

Test Status

This display indicates test progress. Messages like Starting, Test, Placing remote into loop back, etc. are displayed here.

Test Results

This display indicates test results, including date and time of the test.

The screenshot shows a terminal window titled "DIAGNOSTICS". At the top, it displays "NE Name 9610M1" and "PLD 1:1:0". Below this are several buttons: "ALL", "CIRCUIT", "EQUIP", "RUN TEST", "ABORT TEST", "REPEAT TEST", and "EXIT". The main area is divided into three sections: "NE List" (empty), "Select Test to Run" (containing a list of tests with "Int- Analoop SelfTest" selected), and "Test Status" (empty). At the bottom is a large empty box labeled "Test Results".

Figure 7-2 Diagnostics Window

Diagnostics Tests

To run a test perform the following:

1. Select the ALL, CIRCUIT or EQUIP button.
2. From the NE List, select the desired item, e.g., a network element.
3. From the Select Test to Run display, choose the desired test.
4. Select the RUN TEST button to execute the selected test.

The Diagnostics window lets you run any of the following tests.

Note In a given window, you may not see all the options discussed below. Only those apropos to the current network element appear. For example, the Local S/N option appears for a TDC-2 but not for an NMS-9600.

Analoop/Selftest

Important This is an interfering test.

There are two tests you can perform with this option: ANALOOP (Figure 7-3) and ANALOOP Selftest (Figure 7-4).

In the ANALOOP test a DTE transmits a pattern to the current network element which, in turn, loops the pattern to the DTE. A comparison of transmit and receive data patterns is performed at the DTE to determine if a fault exists. To perform an ANALOOP test, select the External option.

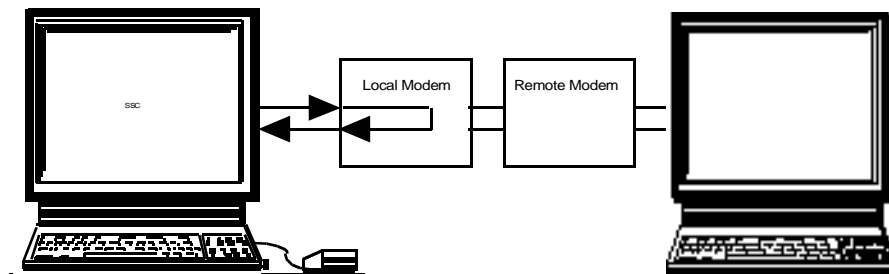


Figure 7-3 ANALOOP Test

In the ANALOOP Selftest the current network element's transmitter and receiver are disconnected from the communications line. A test pattern then loops within the network element. To perform an ANALOOP Selftest, select the Internal option.

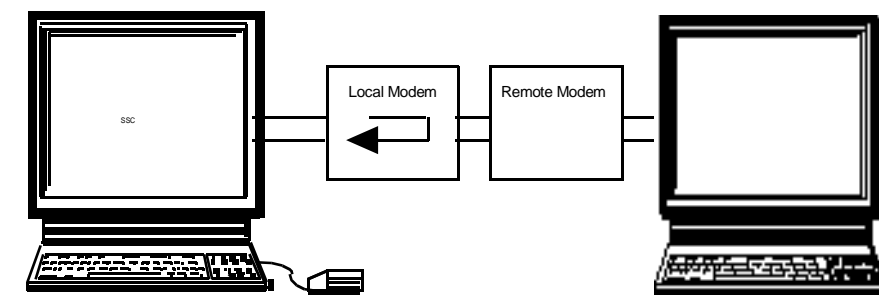


Figure 7-4 ANALOOP Selftest

ANALOOP opens the DIAGNOSTICS ANALOOP TEST window.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Test Length – indicates the number of test pattern bits. The test pattern is 10^5 or 100,000 bits. (This is a read-only field.)

Timing Source – indicates the origin of timing, internal or external, for the current network element. The value in this field is a function of the Test Type field. Stated differently, the value in the Timing Source field mirrors your selection in the Test Type field.

Test Type – selects the type of test: ANALOOP or ANALOOP Selftest. To execute an ANALOOP test, select the External option. To execute an ANALOOP Selftest, select the Internal option.

Test Unit – selects the unit to test, i.e., base card, DBU-89.

Channel Loop

Important *This is an interfering test.*

This option loops a single channel back through the base card of the current network element. If that element is a master, a pop-up requests a remote target.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Target Timing – selects the timing source of the remote.

Select Channel – selects a channel to run the test on.

Digital Loop

Important *This is an interfering test.*

This option tests a master, remote, and communications line. See Figure 7–5. The remote's transmitter and receiver are automatically disconnected from the terminal interface and connected together. This results in a loop of externally-generated information being transmitted to the remote, which decodes then encodes the information, then to the master, which checks for errors. If the current network element is a master, a pop-up requests a remote target.

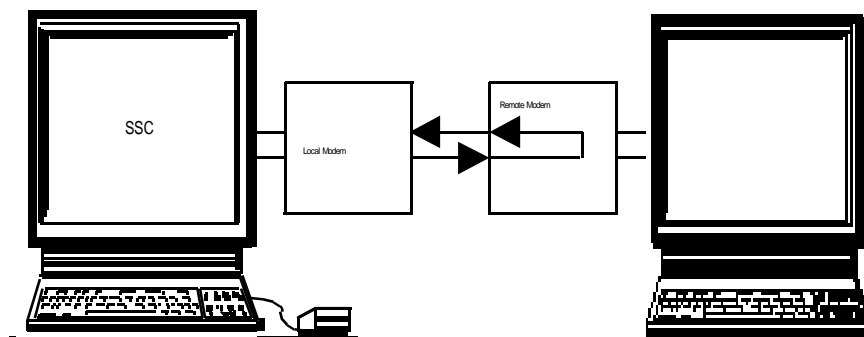


Figure 7-5 Digital Loop

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Test Length – indicates that this is an external test and runs until you terminate it.

Test Type – identifies the test as an external one.

Source Timing – selects the timing source of the master.

Target Timing – selects the timing source of the remote.

Test Line – indicates if the communications line is a private or dial backup line. If a dial backup line, either option is selectable; if not, this is a read-only field with only the private line involved in the test.

Fields For the NMS-553

Timing – indicates the timing source, e.g., external.

Test Length – is the amount of time the test will run. Valid options are:

30 seconds, 1 – 10, 15, 20, 25, 30 minutes.

Test Option – lets you run a Digital Loop in several ways: T1, DS0, and Channel. You must select a DS0 upon which to run the test when performing a DS0 test. You may test one or all channels when selecting a Channel test. You can perform a Channel Digital loop that involves four units if each of the three channels is assigned to a different remote unit.

Channel – selects the channel(s) of the unit you want to test. You may test one or all channels.

Test Pattern – selects the test pattern. Options are: 511, 2047, QSR and a 16-bit programmable pattern. The programmable pattern is set in hexadecimal.

Test Options – vary for each of the Digital loop test as follows:

- T1 – Payload Loop back, Line Loop back, and Remote Test.
- DS0 – A DS0 Number 1-24
- Channel – Digital Loop back, and Remote Digital Loop back

Note When an NMS-510 is a remote to an NMS-553, Digital Loop is not available.

End To End

Important This is an interfering test.

This option tests the operation of masters and remotes, and the communications line. See Figure 7–6. During the (End To End Bit Error Rate) test, the master and remote exchange modem-generated test patterns. Each checks its receive test patterns for discrepancies. (If the current network element is a master, a pop-up requests a remote target.)

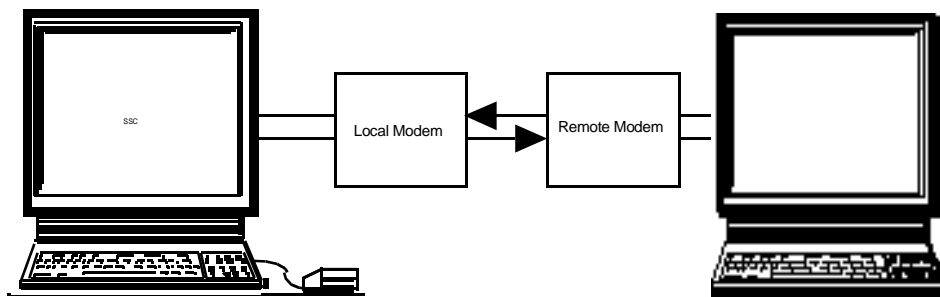


Figure 7-6 End To End Test

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Test Length – indicates the number of bits in the test pattern, i.e., 10^5 or 100,000 bits. (This is a read-only field.)

Source Timing – selects the timing source of the master.

Target Timing – selects the timing source of the remote.

Test Type Group Box

Channel (multiports only) – lets you run this test over a specific channel on a multiport. If you select this option, you must also select the specific channel. Use the Channel Group Box to select the specific channel.

Private Line (non-multiports only) – lets you run this test over the private line.

Dial Backup Line – lets you run this test over the dial backup connection.

Channel Group Box

Channel 1 through 8 – selects the specific channel over which to run this test.

Test Pattern Group Box

511 Pattern – selects a 511 pseudo-random test pattern.

2047 – selects a 2047 pseudo-random test pattern.

Fields For the NMS-553

Timing – indicates the timing source, e.g., external.

Test Length – is the amount of time the test will run. Valid options are:

30 seconds, 1 – 10, 15, 20, 25, 30 minutes.

Test Option – lets you run a End to End in several ways: T1, DS0, and Channel. You must select a DS0 upon which to run the test when performing a DS0 test. You may test one or all channels when selecting a Channel test. You can perform a Channel Digital loop that involves four units if each of the three channels is assigned to a different remote unit.

Channel – selects the channel(s) of the unit you want to test. You may test one or all channels.

Test Pattern – selects the pattern for the test. Options are: 511, 2047, QSR and a 16-bit programmable pattern. The programmable pattern is set in hexadecimal.

When an NMS-553 has an NMS-510 as a remote on any channel, you can run an End to End test on only one channel at a time. The channel(s) with an NMS-510 is forced to a Test Length of 30 seconds.

When an NMS-510 is a remote to an NMS-553, the End To End test is not available.

Line Availability

This option, which requires a TDC-2, FTM/S or DBU-89, tests for dial tone on the switched-line of the current network element.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Local P/L

Important *This is an interfering test.*

This option performs a BERT (Bit Error Rate Test) on the private line modem of a TDC-2. See Figure 7-7. The private line modem must be a non-NMS modem.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

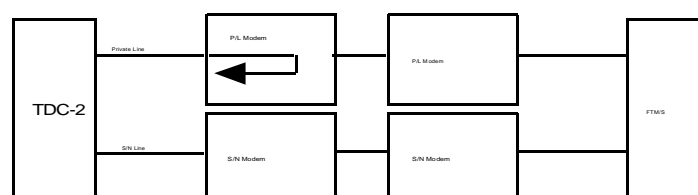


Figure 7-7 Local Private Line Testing

Local S/N

This option performs a BERT (Bit Error Rate Test) on the switched network data set of a TDC-2. See Figure 7–8. This test does not run while the current network element is on dial backup.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

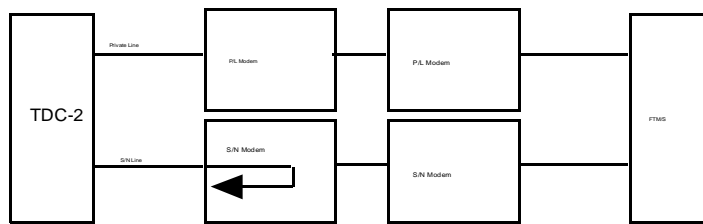


Figure 7-8 Local Switched-Network Testing

Monitor Test Call

This option lets a TDC-2 dial an FTM/S and monitor its private line data. The test call is noninterfering and has the following requirements:

- The FTM/S must be in the password mode.

*Select 'random' or 'default' as the Password Type in the FTM/S-6400 Options Parameters window under Configuration. For further information, see the topic **FTM/S-6400 Option Parameters** in the section entitled **THE CONFIGURATION MENU**.*

- The TDC-2 must be the only TDC-2 in the chain on dial backup.
- There must be no private line on the top TDC-2 in the chain.

To initiate a Monitor Test Call:

1. From the Select Tests to Run display, select **Monitor Test Call**.
2. If the FTM/S is not in Monitor Call Mode, select **Automatic** or **Manual** dialing. Automatic selects a TDC-2 to perform the test; if Manual, enter the PLD or name of the TDC-2 that you want to perform the test.
3. When the call is established you are asked to select one of the following:
 - Send Data – FTM/S transmits data.
 - Rcv Data – FTM/S receives data.
 - Send and Rcv Data – FTM/S both transmits and receives data.
 - Normal call – normal DBU operation resumes.

- To terminate this test, select the **RESTORAL** option from the Restoral menu. Next, select the TERMINATE command button.

Remote P/L

Important *This is an interfering test.*

This option performs a BERT (Bit Error Rate Test) on a remote private line that is attached to an FTM/S. See Figure 7–9. This test can be performed only if the FTM/S is on dial backup with a TDC-2.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

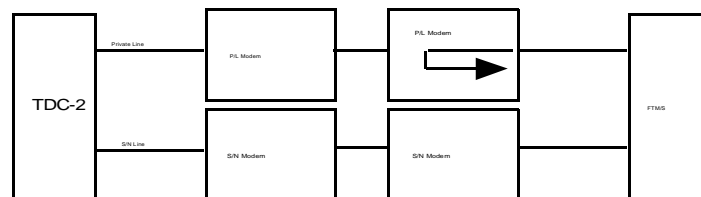


Figure 7-9 Remote Private Line Testing

Remote S/N

This option performs a BERT (Bit Error Rate Test) on the switched network data set of an FTM/S. See Figure 7–10. This test does not run while the current network element is on dial backup.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

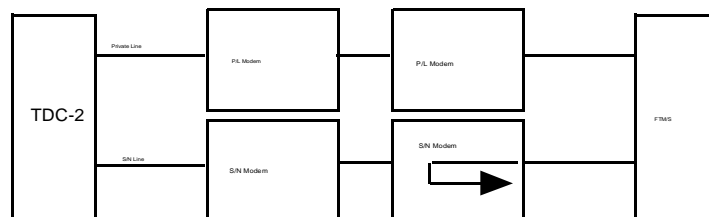


Figure 7-10 Remote Switched-Network Testing

Reset Test To Normal

This option removes a network element from a test state and returns it to a normal state. You might

use it if a status or alarm scan indicates that a network element is left in the test mode.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Round Trip Delay

This option performs a time measurement between a master and selected remote. See Figure 7–11. It measures the time necessary for a message to travel from a master to a remote then back to the master. (If the current network element is a master, a pop-up requests a remote target.)

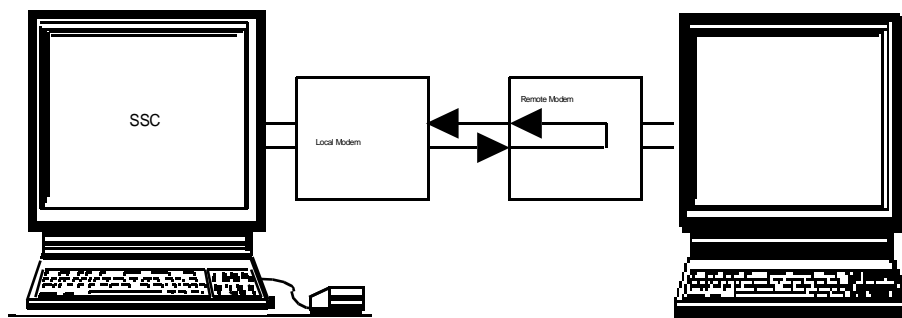


Figure 7-11 Round Trip Delay

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Test Line – indicates if the communications line is a private or dial backup line. If a dial backup line, either option is selectable; if not, this is a read-only field with only the private line involved in the test.

Test Dial

This option places a call through a TDC-2 at the master to an FTM/S at a remote wherein the remote answers and responds. This test supports use of DBU-89s at the master and remote.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Note that this option is also supported for the DBU-56FW. Once you establish the call, you can initiate an End to End or Digital Loop test. However, once these tests are completed, the call is not automatically terminated. You must terminate it using the Terminate button on the Restoral window. (To open the Restoral window, use the Restoral option on the Restoral menu.)

Monitor EIA Status

This option performs a status scan of the current network element EIA leads. For an FTM/S, TDC-2 or multiport, you select the ports to monitor. See Figure 7–12.

	DSR	DTR	RTS	CTS	DCD	TXD	TXC	RXD	RXC	DTP
STATE	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TRN	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
OFF	<input checked="" type="radio"/>									
ON		<input type="radio"/>								

Figure 7-12 EIA Status Monitor Window

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Quality Tests

The following tests let you check the quality of a selected circuit and network element

Circuit Quality

This option measures the general circuit quality of the network between master and remote. Line measurements are an average measurement of all drops tested. See Figure 7–13.

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

One Network Element – tests the quality of the current network element.

Two Network Elements – tests the quality of both current and master network elements. (If the current network element is a master, a pop-up requests the remote target.)

Test Length – establishes the length in minutes of the NE quality check. You can select a length of 1 – 15 minutes.

Circuit Quality		
NE Name	9610M1R1	PLD 1:1:1
Test Status	Operation Completed	
	Master	Remote
Signal Quality	NA	> 1 in 10 ²
Signal to Noise Ratio	NA	11 dB
Phase Jitter	NA	6 Degress
Non-Linear Distortion	NA	-35 dB
RX VF Level	-15 dBm	-8 dBm
TX VF Level	-8 dBm	-10 dBm
Impulse Hits	NA	0
Gain Hits	NA	0
Phase Hits	NA	0
DCD Loss	NA	0
Dropouts	NA	0
Retrain Count	NA	0
Polls with VF low Level	0 % of 467	NA
Marginal Polls	0 % of 467	NA

Figure 7-13 Circuit Quality Window

NE Quality

This option tests the current network element in a multipoint circuit for a variety of parameters. Line measurements are specific, i.e., not average measurements as with the Circuit Quality test. This lets you isolate a problem down to a specific element. (If the current network element is a master, a pop-up requests a remote target.)

Fields

NE Name – is the current network element. (This is a read-only field.)

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

One Network Element – tests the quality of the current network element.

Two Network Elements – tests the quality of the current and master network elements.

Test Length – establishes the length in minutes of the NE quality check.

Alarm Status

This option, which applies to the NMS-553 only, lets you display a window of active and cleared alarms for the current network element. This window (Figure 7-14) displays three categories of alarms:

- Major
- Minor
- Other

Alarm History Status							
NE Name: m553d1	PLD: 1:2:0			<input type="button" value="EXIT"/>			
Date/Time of last Alarm counters reset: Mon Nov 01 10:03:05 1993							
Major Alarms							
	OOF	LOS	AIS	USS	Tmg Loss	Unit Fail	Cfg Err
Network	●	●	●	●			
Cascade	●	●	●	●			
N.E.					●	●	●
Minor Alarms							
	Yel	LAD	XS0's				
Network	●	●	●				
Cascade	●						
Other Alarms							
	BPV	CRC	CFS	Stat Chng	Pwr Cycle		
Network	●	●	●				
Cascade	●	●					
N.E.				●	●		
Alarm Cleared: ● Alarm Active: ●							

Figure 7-14 Alarm History Status Window

For further information concerning alarms, see Appendix B – Alarm Descriptions.

Alarm Counts

This option, which applies to the NMS-553 only, lets you display a window of alarm counts for the current network element. There are three categories of alarms:

- Major
- Minor
- Other

Fields

Alarm Type – indicates the alarm type, e.g., Network LOS.

Count – indicates the total number of alarms charged against the current network element for a given alarm type.

1st Occurrence – indicates the initial date and time that the alarm type, e.g., Network LOF, was charged against the current network element.

Last Occurrence – indicates the latest date and time that the alarm type, e.g., Network LOF, was charged against the current network element.

For further information concerning alarms, see Appendix B – Alarm Descriptions.

Diagnostics Requirements

Table 7–1 lists the diagnostic tests and user-status required to run each test. The user-statuses and modes are defined as follows:

- Privileged indicates the need for privileged user-status.
- Non-Privileged indicates that user-status is unimportant.
- On DBU indicates that the element must be on dial backup.
- Not on DBU indicates that the element must be off dial backup.
- NA indicates that the element can be on or off dial backup.

Table 7-1 Diagnostics Requirements

Unit Type	Test	User Status	DBU Mode
FTM-6400 FTS-6400 FTM-6400 (in NMS MAU mode)	Digital Loop	Privileged	Not on DBU
	Line Availability	Non Privileged ¹	Not on DBU
	Monitor EIA Status	Non Privileged	Not on DBU
	Monitor Test Call	Non Privileged ¹	Not on DBU
	Remote P/L	Non Privileged ¹	On DBU ²
	Remote S/N	Privileged ¹	Not on DBU
	Selftest	Non Privileged ¹	Not on DBU
TDC-2	Test Dial	Privileged	Not on DBU
	Line Availability	Non Privileged	Not on DBU
	Local P/L	Privileged	Not on DBU ³
	Local S/N	Non Privileged	Not on DBU
NMS-510 NMS-510C NMS-500D/UXR NMS-464 NMS-520 NMS-564	Monitor EIA Status	Non Privileged	Not on DBU
	Round Trip Delay	Non Privileged	Not on DBU ⁷
	Reset to Normal	Privileged	NA ⁸
	Selftest	Privileged	NA ⁸
	Test Dial	Non Privileged	NA ⁴
	Circuit Quality	Non Privileged	On DBU ⁴
	Channel Loop	Privileged	NA ⁵
	Digital Loop	Privileged	NA ^{4,6}
	End to End	Privileged	NA ⁴
	Line Availability	Non Privileged	NA ⁴
¹ This does not apply to the FTM-6400 in NMS MAU mode. ² The FTM must be on dial backup with a TDC. ³ The TDC-2 must have a non-NMS private line modem on port A. ⁴ Both master and remote if on dial backup must have DBU-89s. ⁵ This test applies to the NMS-464 only. ⁶ This test does not apply to the NMS-464. ⁷ The network element must have a DBU-89. ⁸ If remote is on dial backup, both master and remote must have DBU-89s.			

Table 7-1 Diagnostics Requirements (Cont.)

UNIT TYPE	TEST	USER STATUS	DBU MODE
NMS-553	Alarm Counts Alarm Status Digital Loop EIA Status Monitor End to End Loopbacks Network Delay Network Level Reset to Normal Selftest	Non Privileged Non Privileged Privileged Non Privileged Privileged Privileged Privileged Non Privileged Privileged Privileged	NA NA NA NA NA NA NA NA NA NA
NMS-9610 NMS-14433 NMS-2418	Circuit Quality Digital Loop End to End Line Availability Monitor EIA Status NE Quality Round Trip Delay Reset to Normal Selftest Test Dial	Non Privileged Privileged Privileged Non Privileged Non Privileged Non Privileged ¹² Non Privileged Non Privileged Privileged Privileged Non Privileged	On DBU ⁹ N/A ⁹ N/A ⁹ Not on DBU ¹⁰ N/A ¹¹ N/A ⁹ N/A ⁹ N/A ¹¹ Not on DBU Not on DBU ⁹
NMS-9600 NMS-4800	Circuit Quality Digital Loop End to End Line Availability Monitor EIA Status NE Quality Reset to Normal Selftest Test Dial	Non Privileged Privileged Privileged Non Privileged Non Privileged Non Privileged ¹² Privileged Privileged Non Privileged	On DBU N/A N/A Not on DBU N/A N/A N/A Not on DBU Not on DBU
NMS-19202A	Digital Loop End to End Monitor EIA Status Reset to Normal Round Trip Delay Selftest	Privileged Privileged Non Privileged Privileged Non Privileged Privileged	N/A N/A N/A N/A N/A Not on DBU
DBU-56FW	Reset to Normal Selftest Test Dial End to End Digital Loop	Privileged Privileged Non Privileged Privileged Privileged	N/A Not on DBU Not on DBU ¹³ On DBU ¹⁴ On DBU ¹⁴
<p>⁹ Both master and remote if on dial backup must have DBU-89s. ¹⁰ The network element must have a DBU-89. ¹¹ If remote is on DBU, both master and remote must have DBU-89s. ¹² Applicable only to a multipoint line. ¹³ Both master and remote must have DBU-56FWs. ¹⁴ DBU-56FWs must be on a test call to perform this.</p>			

Chapter 8: Reports Menu

Introduction

Reports options let you generate printed reports of network alarms and network element configurations. You specify the categories, e.g., you can generate a report for alarms that occur on a specific date. Note that the system does not dynamically update a report while that report is being created.

Figure 8–1 illustrates the Reports Menu.

Diagnostics	Reports	Restoral	System
	NE CONFIGURATION	Network Element Configuration	
	24 Hour Reports	NMS 553 1 And 24 Hr Reports	
	Scheduled Performance	NMS 553 Scheduled Performance Reports	

Figure 8-1 Reports Menu

Option

The Reports Menu contains the following option.

NE Configuration

This option lets you generate a printed report of the configuration data concerning a specific network element. It includes all configuration data recorded using the configuration windows.

Fields

Report Control Group Box

Generate New Report – generates a new report. See the topic Comments On NE Configuration in this section.

Retrieve Old Report – retrieves an existing report. See the topic Comments Concerning NE Configuration in this section.

Output Group Box

Report to Printer – sends the report to a printer. A pop-up opens requesting information about your printer. Enter any changes necessary.

The INFO button opens a pop-up displaying information on your printer.

Report To File – saves the report in your system’s \SSC directory. To print it you would use the Retrieve Old Report option in the Report Control Group Box. See the topic Comments On NE Configuration in this section.

Multiport Configuration Group Box

This group box lets you select and print a network element's active and inactive configurations. For example, you can print the Day Normal and Night Restoral configurations of an element. Options are:

- Day Normal
- Day Restoral
- Night Normal
- Night Restoral

New Report Criteria

When requesting a new report, you must select the criteria upon which to base it. The following fields allow you to do just that.

All Elements – generates a report for each network element.

Single Element – generates a report on a specific network element. A pop-up requests that element. You may enter either its name or PLD.

Circuit – generates a report on a specific network circuit. A pop-up requests that circuit.

Equipment Type – generates a report on a specific type of equipment, e.g., NMS-464. A pop-up requests that type.

Comments On NE Configuration

- When you generate a new report and select the Report to File option, the system names the report NECONFIG.TXT then stores it on the hard drive in the \SSC directory. To prevent the system from overwriting this report when a new report is generated, rename it or move it to another directory or storage medium, e.g., diskette.

Reports

This window displays, in 15-minute intervals, a summary of the errors during the last 24 hours. See Figure 8–2.

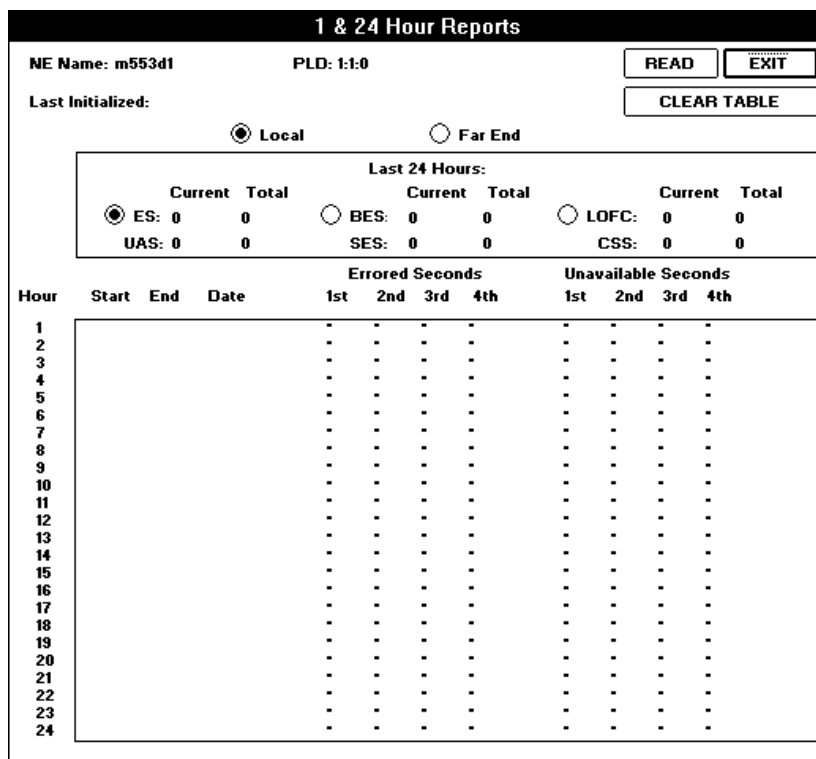


Figure 8-2 1 & 24 Hour Reports Window

Command Buttons

READ (STOP) instructs the SSC to read the Local and Far End buttons to determine which network element to gather error data from. Next it gathers then displays the information. As the system gathers information, the READ button changes to a STOP button. This lets you halt further information gathering if so desired.

CLEAR TABLE clears the 1 & 24 Hour Report display.

EXIT dismisses the window.

Fields

Note that when you select the READ button, the system indicates when the table was last initialized. There are two ways to initialize a table: by selecting the READ button, or at the current network element itself.

Local – this button instructs the system to gather error information form the current network element.

Far End – this button instructs the system to gather error information from the remote off the current network element in a point-to-point connection.

Total – displays the total count of a given error type.

Current – displays the present error count. This is not listed in the display. It is to the count during the present 15-minute interval. When this interval expires, the system will shift the count to the first column of the first line for the appropriate error type and then begin anew the current count.

You can display pairs of errored seconds by selecting one of the following buttons:

ES – displays Errored Seconds along with Unavailable Seconds.

BES – displays Bursty Errored Seconds along with Severely Errored Seconds.

LOFC – displays Loss of Frame Counts along with Controlled Slip Seconds.

The display (Figure 8–2) is read as follows: If you look at line number one, you will note that each item has four columns numbered 1st, 2nd, 3rd and 4th. The value in any column on that line represents the total number of errors accrued over a 15-minute interval. Each line represents a one hour interval starting with the most recent.

Definitions

ES (Errored Second) – is a one second duration in which one or more ESF errors are detected. (An ESF [Extended Superframe Format] error is an ESF frame that contains a CRC-6 error, or OOF state, both.)

UAS (Unavailable Second) – is counted for every second an unavailable signal state exists.

BES (Bursty Errored Second) – is a one second duration containing between 2 and 319 CRC-6 errors.

SES (Severely Errored Second) – is a one second duration containing either 320 or more ESF errors, or one or more OOF (Out of Frame) states.

LOFC (Loss of Frame Count) – is the number of times a frame loss is declared.

CSS (Controlled Slip Second) – is a one second duration that contains one or more controlled slip events.

1st – is a count of ESs and FSs for the most recent 15-minute interval. When 15 minutes passes, the data shift down into the 2nd interval counter and are replaced by data from the Current Interval counter.

2nd – is a count of ESs and FSs for the second most recent 15-minute interval. When 15 minutes passes, the data shift down into the 3rd interval counter and are replaced by data from the 1st interval counter.

3rd – is a count of ESs and FSs for the third most recent 15-minute interval. When 15 minutes passes, the data shift down into the 4th interval counter and are replaced by data from the 2nd interval counter.

4th – is a count of ESs and FSs for the fourth most recent 15-minute interval. When 15 minutes passes, the data are discarded and are replaced by data from the 3rd interval counter.

Counts for the 1st, 2nd, 3rd, and 4th intervals are summed then shift into the 1st Hour counter of the 24 Hour Report.

Scheduled Performance Reports

This option lets you initiate a poll of the current network element. The results are for the last four seconds. The current network element is polled once per second. You can select either inbound or outbound events by selecting the Inbound or Outbound buttons, respectively. As the polling is in progress, the READ button changes to a STOP button. This lets you stop the polling at anytime during polling activation.

Command Buttons

READ (STOP) instructs the SSC to poll the current network element. As the system gathers information, the READ button changes to a STOP button. This lets you halt further information gathering if so desired.

EXIT dismisses the window.

Chapter 9: Restoral Menu

Introduction

A network needs a means of continuing communications should a vital part of that network fail. For example, if a private communications line fails, the network needs an alternate channel for communications until the private line is restored. Restoral equipment provides this alternate. Restoral options let you initiate and terminate dial backup.

Figure 9–1 illustrates the Restoral Menu.

Reports	Restoral	System
	GROUP and POOL ASSOCIATION	Link Restoral Groups and Pools
	GROUP and POOL DEFINITION	Define Restoral Groups
	RESTORAL	Dial Backup Functions

Figure 9-1 Restoral Menu

Options

This Restoral Menu contains the following options:

Group and Pool Association

This option lets you link or dissolve a link between a group and pool. See Figure 9–2. *Before linking groups and pools, you must first define restoral groups. For further information concerning restoral group definition, see the topic **Group and Pool Definition** in this section.*

Prefix Number

Group Information

Pool Name	Prefix number

Pool Information

Group Name	Prefix Number

Figure 9-2 Group and Pool Association Window

Command Buttons

LINK GROUP AND POOL establishes a link between a selected group and pool.

SELECT GROUP opens a pop-up that requests a group name.

SELECT POOL opens a pop-up that requests a pool name.

DELETE LINK dissolves a link between a group and pool.

EXIT dismisses the window.

To link a group and pool:

1. Select **Group and Pool Association** from the Restoral menu.
2. Enter a group name or press the **SELECT GROUP** button.
When you select a valid group, the system displays links for that group in the list box below it.
3. Enter a pool or select the **SELECT POOL** button.
When you select a valid pool, the system displays the links for that pool in the list box below it.
4. Enter a prefix number. (To create a link without a prefix, leave this field blank.)

The prefix is added to the front of the telephone number when the pool dials remotes in the group.

5. Select the LINK GROUP and POOL button.

To dissolve a link between a group and pool:

1. Select **Group and Pool Association** from the Restoral menu.
2. Enter a group name or select the SELECT GROUP button.

When a valid group is selected, the system displays links for that group in the list box below it.

3. Select the pool from the list box whose link you want to remove.
4. Select the DELETE LINK button.

To dissolve a link between a pool and group:

1. Select **Group and Pool Association** from the Restoral menu.
2. Enter a pool name or select the SELECT POOL button.

When you select a valid pool, the system displays the links for that pool in the list box below it.

3. Select the group from the list box whose link you want to remove.
4. Select the DELETE LINK button.

Group and Pool Definition

This option lets you create and modify restoral groups. Restoral operations use these groups to perform group operations, e.g., calling a number of remotes simultaneously. Group operations have the advantage of being faster than single operations.

In the case of single operations, the system starts an operation then polls the unit for the status of that operation. It continues to poll until the operation has been carried out. For example, the system may instruct a unit to dial a number. Once the instruction is issued, the system polls the unit to see if it carried out the dialing.

In the case of group operations, the system starts an operation on all units and then returns to poll the first unit for the status of that operation, it then polls the next, etc.

The Group and Pool Definition window contains two displays: Group List and Network Element List.

- Group List displays the PLD, unit name and equipment type of the selected group, i.e., it lists the elements that compose the group.
- Network Element List displays the PLD, unit name and equipment type, of the available circuits and/or groups.

See Figure 9–3.

The screenshot shows a software window titled "Define". At the top, there is a "Group Name:" label followed by three buttons: "CANCEL", "SAVE", and "EXIT". Below this, there are four buttons: "ADD ELEMENTS", "DELETE ELEMENTS", "DELETE GROUP", and "SELECT GROUP". Underneath these buttons is a section labeled "Group List" which is currently empty. The bottom half of the window has a "Circuit Name:" label followed by three buttons: "ALL", "CIRCUIT", and "GROUP". Below these buttons is a section labeled "Network Element List" which is also empty.

Figure 9-3 Group And Pool Definition Window

Command Buttons

ADD ELEMENTS adds selected elements to a group.

DELETE ELEMENTS removes selected elements from a group.

DELETE GROUP removes a selected group from the database.

SELECT GROUP lets you create, display and edit a restoral group.

ALL lists all remote elements in the database.

CIRCUIT lists remote elements of a particular circuit.

GROUP lists elements of a particular group.

CANCEL dismisses the window without saving your input.

SAVE stores your input.

EXIT dismisses the window.

To create a restoral pool:

1. Select **Group and Pool Definition** from the Restoral menu.
This opens the Group and Pool Definition pop-up.
2. From the Define menu, select the Pool option.
3. Select the **SELECT POOL** button to open the Pool Selection pop-up.
4. Type the name of the pool into the Enter Pool Name field then select the OK button.
This closes the Pool Selection pop-up.

Note To create a null pool (one having no elements), skip steps 5 and 6.

5. Fill the Network Elements list by selecting the **ALL**, **CIRCUIT**, or **POOL** button.

6. Select a Starting Network Element from the Network Element List then select the SELECT START button.

This lists, in the Pool List display, all elements you associated with the Starting Network Element using the Configuration menu.

7. Select the SAVE button to store your input.

To modify a restoral pool:

1. Select **Group and Pool Definition** from the Restoral menu.

This opens the Group and Pool Definition pop-up.

2. From the Define menu, select the Pool option.

3. Select the SELECT POOL button to open the Pool Selection pop-up.

4. In the pop-up, type the name of the pool whose elements you want to list in the Pool List display then select the OK button. (To list all pools in the database, select the READ button.)

This closes the Pool Selection pop-up.

5. If you want to delete the pool, select the DELETE POOL button.

If finished, you may skip the following steps and Exit the window.

6. Fill the Network Elements list by selecting the ALL, CIRCUIT, or POOL button.

7. Select a Starting Network Element from the Network Element List then select the SELECT START button.

This lists, in the Pool List display, all elements you associated with the Starting Network Element using the Configuration menu.

8. Select the SAVE button to store your input.

Note *If the Starting Network Element is deleted from the database, the pool for which it is the Starting Network Element is also deleted.*

To create a restoral group:

1. Select **Group and Pool Definition** from the Restoral menu.

This opens the Group and Pool Definition pop-up.

2. From the Define menu, select the Group option.

3. Select the SELECT GROUP button to open the Group Selection pop-up.

4. Type the name of the group into the Enter Group Name field then select the OK button.

This closes the Group Selection pop-up.

Note *If creating a null group (one containing no elements), skip steps 5 and 6.*

5. To list circuits and/or groups in the network element list display, select the ALL, CIRCUIT or GROUP button.

6. From the network element list, select units that you want to assign to the group, then select the ADD ELEMENTS button.

7. Select the SAVE button to store your input.

To modify a restoral group:

1. Select **Group and Pool Definition** from the Restoral menu.
This opens the Group and Pool Definition pop-up.
2. From the Define menu, select the Group option.
3. Select the SELECT GROUP button to open the Group Selection pop-up.
4. In the pop-up, type the name of the group whose elements you want to list in the Group Definition display then select the OK button. (To list all groups in the database, select the READ button.)

This closes the Group Selection pop-up.

5. To add elements to the group, select the elements from the network element list display then select the ADD ELEMENTS button. To delete elements from the group, select the elements in the group list then select the DELETE ELEMENTS button. To delete the group, select the DELETE GROUP button.
6. Select the SAVE button to store your input.

Restoral

This option lets you initiate dial backup and receive dial backup status. Restoral can use restoral groups to perform group operations. Group operations have the advantage over single operations in that they are faster.

The Restoral window has two displays: Top and Command Status. The top display lists elements available for restoral operations, e.g., it lists equipment that can be placed on dial backup. The command status display lists equipment upon which the system is performing restoral operations.

Note *The terminate function must be sent to a network element to remove it from dial backup.*

See Figure 9–4.

RESTORAL		
Circuit Name:		<input type="button" value="EXIT"/>
<input type="button" value="ALL"/>	<input type="button" value="CIRCUIT"/>	<input type="button" value="GROUP"/>
<input type="button" value="SELECT ALL"/>	<input type="button" value="CLEAR ALL"/>	
PLD	NAME	STATUS
NE Name:		PLD:
<input type="button" value="DIAL"/>	<input type="button" value="LINE CONTROL"/>	<input type="button" value="STATUS"/>
<input type="button" value="TERMINATE"/>		
COMMAND STATUS		

Figure 9-4 Restoral Window

Command Buttons

The following commands can be performed on the current network element or on a selected item in the command status list display.

ALL lists all network elements in the database.

CIRCUIT lists network elements of a particular circuit.

GROUP lists network elements of a particular group.

SELECT ALL selects all network elements in the top display.

CLEAR ALL clears selected network elements in the top display.

DIAL initiates a call to the current network element or selected element.

Note *You cannot dial from the current network element if it is a master. It must be a remote.*

To dial from a master to a remote:

– Select the remote as the current network element then initiate the dial.

STATUS checks the dial backup status of a drop.

LINE CONTROL transfers data from the primary to dial backup line or vice versa. (Applies to the DBU-79 and RCU-54.)

TERMINATE ends dial backup and transfers the data path to the primary line.

Note *When a DBU-89 is on automatic dial backup and the Lookback feature is enabled, do not terminate the dial backup using the TERMINATE button. Lookback terminates it when the private line is restored.*

Fields

Group Name – is the selected group. (It is the group whose components are listed in the top display.)

NE Name – is the current network element. (This is a read-only field.)

Name – is the name(s) of an element(s) listed in the following display.

PLD – is the port/line/drop of the current network element. (This is a read-only field.)

Status – displays the status of the selected function. (This is a read-only field that is dynamically updated.)

Time – displays the time of restoral operation commencement. (This is a read-only field.)

To perform a group restoral operation:

1. To list circuits and/or groups in the network element list display, select the ALL, CIRCUIT or GROUP button.
2. Select the items that you want to perform restoral operations on. (To select all items, select the SELECT ALL button. To clear all selected items, use the CLEAR ALL button.)
3. Select the operation that you want to perform, e.g., DIAL to initiate dialing to the selected items.

Comments On Restoral

- If units go on dial backup automatically, the status field reads ‘Automatic DBU’.
- If units are in the test mode, the status field reads ‘in monitor test mode’.
- If a unit has a status of ‘disconnected’, you can redial it by selecting the unit and DIAL button, respectively. (It is unnecessary to terminate the call before redialing.)
- If an alarm scan reports that a unit on dial backup has dropped a call, the status field reads ‘disconnected’.
- If a unit drops a call and its restoral status is then read, the status field reads ‘disconnected’.
- If you perform a Test Dial using the Diagnostics menu, TEST DIAL is displayed upon initial connection. If you query the unit for its status using the Status button, the status that is displayed is: ON DBU.

Chapter 10: System Menu

Introduction

This menu lets you use the following.

- About – displays system information.
- Backup – backs up the system database to diskette.
- Change Password – lets you designate a new password.
- I/O Test – performs a loopback test on system ports.
- Level – sets the system's receive path delay.
- NETCON Console – is a terminal emulator program.
- Restore – restores a backed up database from diskette.
- Shutdown – shuts down the system.

Figure 10–1 illustrates the System Menu.

Control	Diagnostics	Reports	Restoral	System
ABOUT	About the Netcon Small System Controller			
BACKUP	Backup Netcon Small System Controller Database			
CHANGE PASSWORD	Modify Netcon Small System Controller Password			
I/O TEST	I/O Port Card Test Function			
LEVEL	Set Network Level			
NETCON CONSOLE	Netcon Console Emulator			
RESTORE	Restore Netcon Small System Controller Database			
SHUTDOWN	Shutdown Netcon Small System Controller			

Figure 10-1 System Menu

Options

The System Menu contains the following options.

About

This option displays the system application name, software version, and copyright information.

Backup

This option lets you back up the SSC database to diskette. This ensures an uncorrupted copy of the

database should the working database become corrupted. Back up the database as part of normal operational procedures. Your daily operations dictate the frequency of backup.

Comments On Backup

- If the diskette you use for backup is unformatted, Backup formats it. You can, however, format it from Windows or DOS. For instructions concerning diskette formatting from Windows or DOS, check your Windows or DOS manual.
- Backup erases all information on a diskette. Be sure there is no information on the backup diskette that you need.
- If the database is large, you may need to use more than one diskette for the backup. In this case, the system prompts you to load another diskette. Label each diskette as to which is first, which is second, etc. This is important should you need to restore the database.
- To restore a database use the Restore operation in this menu.

To back up the database to diskette:

1. Load a diskette into drive A.
2. Select the **Backup** option from this menu.

You can change the drive upon which to back up the database as follows:

1. Open the PIF Editor in the Main program group box in Windows.
2. Open the file BACKUP.PIF in the SSC directory.
3. To backup the database onto drive A, change the Optional Parameters line to:
C:\SSC\SSCDB.DBS A: /F
To backup the database onto drive B, change the Optional Parameters line to:
C:\SSC\SSCDB.DBS B: /F
4. Save the BACKUP.PIF file.

Change Password

This option lets you change the system password. A pop-up requests the current password. After you enter it, the system requests a new password. Once entered, you must reenter the new password as a verification check. Once verified, the new password goes into effect. If verification fails, the system requests that you reenter the new password. For further information on changing the password, see the topic Changing the System Password in Section 3 – USING THE SYSTEM.

I/O Test

This option tests each I/O port on the system. This test transmits a pattern through the transmit path of the selected port and returns it via a loopback connector to the receive path of that port. Transmit and receive patterns are then compared. Note that you must use a loopback connector on the port that you want to test.

Level

This option selects the maximum amount of time (in seconds) that the system waits to receive information on a port (receive path). The selection is performed from a combo box.

NETCON Console

This option opens an ANSI 3.6 terminal emulator that lets you communicate with another device via the system's COM1 port. This port can be connected directly, or by dial-up modem, to any device having a data format of: *1 start bit, 8 data bits, no parity, 2 stop bits*.

An example of a device meeting these criteria is the NETCON 70.

There are two modes of operation:

- Small System Controller
- NETCON 70 Console

SSC processes stop running while you are running NETCON 70 Console. These processes resume when you close the Console. For example, if the alarm scan is running and you run NETCON 70 Console, the alarm scan ceases until you close NETCON 70 Console.

For further information concerning NETCON 70 Console, consult MEGAVIEW[®] Console Software Package, publication number 058R610-V1.

Restore

This option restores a database from diskette to hard drive. You would use this if your working database became corrupted.

Comments On Restore

- The files that you want to restore must have been placed on the diskette by the Backup option.
- If you have multiple diskettes constituting the Backup, be sure to load the diskettes in the proper order. (When you backed up the database to diskettes, you should have marked each diskette indicating which was first, which second, etc., as stated in the Comments On Backup under Backup in this section.)

To restore a database to the hard drive from a backup file:

1. Load the diskette in the A drive of your computer.

If you have multiple diskettes and accidentally load a diskette out of sequence, the system prompts you for the next diskette. (See the topic **Comments Concerning Restore** in this section.)

2. Select the **Restore** option in this menu.

You can change the drive used to perform SSC Restoral as follows:

1. Open the PIF Editor in the Main program group box in Windows.
2. Open the file RESTORE.PIF in the SSC directory.

3. To restore the database from drive A, change the Optional Parameters line to:
A: C:\SSC\SSCDB.DBS*. * /S
To restore the database from drive B, change the Optional Parameters line to:
B: C:\SSC\SSCDB.DBS*. * /S
4. Save the RESTORE.PIF file.

Shutdown

This option lets you shut down the system and return to Windows. It also reminds you to perform a system backup.

Appendix A: Quick Start

Introduction

This section provides instructions for a quick installation of the SSC. It is intended for those experienced with installing the system. If you have limited or no experience in this area, use Section 2 – INSTALLATION.

Hardware

Installing a Modem

The COM1 serial port on your computer is for a modem. For information concerning modem installation, consult your modem documentation.

Installing a Mouse

The COM2 port on your computer is for a Microsoft or Microsoft-compatible mouse. For information concerning the installation of mouse hardware, consult your mouse documentation. For information concerning the installation of mouse software, see the topic Installing Mouse Software in this section.

Installing a Printer

The LPT1 port on your computer is for a parallel printer. For information concerning printer installation, consult both printer and Microsoft Windows manuals.

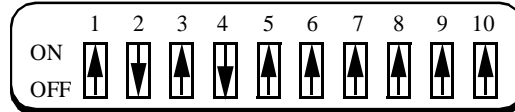
Installing a DigiBoard

Before installing the DigiBoard, option switches and jumpers as shown in Figure 1. For a depiction of switch and jumper locations, and installation instructions, consult your DigiBoard INSTALLATION GUIDE REFERENCE MANUAL.

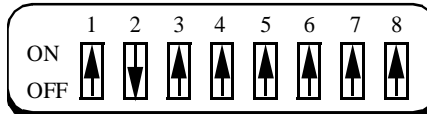
Switch Settings

Option switches exactly as illustrated to ensure proper system operation. For the first installed board:

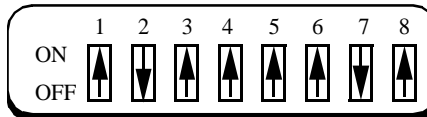
DS 1 sets address of status register.



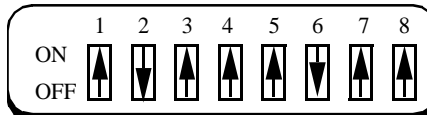
DS 2 sets the DigiBoard port 1 addr.



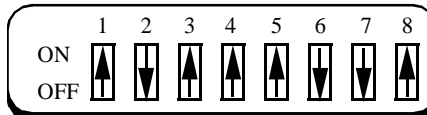
DS 3 sets the DigiBoard port 2 addr.



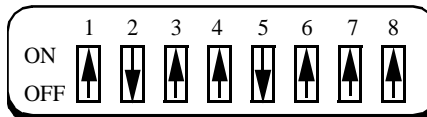
DS 4 sets the DigiBoard port 3 addr.



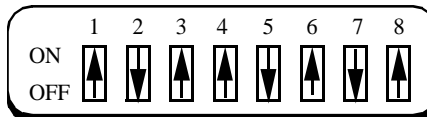
DS 5 sets the DigiBoard port 4 addr.



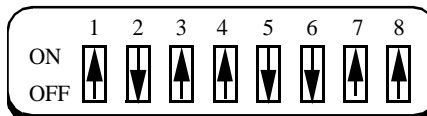
DS 6 sets the DigiBoard port 5 addr.



DS 7 sets the DigiBoard port 6 addr.



DS 8 sets the DigiBoard port 7 addr.



DS 9 sets the DigiBoard port 8 addr.

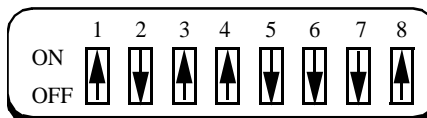
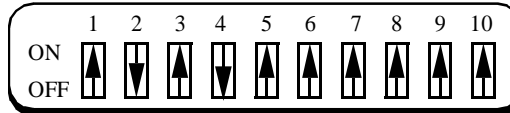


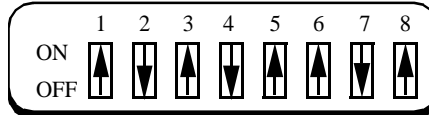
Figure 1-1 DigiBoard Switch Settings (1 of 2)

For the second installed board:

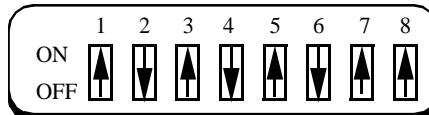
DS 1 sets address of status register.



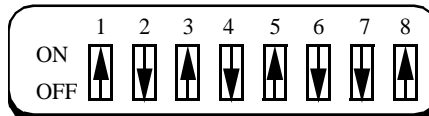
DS 2 sets the DigiBoard port 9 addr.



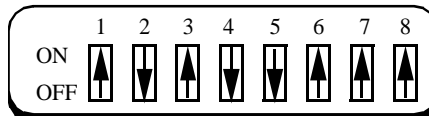
DS 3 sets the DigiBoard port 10 addr.



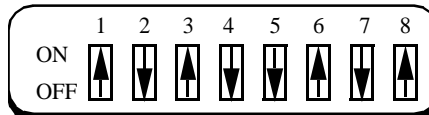
DS 4 sets the DigiBoard port 11 addr.



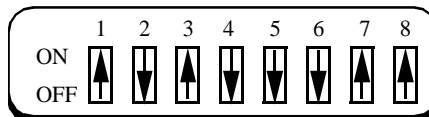
DS 5 sets the DigiBoard port 12 addr.



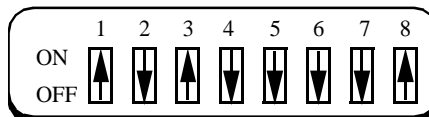
DS 6 sets the DigiBoard port 13 addr.



DS 7 sets the DigiBoard port 14 addr.



DS 8 sets the DigiBoard port 15 addr.



DS 9 sets the DigiBoard port 16 addr.

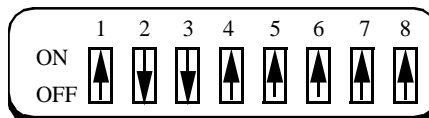


Figure 1-1 DigiBoard Switch Settings (2 of 2)

Jumper Settings

Option jumper blocks exactly as below. If you have questions on the settings, consult your DigiBoard INSTALLATION GUIDE REFERENCE MANUAL. *If you have a second board, you must order special daisy-chain cables from DigiBoard.*

You may have one or two DigiBoards in your system. In a single-board system, you can use a 4 or 8-port board. In a dual-board system, both must be 8-port boards. Set jumpers as follows:

For single DigiBoard systems:

- Jumper pins 1 and 2 on blocks J1 – J4 on a 4 port board. Jumper pins 1 and 2 on blocks J1 – J8 on an 8 port board. This sets odd interrupts at ports 1 – 4 and 1 – 8, respectively.
- Jumper pins 2 and 3 on blocks J9 – J10 to set the DigiBoard identification number. This identifies it as ‘board 0’.
- Jumper both pins on block J86 to option the DigiBoard for port LPT2 at interrupt address IRQ5. Remove all other jumpers from other blocks, i.e., J85 and J87 – J90.
- Jumper pins 2 and 3 on connectors P2 and P3. See Figure 2.

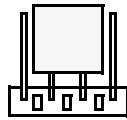


Figure 1-2 P2, P3 Jumper Settings for one board

For two DigiBoard systems:

- Jumper pins 1 and 2 on blocks J1 – J8 to set odd interrupts at ports 1 – 8.
- Jumper pins 2 and 3 on block J9 and pins 1 and 2 on block J10, to set the DigiBoard identification number. This identifies it as ‘board 1’.
- Jumper both pins on block J86 to option the DigiBoard for port LPT2 at interrupt address IRQ5. Remove all other jumpers from other blocks, i.e., J85 and J87 – J90.
- Remove jumpers from pin P2 on both boards and connect pins P2 together using the DigiBoard daisy-chain cable.

DigiBoard/Modem Connection

The DigiBoard has a 4-wire multicable with 4 DB-25 connectors. One end connects to the DigiBoard in the computer, the other to an 8-pin modular DigiBoard adapter. One end of the modular cable connects to the 8-pin modular DigiBoard Adapter, the other to the Interface Adapter. The Interface Adapter connects to the modem.

Software Installation

Computers purchased from General DataComm have the required software installed. This includes: DOS, DOS Utilities, Windows, SSC, AUTOEXEC.BAT and CONFIG.SYS files. If you want system options, e.g., a printer, you must install software for those options.

If purchasing only the SSC software package from General DataComm, you will need to use the

installation instructions that follow.

Required Software

- DOS 5.0 or higher
- DOS utilities
- Microsoft Windows 3.1 or higher
- System software

We recommend that you use a disk optimizer on your hard drive before installing either Microsoft Windows or SSC software. *Remember to back up your hard drive before using any disk optimizer.*

Partitioning the Hard Drive

The system requires a minimum of 16 megabytes of hard drive. It is recommended that you choose the largest possible partition size. Should you reinstall the system, you will need 10 megabytes of free disk. For information concerning hard drive partitioning, consult your DOS manual.

Formatting the Hard Drive

If the C drive on your computer is unformatted, you must format it. For information concerning hard drive formatting, consult your DOS manual.

DOS

The SSC computer requires DOS 5.0 or higher.

For information concerning DOS installation, or replacement of an installed version of DOS with another, consult your DOS manual.

Installing Windows

The system runs in a Windows 3.1 or higher environment. Install Windows according to your Windows manual.

Comments On Windows Installation

- Use Windows defaults.
- Windows offers a disk-caching program called SMARTDrive. (Consult your Windows documentation.) You are urged to use it provided you have a minimum 4 megabytes of RAM. With less RAM, SMARTDrive use outweighs its benefits.
- Windows installation asks if you want the AUTOEXEC.BAT and CONFIG.SYS files modified. It is advantageous to let the installation modify them. If you choose otherwise, you may have to modify these files later.

Install both DOS and Windows software before installing SSC software.

AUTOEXEC.BAT File

AUTOEXEC.BAT must contain the following commands:

```
PATH C:\WINDOWS;C:\
SET TEMP=C:\TEMP
```

Ensure that the root directory of the C drive has a \TEMP directory. If not, consult your DOS manual for instructions on creating the directory.

Comments On AUTOEXEC.BAT

- Include in the PATH command the drive and subdirectory(ies) where DOS and the required DOS files reside.
- If this file contains the SHARE.EXE statement, remove it.

For information concerning the PATH command or AUTOEXEC.BAT, consult your DOS manual.

CONFIG.SYS File

It is suggested that your CONFIG.SYS file contain the following:

```
FILES=40
```

```
BUFFERS=20
```

For information concerning CONFIG.SYS, consult your DOS manual.

Installing SSC Software

To install system software:

1. Load the system software diskette in the A or B drive.
2. Start Windows by typing **win** at the DOS prompt then press Return.
3. From the Windows Program Manager select **FILE**. Under FILE, select **RUN**.
4. Type **A:install** or **B:install** then press Return.
5. Follow the instructions on the installation window.

Installing Mouse Software

There are two environments from which to install a mouse: Windows or DOS. Installation from either environment is discussed below. For further information, consult your Windows manual.

Mouse Installation from the Windows Environment

As part of the Windows Setup procedure, you are presented with a list of mouse types. If your mouse is listed, select it; if not, return to DOS and use the Windows Setup procedure. (See the topic Mouse Installation from the DOS Environment below.)

Mouse Installation from the DOS Environment

From DOS, execute the Windows Setup procedure. (For information concerning this, consult your Windows documentation.) In this procedure you are presented with a list of mouse types. If your mouse is listed then select it; if not, select the *Other* option. In the latter case a prompt requests that you load the mouse manufacturer's diskette in the disk drive.

After installing the hardware and software, perform a Loopback test on all 4 ports as instructed in the next topic.

Testing

To perform a Loopback Test:

1. Install the Loopback Test plug (provided) into one of the DigiBoard adapters.
2. Type **NETSSC** at the DOS prompt then press Enter.
3. Press the F5 key and enter the system password.
4. Select the **I/O TEST** from the System Menu.
5. Select the port that you want to test (the one with the test plug) from the pop-up that opens.
6. Repeat this procedure for the other ports.

If any of the port tests fail, perform the following:

- Check cable connections.
- Check pin and jumper optioning.
- Remove any non-SSC options from your computer then retest.

Appendix B: Alarm Descriptions

Alarm	Description
Aggregate Data Rate	Multiport aggregate data rate differs from the specified data rate.
Aggregate DCD Loss	Data Carrier Detect is absent for 1 or more seconds on the aggregate link of a multiport.
Aggregate RXC Loss	Loss of aggregate receive clock on the aggregate link
Auto Fallback	Network element has automatically dropped to a lower data rate (< 19.2 Kbps).
Cascade AIS	Indicates if the DSU is (X) or is not (.) receiving an AIS form the network.
Channel Loopback	Telco has placed the network element into line loopback. (This applies to CSU and DDS units only.)
Configuration Error	Failure of configuration information in non-volatile memory (EEPROM) at the network element.
CSU Loopback	Telco or the Central Office has placed the CSU in loopback (current reversal).
CTS Line Shorted	This EIA/TIA 232-E (RS-232) signal is shorted to another RS-232 output signal.
DBU AutoCall Failed	Automatic dial backup was unsuccessful.
DBU AutoCall Timeout	Network element was on dial backup longer than the configured time and as a result the call was terminated.
DBU-56 Frnt Pn Cntr	Network element is controlled by an intelligent front panel or NMC-30B.
DBU-56 No Signal	Line loss between network elements on a DDS network.
DBU-56 Power Failure	Power loss at the network element. The loss is reported upon network element power-up or reset, and is cleared by the controller alarm scan.
DBU-56 STC Loopback	Telco has initiated diagnostic testing.
DBU-56 Streaming	Request to Send at a DTE exceeds a time threshold. In this situation, the current network element ignores Request to Send and drops carrier.
DBU-56 Test Call	A dialing test is in progress.
DBU-89 Answered	DBU-89 answered a dial backup call.
DBU-89 Auto Dialed	DBU-89 initiated dial backup.
DBU-89 Auto Fallback	DBU-89 initiated Fallback.

Alarm Descriptions

Alarm	Description
DBU-89 Frnt Pnl Dial	Dial backup was manually initiated using the front panel on the network element.
DBU-89 Hardware Fail	DBU-89 hardware problem.
DBU-89 Netcon Dialed	Operator-initiated dial backup from the NETCON controller.
DBU-89 Rate Changed	Automatic data rate change at the DBU-89.
DBU-89 Retrain(s)	DBU-89 had 3 or more retrains in the last 5 minutes.
DBU-89 RX VF Low	DBU-89 measured a received voice frequency that is below – 32 dBm.
DBU-89 S/N Ratio Low	Corresponding bit-error ratio of greater than $1 \times 10E-5$.
DBU-89 Ser# Mismatch	Automatic dial backup event occurred between two master and remote DBU-89s. The remote transmitted its serial number to its master. The controller polled the master for the remote's serial number and compared it with the network element serial numbers in its own database. The comparison discovered a mismatch, i.e., it did not find the serial number of the remote in its database.
DCD Line Shorted	This EIA/TIA 232-E (RS-232) signal is shorted to another RS-232 output signal.
DCD Loss	Data Carrier Detect is absent at the network element for more than 1 second.
DDS Pairs Reversed	Tx and Rx line pairs are swapped.
Drop Outs	Decrease in signal amplitude of 12 or more dBm lasting 10 or more milliseconds.
DSR Line Shorted	This EIA/TIA 232-E (RS-232) signal is shorted to another RS-232 output signal.
DSR Loss	Loss of Data Set Ready at a network element. (This may result while the network element is in a test condition.)
DSU Loopback	Telco has placed the DSU in digital loopback.
DTP Loss	Low or absent power level at the data terminal.
DTP Loss Channel (1-8)	Low or absent power level at the data terminal off a multiport channel.
DTR Loss	Absent Data Terminal Ready.
DTR Loss Channel (1-8)	Absent Data Terminal Ready on a multiport channel.
External Input	ON condition at either or both network element external inputs.
Ext. Input Change	Either or both of the network element external inputs has changed state.
Frame Loss	DSU has not received the correct frame sequence.
Frequency Offset	Deviation between the threshold and received frequencies.
Front Panel Control	Network element is controlled by an intelligent front panel or NMC-30B.
FTM/S Hard Optioned	FTM/S Hard/Soft option switch is set to Hard. (For further information consult, the FTM/S manual.)

Alarm Descriptions

Alarm	Description
Gain Hits	Unwanted positive or negative variations in signal amplitude of more than 3 dBm lasting more than 20 milliseconds.
Hardware Error	Network element's programmed memory is faulty and the unit is in need of service.
Impulse Hits	Presence of unwanted positive or negative variations in signal amplitude of more than 3 dBm lasting fewer than 20 milliseconds.
Inactive Remote	Master multiport has lost communications with a multiport remote in a multipoint circuit.
Invalid Response	Controller received an invalid response to its command, i.e., there is a checksum or parity error or the Netcon level is incorrect.
Invlid Resp DBU-89	Controller received an invalid response to its command from a DBU-89.
Invlid Resp Mltprt	Controller received an invalid response to its command from a multiport, i.e., a parity or checksum error was detected.
Invlid Resp Mltprt-xp	Controller received an invalid response to its command from a multiport expander, i.e., a parity or checksum error was detected.
Last Gasp	Power failure at a remote that is reported by the master.
Low Lvl Poll	A polls that falls below VF Low Level threshold during an integration level.
MUX Out of Sync	Telco or the Central Office has sent the network element a 'MUX out of synchronization' control code.
Network Delay Shift	Internal communications between remote and master multiports has exceeded threshold.
No DDS Loop Current	Network scaling current is inadequate.
No Diag Resp	The remote dataset has stopped responding.
No Response	Network element did not respond to a controller command.
No Resp DBU-89	DBU-89 did not respond to a controller command.
No Resp DTE Poll	RTS at the remote station is not toggling.
No Resp Mltprt	Multiport did not respond to a controller command.
No Resp Mltprt-xp	Multiport expander did not respond to a controller command.
No Signal	Line loss between network elements on a DDS network.
NonLinear Distortion	Summary measurement of total harmonic distortion exceeds threshold.
On Dial Backup	Network element is on dial backup.
Overflow Channel (1-8)	Under or overflow buffer condition in the synchronous mode on multiport channel configured for external timing.
Phase Hits	Presence of unwanted shifts of 15 or more degrees in a signal phase lasting 4 or more milliseconds.

Alarm Descriptions

Alarm	Description
Phase Jitter	Presence of a rapid variation in signal phase by 5 or more degrees with respect to itself.
Poll Quality	Percentage deviation between an 'ideal' and 'actual' data pattern gathered by polling.
Port (A–B) Dropped DBU	Switched-network modem on port A or B of a TDC-2 has dropped its dial back-up call (disconnected). A terminate command was not issued by the controller.
Port Failed	Communications port on the controller has failed.
Power Failure	Power loss at the network element. The loss is reported upon network element power-up or reset, and is cleared by the controller alarm scan.
Retrain(s)	Internal synchronization between network elements resulted in poor signal quality resulting in modem retraining. This can be due to a mismatch of modem configurations.
Rmt Lost Netcon Chnl	Loss of NETCON communications receive carrier by a remote for 5 or more seconds.
RX VF High	Receive signal exceeds threshold.
RX VF Low	Receive signal is below threshold.
RXC Line Shorted	This EIA/TIA 232-E (RS-232) signal is shorted to another RS-232 output signal.
RXD Line Shorted	This EIA/TIA 232-E (RS-232) signal is shorted to another RS-232 output signal.
RXD Loss	Loss of primary receive data by a network element that is receiving valid primary carrier. This alarm is reported to the controller by the multipoint master.
RXD Loss Aux Channel	Loss of primary receive data on a multipoint auxiliary channel.
RXD Loss Channel (1–8)	Loss of primary receive data on a multipoint channel.
S/N Modem Out of Svc	Problem with the switched-network modem on an FTM/S.
S/N Ratio Low	Noise level that exceeds signal level by an unacceptable threshold.
Self Test	Network element initiated a selftest.
SQM Alert	Signal Quality Monitor (SQM) represents the percentage of errors in blocks of receive data. If the percentage exceeds threshold, an SQM alert results.
STC Loopback	Telco has initiated diagnostic testing.
Streaming	Request to Send at a DTE exceeds a time threshold. In this situation, the current network element ignores Request to Send and drops carrier.
Streaming Aux Chnl	Streaming condition on a multipoint auxiliary channel.
Streaming Channel (1–8)	Request to Send at a data terminal exceeds threshold as monitored on a multipoint channel.
Streaming MBC Line (1–2)	Request to Send at a data terminal exceeds threshold as monitored on MBC-2 line 1 or 2.

Alarm Descriptions

Alarm	Description
Streaming Netcon Chn	NETCON channel of the remote is streaming into the master.
Streaming Port (A-B)	Request to Send at a data terminal exceeds threshold as monitored on port A or B of a TDC.
Streaming Port (1-4) Test Code	Request to Send at a data terminal exceeds threshold as monitored on an FTM port.
Test Code	Telco has injected a 'test code' onto the DDS line.
Test Mode	Network element is in test mode initiated by the front panel test switch.
TM Line Shorted	This EIA/TIA 232-E (RS-232) signal is shorted to another RS-232 output signal.
TXC Line Shorted	This EIA/TIA 232-E (RS-232) signal is shorted to another RS-232 output signal.
TXC Loss	Network element configured for external timing has lost its transmit clock from the DTE.
TXC Loss Channel (1-8)	Absent transmit clock on a multiport channel.
TXD Loss	Loss of transmit data while RTS is at a logic high. This is reported by a remote unit on a multipoint network.
TXD Loss Aux Chnl	Loss of transmit data on the auxiliary channel of a multiport.
TXD Loss Channel (1-8)	Loss of transmit data on a multiport channel.
Txmrt Inoperable	The transmitter is not providing signal pulses at the line interface.
Unassigned MUX	Telco has placed an 'Unassigned MUX' code on the network channel.

Note *The following are a family of Telco out-of-service network control codes:*

- *Channel Loopback*
 - *CSU Loopback*
 - *DSU Loopback*
 - *MUX Out-of-Sync*
 - *Test Code*
 - *Unassigned MUX*
-

Alarm Descriptions

Appendix C: Glossary

Alarm	An indication of a problem at a monitored network element.
Backup	The process of copying files from a hard drive to another storage medium, e.g., a diskette.
Baud	The speed that individual signals travel through a communications network. More specifically, baud is the reciprocal of the shortest element (in seconds) in the data encoding scheme. For example, a network having the shortest element of 1 ms long, has a baud of 1000 elements per second.
Bit	The smallest unit, represented in binary form, of information. Possible values are: 0 or 1.
Byte	A binary string of bits (1s or 0s) that represents one character. A synchronous byte is usually 8 bits while an asynchronous byte is usually 10 bits.
Checksum	The sum of a group of data items that is used in error checking. Usually the transmitting device uses an algorithm that sums the bits transmitted in a packet. The sum is transmitted at the end of the packet. The receiving device uses the same algorithm for its calculation. If the data block arrives at the same sum no errors are detected.
Command buttons	Buttons that let you execute various operations, e.g., SAVE, DELETE.
CSU	Channel Service Unit. A device that terminates a data channel at your premises. It responds to loopback commands from the Central Office, performs some line conditioning and equalization functions.
Database	A structured collection of information that is often shared by multiple applications.
Default	A required value supplied by the system if you do not supply it.
DDS	Dataphone Digital Service. A private line digital service.
Dial-up line	A communications circuit established by a switched circuit connection using the telephone dial network.
Directory	A file containing the names and controlling information for other files and sub-directories.
Diskette	A solid medium, direct access magnetic storage device often composed of Mylar that is coated with a material that allows it to store information on a long term basis.
DOS (Disk Operating System)	An operating system used by many personal computers.

DTMF	Dual Tone Multi Frequency. A method of signaling in telephony where two tones are combined, usually a high and low frequency tone. The combination results in a signal that corresponds to the telephone key pressed.
Flow buttons	Buttons that let you move from one window to another.
Hard disk	A disk often composed of aluminum or ceramic that can store information on a long term basis.
Hookflash	A signal to a PBX (Private Branch Exchange) or Centrex that special instructions will follow. On some telephones this is produced by rapidly pressing and releasing the hookswitch or pressing a Flash button.
Icon	A graphic representation of an application on a computer.
Loopback test	A communications test performed by connecting the output and input of a single device and testing the quality of the received signal.
Modem	A communications device that lets the system exchange (transmit and receive) data with other devices by converting computer signals for transmission/reception over a different medium.
Network elements	The devices, e.g., modems, that compose a communications network.
Non-volatile memory	Memory that is not lost when power is terminated to the device supporting the memory.
Operating system	A collection of programs that controls the overall functioning of a computer.
Parity	A process for detecting the alteration of information (data bits) during data transmission.
Password	A series of characters that lets you log on a system.
RAM (Random Access Memory)	The storage area for information in a computer proper (as opposed to auxiliary memory, e.g., diskette, that is external storage). This is also called main memory.
Restore	Copies backed up files from a diskette to a hard drive. This is used primarily to replace damaged or corrupted databases.
Root directory	The top level of a tree-structured directory system.
Serial port	A system port used for serial communications with another device.
Start bit	The first bit in a character of asynchronous data used to synchronize the receiving device.
Switched Network	A common carrier network that provides circuit switching between public users.
Parallel port	A system port used for parallel communications with another device.
Stop bit	The last bit in a character of asynchronous data that permits the receiving device to pause before accepting another character.
User-status	The security level that defines the system operations that you can access and use.
Volatile memory	Memory that is lost when power is terminated to the device supporting the memory.

