

## International FrameSaver™ 1-Slot Unit Installation Instructions

Document Number 9000-A2-GN18-10

April 1998

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### International Application

These installation instructions cover most international applications of the FrameSaver™ 9620 and 9120 units outside of North America. For installation of the FrameSaver 9120 in countries where T1 network access is available (for example, Japan), refer to the *1-Slot Assembled Access Unit Installation Instructions* (Document No. 9000-A2-GN10) that came with your unit.

The FrameSaver unit that you have received has been produced especially for networks outside of North America. Your FrameSaver unit differs from the North American model in the following ways:

- Your FrameSaver unit uses a different power supply, called the Universal power supply.
- The port rate speed can be up to a maximum of 2048 kbps (9120 only).
- Port 2 can be used for connection to the network via an external, country-specific Network Termination Unit (NTU). In this case, the Frame Relay Discovery feature does not apply to your FrameSaver unit.

The FrameSaver 9620 and 9120 units provide a V.35 interface (the 9120 also provides an X.21 interface) to the network for access to Frame Relay services. Therefore, the FrameSaver units do not internally implement the X.25 protocol. However, if a gateway function is provisioned in the network, it can be used on the X.25 PSPDN.

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## Before You Begin

If you ordered a wall mounting kit (Feature No. 9001-F1-891) for your 1-slot FrameSaver access unit, install the wall mounting before you start installing the unit. Follow the same guidelines below when installing the wall mounting.

Contact your sales representative to order this feature.

Make sure you have:

- A dedicated, grounded power outlet that is protected by a circuit breaker within 6 feet of the FrameSaver unit.
- A clean, well-lit, and ventilated site that is free from environmental extremes.
- One to two feet of clearance for cable connections.
- A physical connection to the frame relay network via an NTU, with either an X.21 or a V.35 user interface. This connection is made using a crossover cable attached to Port 2 of the FrameSaver unit. Refer to *Cables You May Need to Order* on page 4 when ordering the crossover cable.
- An async (asynchronous) terminal or PC (personal computer) to set up the access unit.
- A power cord. See *Power Cords* on page 4 for more information.
- Node IP Addresses and Subnet Masks. See your network administrator for this information.
- The DLCIs (data link connection identifier) and the CIR (Committed Information Rate) for each of the PVCs (permanent virtual circuits), provided when the frame relay service was purchased.
- Type of LMI that will be used for frame relay.
- The NTU user data port rate.

## Worksheets

It is recommended that you complete configuration worksheets before you begin, with changes from the default (factory-set) settings and information to be entered clearly marked (e.g., the node's IP address). Having completed worksheets before installation is begun speeds setup time.

Worksheets are provided in Appendix B of the *FrameSaver 9120 Technical Reference* (diskettes labeled Document No. 9121-A3-GH30) and the *FrameSaver 9620 Technical Reference* (diskettes labeled Document No. 9621-A3-GH30).

### NOTE:

It is important that you follow the instructions for installing the FrameSaver unit as they are presented for a quick and trouble-free installation. Do not install your cables until instructed to do so.

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## Package Checklist

Verify that your package contains the following:

- 1-Slot FrameSaver 9120 or 9620 unit
- Universal power supply with an attached cable and ferrite choke, and power cord
- COM port-to-PC cable (DB9 connector, 14 feet – 4.3m)
- V.35 or X.21 DTE adapter cable for Port 1, depending on the model ordered (1 foot – .3m)
- V.35 or X.21 crossover cable for Port 2, depending on the NTU interface (10 feet – 3m)
- For FrameSaver 9120 only – 3 ferrite chokes for COM port cable and two DTE cables
- RJ45 Loopback Adapter Plug (installed in NET port)
- Universal Power Supply (220 Vac) Safety and Regulatory, Warranty and Service Information* (Document No. 9000-A2-GX43)
- FrameSaver 9120 User's Guide* (Document No. 9121-A2-GB20) or *FrameSaver 9620 User's Guide* (Document No. 9621-A2-GB20) with *Quick Reference*.
- FrameSaver 9120 Technical Reference* (Document No. 9121-A2-GH30) or *FrameSaver 9620 Technical Reference* (Document No. 9621-A2-GH30) – on diskettes
- Warranty card
- Training reply card

Additional cables may need to be ordered. See *Cables You May Need to Order* on page 4 when ordering cables.

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## Power Cords

Refer to the following table to verify that you have the appropriate power cord for the wall-plug standard in your country.

| Country                             | Plug Standard | Part Number   | Power Cord Description          |
|-------------------------------------|---------------|---------------|---------------------------------|
| United Kingdom                      | BS1363        | 125-0075-0031 | IEC 320-to-BS1363 – 2.5m        |
| Continental Europe, the Netherlands | CEE-7/7       | 125-0074-0031 | IEC 320-to-CEE-7/7 – 2m         |
| Italy                               | CEI 23-16/VII | 125-0101-0031 | IEC 320-to-CEI 23-16/VII – 2.5m |
| India                               | BS 546        | 125-0098-0031 | IEC 320-to-BS 546 – 2.5m        |
| Japan                               | JIS 8303      | 125-0092-0031 | IEC 320-to-JIS 8303 – 2.5m      |
| Korea                               | NEMA 5-15P    | 125-0007-0031 | IEC 320-to-NEMA 5-15P – 2.3m    |

## Cables You May Need to Order

| If connecting to a . . .  | Order a . . .   | Feature Number | Model Number  |
|---|---|----------------|---------------|
| Terminal/Printer (DB25 interface/connector, EIA-232 connection) | COM Port-to-terminal/printer cable                    | 3100-F2-540    | 035-0314-1431 |
| DTE with a V.35 interface/connector                             | V.35 DTE adapter cable, EIA-232E/EIA-530A-to-V.35     | 3100-F1-570    | 035-0244-0031 |
| DTE with a X.21 interface/connector                             | X.21 DTE adapter cable, EIA-530A-to-X.21              | 3100-F1-571    | 035-0302-0131 |
| LAN adapter   | COM Port-to-LAN adapter cable                         | 3100-F2-910    | 035-0315-1431 |
| DCE/network terminal with a V.35 interface/connector            | V.35 network crossover cable, Port 2 EIA-530A-to-V.35 | 9008-F1-522    | 035-0361-1031 |
| DCE/network terminal with a X.21 interface/connector            | X.21 network crossover cable, Port 2 EIA-530A-to-X.21 | 9008-F1-521    | 035-0362-1031 |

Contact your sales representative to order cables.

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In addition, you need a V.35-to-X.21 interface converter if you have a 9620 unit that you intend to connect to an NTU with an X.21 interface. You need this converter in addition to the V.35 crossover cable for this type of connection. The following converter has been tested to work with the FrameSaver 9620 unit:

- Socket V.35 (DCE)-to-Plug DB15 (DTE) cable provided by Black Box (Product IC940A-F)

## Safety Instructions

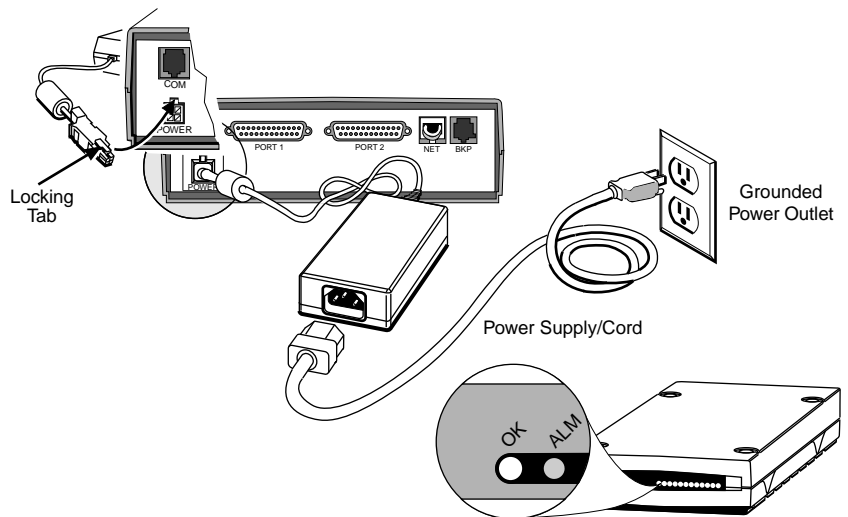
Please read the EMI warning and Important Safety Instructions that come with this unit, in the *Universal Power Supply (220 Vac) Safety and Regulatory, Warranty and Service Information*.

## Installing the Power Supply and Cord

The universal power supply is only used with a 1-slot FrameSaver unit and is intended for international markets.

1. Insert the power supply's 4-prong plug into the POWER jack.

When inserting the plug at the rear of the FrameSaver unit, align the plug with the notch above the POWER jack. Make sure the locking tab snaps securely into the jack.



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2. Insert the socket end of the power cord into the power supply's receptacle.
3. Plug the power cord into the grounded power outlet.

## Verification Check

Did the OK LED light?

- If yes, the FrameSaver unit has power and has passed self-test.
- If no, refer to *Troubleshooting Power and COM Port Connections* on page 8.

### NOTE:

It is normal for the Operational alarm (ALM) LED on the front panel to be lit at this point in the installation.

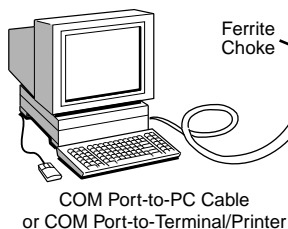
## Connecting the COM Port to an Async Terminal or PC

The FrameSaver unit must first be directly connected to a VT100-compatible terminal, or a PC or async terminal (providing VT100 terminal emulation) to set up access and management of the unit.

1. Configure the async or VT100-compatible terminal or PC to be compatible with the access unit:
  - Baud Rate set to 19.2 kbps.
  - Character length set to 8 data bits.
  - Parity set to none.
  - Stop bit set to 1.
  - Flow Control set to None.
2. Connect the PC or async terminal to the FrameSaver unit's COM port. For a 9120 unit only, attach the supplied ferrite choke to the cable as close to the unit as possible (see figure below).

| In general, to connect to a . . . | Use the cable with a . . .               |
|-----------------------------------|--|
| PC                                | DB9 connector (Feature No. 3100-F2-550)  |
| Async terminal                    | DB25 connector (Feature No. 3100-F2-540) |

### To Connect to a PC or Async Terminal:



- a. Insert the 8-pin modular connector of the cable into the COM port of the FrameSaver unit.
- b. Insert the other end of the cable into the PC or async terminal serial communication port.

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3. Press Enter (or Return, depending on your keyboard) to display the Main Menu.

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## Verification Check

Did the Main Menu appear?

- If yes, you are ready to continue with the installation.
- If no,
  - Recheck terminal and FrameSaver unit compatibility (see settings in Step 1).
  - Did you press the Enter key on your keyboard?

Refer to *Troubleshooting Power and COM Port Connections* on page 8 for other possible causes. Refer to Chapter 5, *Troubleshooting and Maintenance*, in the Technical Reference for additional explanations.

## Verifying that Self-Test Passed

1. Follow this menu selection sequence from the Main Menu and press Enter after each selection:

*Main Menu → Status → System and Test Status*

2. Check the Self-Test Results column (in the center of the System and Test Status screen).
  - If **Passed** appears, the FrameSaver unit successfully completed the self-test.
  - If any failure messages appear in this column, reset the unit by disconnecting, then reconnecting the power cord. The unit will perform the Self-Test again. If the failure reappears, call your service representative for assistance.

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## Troubleshooting Power and COM Port Connections

| Symptom  | Possible Cause   | Solutions   |
|--|--|---|
| No power, or none of the system LEDs are lit.  | Power cord is not securely plugged into the wall power outlet or the universal power supply. | Check that the power cord is securely attached at both ends.  |
|  | Wall receptacle has no power.  | <ol style="list-style-type: none"><li>1. Check the wall receptacle power by plugging in some equipment that is known to be working.</li><li>2. Check the circuit breaker.</li></ol> |
|  | Power supply is defective.   | Contact your sales or service representative for replacement of the power supply.   |
| An LED is not lit.   | LED is burned out.   | Run the Lamp Test. If the LED in question does not flash with the other LEDs, contact your sales or service representative.   |
| Power-Up Self-Test fails. The Alarm LED is on after power-up, but the OK LED is not. | The FrameSaver unit has detected an internal hardware failure.                               | <ol style="list-style-type: none"><li>1. Reset the FrameSaver unit and try again.</li><li>2. Contact your service representative.</li></ol>   |

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## A Quick Guide to Configuration

The FrameSaver unit should operate using the default (factory-set) configuration options, with exception to the changes specified in these installation instructions. Refer to the following table for help navigating the menus.

| Press the . . .  | To . . .  |
|--|---|
| Esc key  | Go back one screen or menu level. To see a visual representation of the menu levels, see Menu Hierarchy in the <i>FrameSaver 9120</i> or <i>FrameSaver 9620 Quick Reference</i> .   |
| Tab key, or<br>Up (↑), Down (↓),<br>Left (←) and Right (→)<br>arrow keys | Move the cursor from one menu item to the next. Tab from field-to-field rather than pressing the Return key to avoid clearing information just entered, or inadvertently changing default option settings. Like Enter, the Tab key advances the cursor to the next field. |
| Enter or Return key  | Complete the menu or option selection.  |
| Spacebar   | Display the next available setting when changing a configuration option. All the available settings for an option appears at the bottom of the screen.  |

As an example, follow these steps to go to the Configuration Edit/Display menu so you can start setting up the unit:

1. From the Main Menu, press the down arrow key twice so the cursor is on Configuration.
2. Press Enter to display the Configuration menu. The Load Configuration From menu appears.
3. Press Enter to select Current Configuration, where the cursor is already positioned. The Configuration Edit/Display menu appears.
4. Select the Configuration area to save to.
5. Press Enter.

This sequence of steps would be shown as the menu selection sequence:

*Main Menu → Configuration → Load Configuration From: → Current Configuration*

To save a configuration option change:

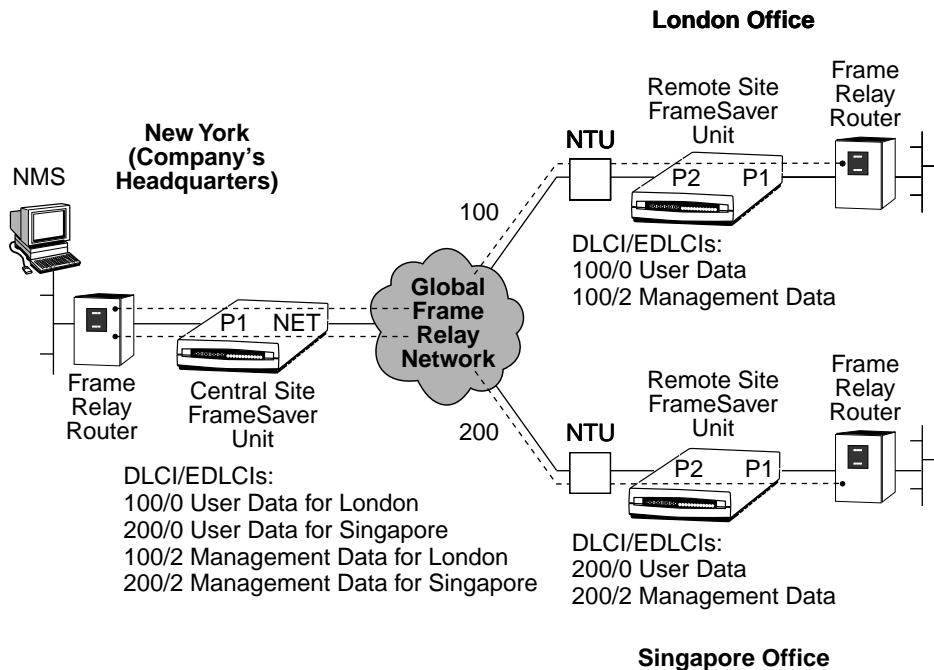
1. Press Ctrl-a to switch from the screen area to the screen function keys area.
2. Type s or S (Save).
3. Press Enter.

In the sections that follow, only the minimum option changes required are included so you will have a quick and trouble-free installation.

See the configuration option tables in the Technical Reference for more information about configuration options.

## Installing and Setting Up the FrameSaver Unit

The following sections guide you through installation and set-up of the FrameSaver unit. It is assumed that the FrameSaver unit being configured is a remote unit located at a company's international site (e.g., London) and that the central site unit is located at the company's headquarters (e.g., New York). See the following figure for an example.



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These instructions assume that the unit is configured for factory default settings at the start of installation.

The configuration option settings for management, as described in this document, are appropriate for the remote site unit. The central site FrameSaver unit should be configured for local management from a Network Management System (NMS), through either the attached router or the COM port. Multiple management PVCs then connect the central site unit to the remote site units. It is assumed that the central site FrameSaver unit is installed and configured using the Auto-Configuration feature. See the Technical Reference for more information on configuring the central site unit.

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Follow these instructions as they are presented. Installation time will be increased if you connect all cables first.

- Disable Frame Relay for the Network Interface (see *Disabling Frame Relay on the Network Interface*).
- Configure for remote management (see *Configuring for Remote Management* on page 12).
- Connect and configure network access via Port 2 and configure the DLCIs (see *Connecting to the Network and Configuring Port 2* on page 13).
- Configure the DTE connection on Port 1 and configure the DLCIs (see *Configuring Port 1* on page 17).
- Configure user data PVC(s) between Port 1 and Port 2 (see *Configuring a User Data PVC* on page 19).
- Configure a management PVC (see *Configuring a Management PVC* on page 20).
- Configure SNMP Trap Managers (see *Configuring SNMP Trap Managers* on page 21).
- Connect to the DTE (generally, the router) (see *Connecting to the DTE* on page 22).

## Disabling Frame Relay on the Network Interface

Disable frame relay for the network interface since network access will be through Port 2 instead of the network interface.

1. Select the Frame Relay configuration options.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Network → Frame Relay*

2. Press the spacebar so that Disable appears in the Link Status field.
3. Press Enter to enter the change.
4. Save the change.

If setting up a FrameSaver 9120, the DSX-1 interface should already be disabled. If frame relay is not disabled on the Network interface, the **LMI Down, Network** status message appears continually on the System and Test Status screen.

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## Configuring for Remote Management

To configure for remote management, you must set up the following:

- Communication protocol options to be used
- SNMP management

### Set Up the Communication Protocol Options

This is where an IP address for the FrameSaver unit is entered so the FrameSaver unit can be accessed. If no address is entered, remote management cannot take place.

1. Select Management and Communication configuration options.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Management and Communication → Communication Protocol*

2. Minimally, enter the following options for the FrameSaver unit:

- Node IP Address.
- Node Subnet Mask.

**NOTE:**

Selecting Clear allows you to start over if you make a mistake.

The decimal points between address segments are not entered; they are automatically inserted. Leading zeros must be entered.

3. Save the entries.

### Set Up for SNMP Management

These options enable SNMP management.

1. Select the General SNMP Management configuration options.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Management and Communication → General SNMP Management*

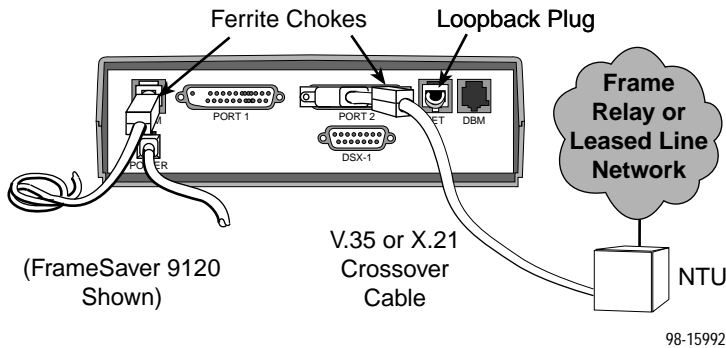
2. Minimally, change the Name 1 Access configuration option to Read/Write.
3. Save the General SNMP Management changes.

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## Connecting to the Network and Configuring Port 2

Access to the network is through connection to an external DCE, like an NTU (Network Termination Unit), which requires a V.35 or X.21 crossover cable. The network (NET) and DSX-1 interfaces are not used.

1. For a FrameSaver 9620, plug the EIA-232E end of the V.35 crossover cable into Port 2.  
For a FrameSaver 9120, plug the EIA-530A end of the V.35 or X.21 crossover cable into Port 2. Attach the supplied ferrite choke to the cable as close to the unit as possible (see figure below).
2. Plug the V.35 or X.21 end of the crossover cable into the NTU.
3. Tighten the screws on each connector to secure them.



### NOTE:

Ensure that the loopback plug is installed in the RJ48 NET connector.

## Set Up Physical Options for Port 2

1. Enable Port 2.  
*Main Menu → Configuration → Load Configuration From: → Current Configuration → Data Ports or Ports → Port-2 column*
2. Select the Port 2 Physical options.
3. Minimally, change the following configuration option settings:
  - Port Type set to V.35 or X.21 (available for 9120 only), depending upon the crossover cable being used.
  - Port Rate (Kbps) changed to the NTU's user data port speed.
  - Timing Options set to Terminal.
4. Save your changes.

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## Set Up Frame Relay Options for Port 2

1. Select Port 2 Frame Relay configuration options.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Data Ports or Ports → Port-2 Frame Relay Options*

2. Minimally, change the following option settings:
  - LMI Personality set to User Side (the setting required for network access). Press Enter.
  - LMI Protocol set to the protocol used by the network (if it is not Annex D).
3. Save your changes.

## Create a DLCI Record for Port 2

You receive your DLCI numbers from the Network Service Provider (NSP). You can also use the following menu selection sequence to view which DLCIs are provided on Port 2 by the NSP before attempting to create DLCI records:

*Main Menu → Status → LMI Reported DLCIs → Port-2*

1. Select DLCI Records configuration options.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Data Ports or Ports → Port-2 DLCI Records*

2. Enter n (New) to display the DLCI Record Entry screen.
3. Minimally, enter the following:
  - DLCI Number, provided by your NSP (e.g., 100).
  - DLCI Type (set to Multiplexed).
  - CIR value and Excess Burst, if provided by your NSP.
4. Press Esc, then repeat steps 2 and 3 for all other DLCIs provided by the NSP.
4. Save the DLCI Record.

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## Verification Checks

Perform the following verification checks before continuing with the installation.

### Verification Check for a FrameSaver 9120:

1. Check the Network LEDs. Is the SIG (signal) LED on, and are the OOF (out of frame), and ALM (alarm) LEDs off?
  - If no, check that the loopback plug is properly seated.
2. Check the Port 2 OK LED. Is it on?
  - If no, check that the crossover cable to the NTU is properly installed.
3. Check Health and Status messages in the left column of the System and Test Status screen to verify that LMI is up on Port 2.
  - Main Menu → Status → System and Test Status*
  - If **LMI Down, Port-2** appears for more than three minutes, or any other Port 2-related status message appears, refer to the status information in the User's Guide for possible reasons for the messages and what can be done to resolve the problem.

### Verification Check for a FrameSaver 9620:

1. Are the Network OOF/NS (out of frame/no signal) and ALM (alarm) LEDs off?
  - If no, check that the loopback plug is properly seated.
2. Check Health and Status messages in the left column of the System and Test Status screen to see the LMI status, to verify that LMI is up on Port 2.
  - Main Menu → Status → System and Test Status*
  - If **LMI Down, Port-2** appears for more than three minutes, or any other Port 2-related status message appears, refer to the status information in the User's Guide.

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## Verifying the End-to-End Path (Remote Site Unit)

After installation of a remote site unit, run a Connectivity test.

1. Check the Port 2 LMI Reported DLCIs screen to verify that the DLCI status is Active.

*Main Menu → Status → LMI Reported DLCIs → Port-2*

2. Run a Connectivity test to see if the unit at the other end of the multiplexed PVC is active.

*Main Menu → Test → Port-2 PVC Tests*

- Select Start in the Connectivity field.
  - If **RndTrip Time (ms)** appears, along with the number of milliseconds it took to receive a response, the unit is connected to the network and the PVC is operational. Go to Step 3.
  - If a response is not received within 5 seconds and **No Response** is reported, refer to troubleshooting procedures in the Technical Reference.
3. Contact the central site and have them put the central site FrameSaver unit into PVC Loopback for the PVC being tested, taking frames from the PVC and looping them back. At the central site, do the following:

*Main Menu → Test → Network PVC Tests → PVC Loopback*

- Select the DLCI Number for the PVC connected to the remote unit.
  - Select Start in the PVC Loopback field.
4. On the remote site unit, send a pattern over the network interface and monitor it.

*Main Menu → Test → Port-2 PVC Tests →*

*Send Pattern → Start*

*Monitor Pattern → Start*

- If there are few or no errors, the unit at the remote end is connected and operational.
  - If many packets are corrupt or out of sequence, or **Out of Sync** is reported, refer to the Technical Reference for additional information.
5. Terminate the tests on both the remote and central site units. The TST (Test) LED on the front panel of both units should now be off.

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## Configuring Port 1

Set up the following to configure Port 1:

- Physical options
- Data Compression (9620 only)
- DLCI record

### Set Up Physical Options for Port 1

1. Select the port's Physical options.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Data Ports or Ports → Port-1 column → Physical*

2. Minimally, change the following configuration option settings:
  - Port Type set to V.35 or X.21 (for 9120 only), depending upon the adapter cable being used.
  - Port Rate (Kbps) changed to the NTU's user data port speed.
3. Save your changes.

### Set Up Data Compression for Port 1

For a FrameSaver 9620 only, compression needs to be enabled if it is required.

1. Select Compression for Port 1 configuration options.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Data Ports or Ports → Port-1 column → Compression*

2. Minimally, enable the Compression option.
3. Save your changes.

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## Create a DLCI Record for Port 1

1. Select the DLCI Records configuration options.  
*Main Menu → Configuration → Load Configuration From: → Current Configuration → Data Ports or Ports → Port-1 DLCI Records*
2. Enter n (New) to display the DLCI Record Entry screen.
3. Minimally, enter the following:
  - DLCI Number (e.g., 100).
  - DLCI Compression set to Enable, if data compression will be used (FrameSaver 9620 only).
4. Press Esc, then repeat Steps 2 and 3 for all other DLCIs required on Port 1.
5. Save the DLCI Record.

### **NOTE:**

The **LMI Down, Port-1** alarm (at the bottom right corner of the screen) is displayed since the physical connection with the DTE (e.g., router) has not been made yet.

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## Configuring a User Data PVC

Once a DLCI Record is created for each port, the DLCIs are linked to create a PVC. This creates a data path between Port 1 and Port 2 (Network).

1. Select PVC Connections.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → PVC Connections*

The PVC Connection Table appears, showing source and destination links, DLCIs, and EDLCIs.

2. Enter n (New) to display the PVC Connection Entry screen.
3. Enter the following fields:
  - Source Link.
  - Source DLCI.
  - Primary Destination Link.
  - Primary Destination DLCI.
  - Primary Destination EDLCI (the recommended setting is 0 for the first user data PVC).

The following table shows an example.

| Option                    | Setting |
|---------------------------|---------|
| Source Link               | Port-1  |
| Source DLCI               | 100     |
| Primary Destination Link  | Port-2  |
| Primary Destination DLCI  | 100     |
| Primary Destination EDLCI | 0       |

4. Press Esc, then repeat Steps 2 and 3 for all other PVC connections required.
5. Save the PVC Connection.

### Verification Check

You can verify the link just configured by pressing Esc twice to return to the PVC Connection Table on the previous screen. The source link and DLCI appears on the left side of the screen, while the destination link and DLCI appear in the center.

Verify the DLCI numbers entered. If a mistake was made, press o (Modify) so you can correct the error.

Verify that each source DLCI coming in is linked to a destination DLCI going out.

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## Configuring a Management PVC

Once PVCs have been created for user data, the Management PVCs entry screen is used to create a PVC for management data. This creates a management path between the unit and the network.

The IP Address entered on the Communication Protocol screen is now linked to the FrameSaver unit's management function. Once in place, the Management PVC is advertised as an active PVC.

It is assumed that the other end of this management PVC is terminated on a FrameSaver unit at a central site where an NMS is located. The NMS communicates with the central site FrameSaver unit via a local path, which provides access to the FrameSaver unit's management function.

### 1. Select Management PVCs.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Management and Communication → Management PVCs*

### 2. Enter n (New) to display the Management PVCs entry screen.

### 3. Enter the following fields:

- Name (optional ASCII text to identify this management PVC).
- Primary Link (set to Port 2).
- Primary DLCI.
- Primary EDLCI (The recommended setting is 2. This value must match the central site EDLCI).
- RIP set to Proprietary.

The following table shows an example.

| Option           | Setting                       |
|------------------|-------------------------------|
| Name             | New York                      |
| Intf IP Address  | Node-IP-Address <sup>1</sup>  |
| Intf Subnet Mask | Node-Subnet-Mask <sup>1</sup> |
| Primary Link     | Port-2                        |
| Primary DLCI     | 100                           |
| Primary EDLCI    | 2                             |
| RIP              | Proprietary                   |

<sup>1</sup> The Node IP Address and Subnet Mask are automatically pulled from the options set up in Communication Protocol (see page 12).

### 4. Save the Management PVC entries.

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## Configuring SNMP Trap Managers

Now that the FrameSaver unit is connected to the network, SNMP Trap Managers can be configured.

1. Select SNMP Traps configuration options.

*Main Menu → Configuration → Load Configuration From: → Current Configuration → Management and Communication → SNMP Traps*

2. Minimally, enter at least one trap manager – the central site's NMS trap manager:
  - SNMP Traps set to Enable.
  - Number of Trap Managers.
  - NMS  $n$  IP Address ( $n$  being the first, second, third, etc. trap manager entered).
  - NMS Destination (e.g., the Management PVC identified as New York).
3. Save the SNMP Trap options.

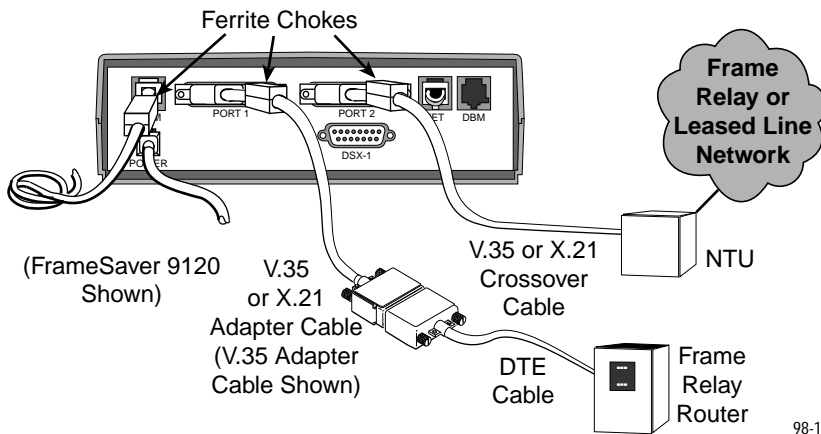
## Connecting to the DTE

If the DTE interface type is EIA-232E or EIA-530A, the DTE can be directly connected to Port 1. However, if the DTE interface type is V.35 or X.21, a V.35 or X.21 adapter cable is required.

**NOTE:**

The X.21 adapter is only used for the FrameSaver 9120.

| If the DTE interface type is . . . | Then . . .  |
|------------------------------------|---|
| EIA-232E<br>EIA-530A               | <ol style="list-style-type: none"> <li>1. Plug the DTE cable into Port 1.</li> <li>2. Tighten the screws on both sides of the connector to secure it.</li> </ol>  |
| V.35<br>X.21                       | <ol style="list-style-type: none"> <li>1. Plug the EIA-232E or EIA-530A end of the adapter cable into Port 1.</li> <li>2. Connect the other end of the adapter cable to the DTE's V.35 or X.21 cable.</li> <li>3. Tighten the screws on each connector to secure them.</li> </ol> |



98-15991

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### Verification Check:

Check Health and Status messages in the left column of the System and Test Status screen for messages.

*Main Menu → Status → System and Test Status*

- If **System Operational** appears, the Port-1 interface is set up correctly and is operational.
- If **System Operational** does not appear, refer to the status information in the User's Guide.

#### **NOTE:**

When any error conditions are detected, a status message will appear in the bottom right corner of the screen and the Operational alarm (ALM) LED on the front panel will be lit.

### Check that Data is Being Received

1. Select the network interface's frame relay performance statistics.

*Main Menu → Status → Performance Statistics → Port-2 Frame Relay*

2. Verify that the Frames Received and Characters Received counts under the Frame Relay Link statistics are incrementing, and there are no errors under the Frame Relay LMI statistics.

#### **NOTE:**

Type **r** for **Refresh** and press Enter to update the counts that are displayed.

- If data is being received, the FrameSaver unit is receiving data. If count increments occur after refreshing the screen, the unit is receiving data.
- If data is not being received, recheck the cable connections, and replace or repair a damaged cable. Recheck LMI status; you may need to contact your NSP. Next, check the DLCI's status.

See the User's Guide for additional status information. See the Technical Reference for additional troubleshooting information.

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## Check PVC Connections

Check PVC connections to verify that all PVCs, including management PVCs, are configured, and to see whether the PVC is active or not.

### 1. Select PVC Connection Status.

*Main Menu → Status → PVC Connection Status*

The PVC Connection Status screen shows all PVC connections; the interface source and DLCI number of the incoming data linked to the interface and DLCI number for the outgoing data. You can also see whether the PVC is active.

### 2. Verify that each PVC is active.

- If active, the FrameSaver unit should be passing data.
- If not active, no data traffic can be carried by the PVC. If the PVC is configured correctly, the circuit may be down.

See the User's Guide for additional status information. See the Technical Reference for additional troubleshooting information.

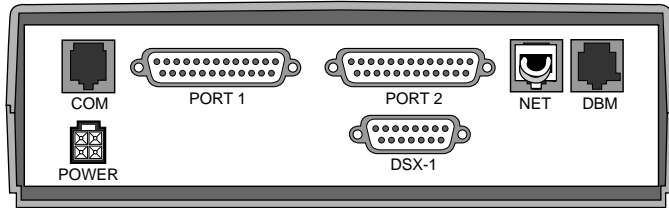
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## Technical Specifications

| Specification                            | Criteria   |
|--|--|
| <b>Weight</b>                            | 2.59 lbs. (1.18 kg)  |
| <b>Power</b>                             |  |
| Input                                    | 100 – 240 Vac, 50/60 Hz, 0.7A  |
| Output                                   | 12 Vdc, 2.5A, 1.0A minimum   |
| <b>Power Consumption and Dissipation</b> | 9.7 watts, 0.143 amps at 120 Vac<br>9.6 watts, 0.125 amps at 240 Vac   |
| <b>Physical Environment</b>              |  |
| Operating temperature                    | 35° F to 122° F (1.7° C to 50° C)  |
| Storage temperature                      | FrameSaver 9620: 4° F to 158° F<br>(20° C to 70° C)<br>FrameSaver 9120: –4° F to 158° F<br>(–20° C to 70° C) |
| Relative humidity                        | FrameSaver 9620: Up to 90% (noncondensing)<br>FrameSaver 9120: 5% to 85% (noncondensing)                     |
| Shock and vibration                      | Withstands normal shipping and handling  |

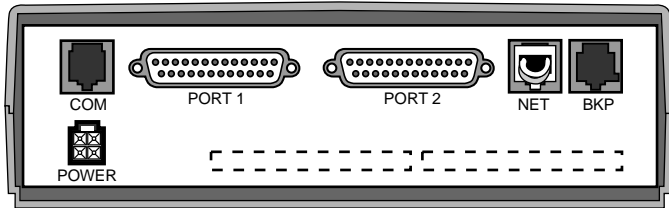
| Specification  | Criteria  |
|--|---|
| <b>COM Port/Interface – Communications/Management</b><br><br>Data rates  | 8-position modular unkeyed jack<br><br>9.6, 14.4, 19.2, 28.8, 38.4, 57.6, and 115.2 kbps  |
| <b>Port 1 – DTE Synchronous Data Port</b><br><b>Port 2 – Network Access Using Crossover Cable</b><br><br>Standards<br><br><br>Data rates (FrameSaver 9620)<br><br><br>Data rates (FrameSaver 9120) | 25-position (DB25) subminiature connectors<br><br><br>FrameSaver 9620: EIA-232E, V.24, V.35<br>FrameSaver 9120: EIA-530A, V.35, RS449, V.11, X.21<br><br>4.8, 9.6, 14.4, 16.8, 19.2, 24, 28.8, 38.4, 48, 56, 64, 128, 192, and 256 kbps<br><br>Port 1: 4.8, 9.6, 14.4, 16.8, 19.2, 24, 28.8, 38.4, 48, 56, 64, 128, 192, 256, 320, 384, 448, 512, 576, 640, 704, 768, 832, 896, 960, 1024, 1088, 1152, 1216, 1280, 1344, 1408, 1472, 1536, 1600, 1664, 1728, 1792, 1856, 1920, 1984, and 2048 kbps<br><br>Port 2: 64, 128, 192, 256, 320, 384, 448, 512, 576, 640, 704, 768, 832, 896, 960, 1024, 1088, 1152, 1216, 1280, 1344, 1408, 1472, 1536, 1600, 1664, 1728, 1792, 1856, 1920, 1984, and 2048 kbps |

## Rear Panels



97-15314-01

### FrameSaver 9120



97-14886-01

### FrameSaver 9620

The network (NET) and DSX-1 interfaces are not normally used for international applications. Access to the network is through an NTU using a V.35 or X.21 crossover cable. The backup (DBM or BKP) interface is not supported at this time.

A network plug should be installed in the FrameSaver unit's NET interface, as shown in the illustrations above. Since no signal over the network interface creates an error condition, this plug prevents alarms from being generated when network access is through the Port 2-to-NTU connection rather than through the NET connection.

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## Pin Assignments

In the tables that follow, if the pin number is not shown, it is not being used.

### COM Port/Interface

| Signal                        | Direction      | Pin # |
|-------------------------------|----------------|-------|
| DCE Transmit Clock (TXC)      | From DCE (Out) | 1     |
| DCE Received Data (RXD)       | From DCE (Out) | 2     |
| Signal Ground (SG)            | To/From DCE    | 3     |
| DCE Transmit Data (TXD)       | To DCE (In)    | 4     |
| DCE Data Terminal Ready (DTR) | To DCE (In)    | 5     |
| DCE Carrier Detect (CD)       | From DCE (Out) | 6     |
| DCE Request to Send (RTS)     | To DCE (In)    | 7     |
| DCE Received Clock (RXC)      | From DCE (Out) | 8     |

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**EIA-232E DTE Ports/Interfaces (FrameSaver 9620 only)**

| <b>Signal</b>                             | <b>Circuit Mnemonic</b> | <b>ITU/ CCITT #</b> | <b>Direction</b> | <b>25-Pin EIA-232E Pin #</b> |
|---|-------------------------|---------------------|------------------|------------------------------|
| Shield                                    | —                       | —                   | —                | 1                            |
| Transmit Data (TXD)                       | BA                      | 103                 | To DCE           | 2                            |
| Received Data (RXD)                       | BB                      | 104                 | From DCE         | 3                            |
| Request to Send (RTS)                     | CA                      | 105                 | To DCE           | 4                            |
| Clear to Send (CTS)                       | CB                      | 106                 | From DCE         | 5                            |
| Data Set (or DCE) Ready (DSR)             | CC                      | 107                 | From DCE         | 6                            |
| Signal Ground/Common (SG)                 | AB                      | 102A                | To/From DCE      | 7                            |
| Received Line Signal Detect (RLSD or LSD) | CF                      | 109                 | From DCE         | 8                            |
| Transmitter Signal Element Timing (TXC)   | DB                      | 114                 | From DCE         | 15                           |
| Receiver Signal Element Timing (RXC)      | DD                      | 115                 | From DCE         | 17                           |
| Local Loopback (LL)                       | LL                      | 141                 | To DCE           | 18                           |
| Data Terminal (or DTE) Ready (DTR)        | CD                      | 108/1, /2           | To DCE           | 20                           |
| Ring Indicator (RI)                       | RI                      | 125                 | From DCE         | 22                           |
| Transmitter Signal Element Timing (TT)    | DA                      | 113                 | To DCE           | 24                           |
| Test Mode Indicator (TM)                  | TM                      | 142                 | From DCE         | 25                           |

## EIA-530A DTE Ports/Interfaces (FrameSaver 9120 only)

| Signal   | Circuit Mnemonic | ITU/ CCITT # | Direction   | 25-Pin Pin #     |
|--|------------------|--------------|-------------|------------------|
| Shield   | —                | —            | —           | 1                |
| Transmitted Data (TXD)                               | BA               | 103          | To DCE      | 2 (A)<br>14 (B)  |
| Received Data (RXD)                                  | BB               | 104          | From DCE    | 3 (A)<br>16 (B)  |
| Request to Send (RTS)                                | CA               | 105          | To DCE      | 4 (A)<br>19 (B)  |
| Clear to Send (CTS)                                  | CB               | 106          | From DCE    | 5 (A)<br>13 (B)  |
| Data Set (or DCE) Ready (DSR)                        | CC               | 107          | From DCE    | 6                |
| Signal Ground/Common (SG)                            | AB               | 102A         | To/From DCE | 7                |
| Received Line Signal Detector (RLSD or LSD)          | CF               | 109          | From DCE    | 8 (A)<br>10 (B)  |
| Transmit Signal Element Timing (TXC – DTE Source)    | DA               | 113          | To DCE      | 11 (B)<br>24 (A) |
| Transmitter Signal Element Timing (TXC – DCE Source) | DB               | 114          | From DCE    | 12 (B)<br>15 (A) |
| Receiver Signal Element Timing (RXC – DCE Source)    | DD               | 115          | From DCE    | 17 (A)<br>9 (B)  |
| Local Loopback (LL)                                  | LL               | 141          | To DCE      | 18               |
| Data Terminal (or DTE) Ready (DTR)                   | CD               | 108/1, /2    | To DCE      | 20               |
| Signal Common  | AC               | 102B         | To/From DCE | 22, 23           |
| Test Mode Indicator (TM)                             | TM               | 142          | From DCE    | 25               |

### EIA-530A-to-V.35 Crossover Cable (FrameSaver 9120 or 9620)

| EIA-530A 25-Pin Plug |   | -to-        | V.35 34-Pin Plug |   |
|----------------------|---|-------------|------------------|---|
| Pin #                | Signal  | Direction   | Pin #            | Signal  |
| 1                    | Shield  | To/From NTU | A                | Shield  |
| 2                    | Transmit Data – A (TXD)   | From NTU    | R                | Received Data – A (RXD)   |
| 3                    | Received Data – A (RXD)   | To NTU      | P                | Transmit Data – A (TXD)   |
| 4                    | Request to Send (RTS)   | From NTU    | F                | Received Line Signal Detect (RLSD or LSD)                       |
| 6                    | Data Set Ready (DSR)  | To NTU      | H                | Data Terminal Ready (DTR)                                       |
| 7                    | Signal Ground/Common (SG)                                       | To/From NTU | B                | Signal Ground/Common (SG)                                       |
| 8                    | Received Line Signal Detect (RLSD or LSD)                       | To NTU      | C                | Request to Send (RTS)   |
| 9                    | Receiver Signal Element Timing – B (RXC)                        | To NTU      | W                | External Transmit Signal Element Timing – B (XTXC – DTE Source) |
| 11                   | External Transmit Signal Element Timing – B (XTXC – DTE Source) | From NTU    | X                | Receiver Signal Element Timing – B (RXC)                        |
| 14                   | Transmit Data – B (TXD)   | From NTU    | T                | Received Data – B (RXD)   |
| 16                   | Received Data – B (RXD)   | To NTU      | S                | Transmit Data – B (TXD)   |
| 17                   | Receiver Signal Element Timing – A (RXC)                        | To NTU      | U                | External Transmit Signal Element Timing – A (XTXC – DTE Source) |
| 20                   | Data Terminal Ready (DTR)                                       | From NTU    | E                | Data Set Ready (DSR)  |
| 24                   | External Transmit Signal Element Timing – A (XTXC – DTE Source) | From NTU    | V                | Receiver Signal Element Timing – A (RXC)                        |

## EIA-530A-to-X.21 Crossover Cable (FrameSaver 9120 only)

| EIA-530A 25-Pin Plug |   | -to-        | X.21 15-Pin Plug |                           |
|----------------------|---|-------------|------------------|---------------------------|
| Pin #                | Signal  | Direction   | Pin #            | Signal                    |
| 1                    | Shield  | To/From NTU | A                | Shield                    |
| 2                    | Transmit Data – A (TXD)   | From NTU    | 4                | Received Data – A (RXD)   |
| 3                    | Received Data – A (RXD)   | To NTU      | 2                | Transmit Data – A (TXD)   |
| 4                    | Request to Send – A (RTS)                                       | From NTU    | 5                | Indicate – A              |
| 7                    | Signal Ground/Common (SG)                                       | To/From NTU | 8                | Signal Ground/Common (SG) |
| 8                    | Received Line Signal Detect – A (RLSD or LSD)                   | To NTU      | 3                | Control – A               |
| 10                   | Received Line Signal Detect – B (RLSD or LSD)                   | To NTU      | 10               | Control – B               |
| 11                   | External Transmit Signal Element Timing – B (XTXC – DTE Source) | From NTU    | 13               | Signal Timing – B         |
| 14                   | Transmit Data – B (TXD)   | From NTU    | 11               | Receive – B (RXD)         |
| 16                   | Received Data – B (RXD)   | To NTU      | 9                | Transmit – B (TXD)        |
| 19                   | Request to Send – B (RTS)                                       | From NTU    | 12               | Indicate – B              |
| 24                   | External Transmit Signal Element Timing – A (XTXC – DTE Source) | From NTU    | 6                | Signal Timing – A         |



\*9000-A2-GN18-10\*