

# Instruction Manual

software release **3.1**

**071804602**

FIRST PRINTING: **OCTOBER 2000**  
REVISED PRINTING: **JANUARY 2003**

**2000NET**  
NETWORK INTERFACE MODULE

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# *Preface*

## **About This Manual**

This manual describes the features of a specific 2000 Series module in the Kameleon Media Processing System. As part of this module family, it is subject to Safety and Regulatory Compliance described in the 2000 Series frame and power supply documentation (see the *2000 Series Frames Instruction Manual*).



# *2000NET Network Interface Module*

## **Introduction**

The 2000NET is designed to operate in 2000 Series Kameleon frames to provide remote control and monitoring. The 2000NET enables a web browser graphical user interface (GUI) and an optional remote control panel for remote configuration and monitoring of the frame and remote control of its media modules.

## **2000NET Features**

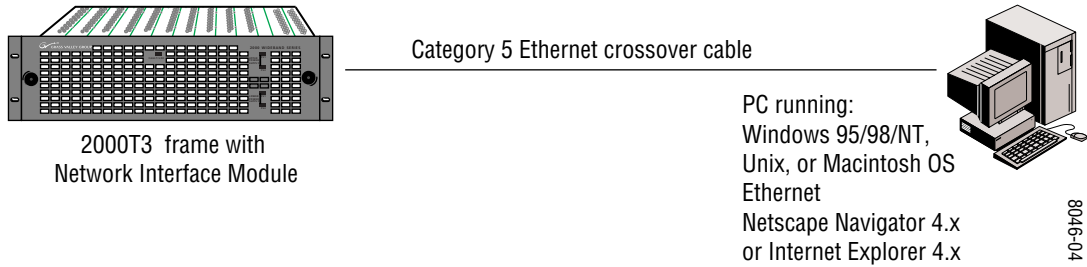
The 2000NET module features:

- 10 Base-T Ethernet interface,
- HTML protocol support,
- Videoframe VTECS 1 control panel protocol support,
- Save/load frame configuration files,
- Slot memory for each media module configuration,
- Simple Network Management Protocol (SNMP) Agent support, and
- Software update downloading support.

## Basic Network Design

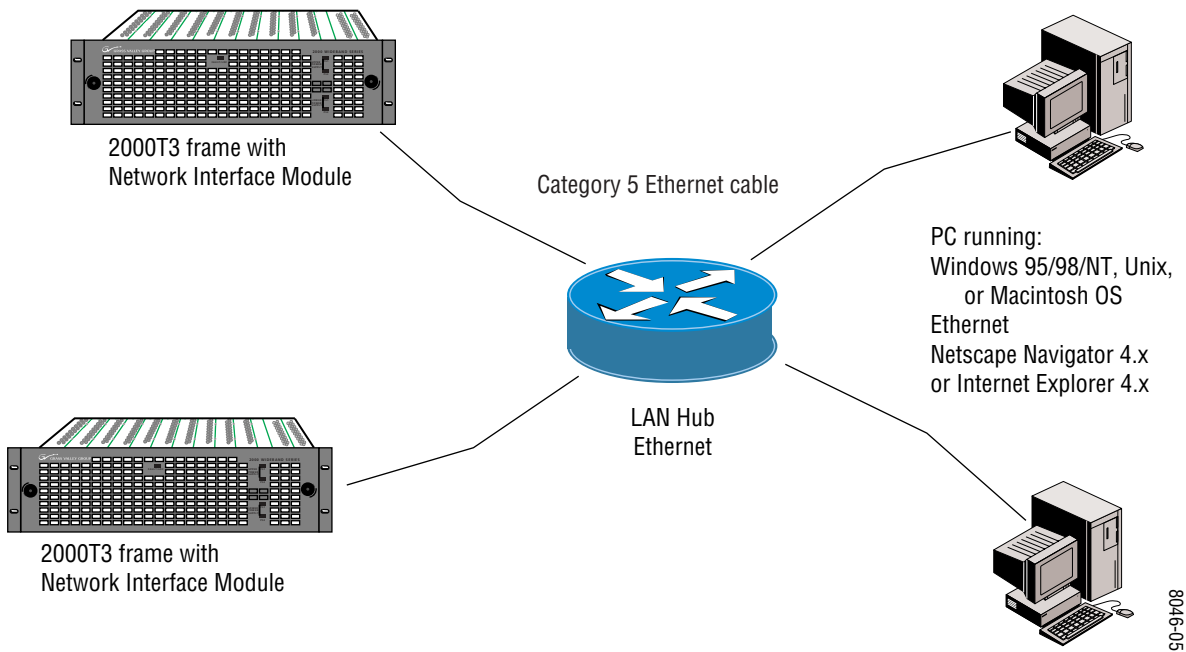
The 2000NET can be employed in either a point-to-point or local area network (LAN) control/monitoring configuration. [Figure 1](#) illustrates a point-to-point configuration.

Figure 1. Point-to-point Configuration



[Figure 2](#) illustrates a typical LAN configuration.

Figure 2. Basic Network Configuration





# Installation

This section describes placing the module in the 2000 Series Kameleon frame and cabling the communications ports. Procedures for power-up, DIP switch settings, and network configuration of the module are described in following sections.

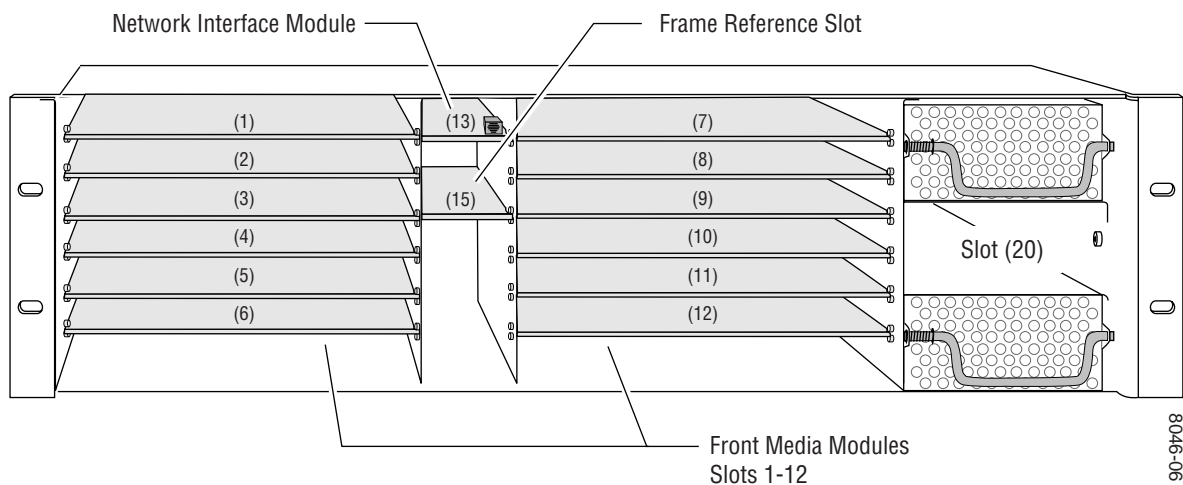
## Module Placement in the Kameleon Frame

There are two rows of six front media module slots in the frame to accommodate either analog or digital media modules. Between these rows are slots for the Network Interface and Frame Reference modules. Refer to [Figure 3](#).

The three slots on the right side of the frame are allocated for the power supply sleds and the optional fan module. For additional information concerning the Power Supply module, refer to the *2000 Series Frame Instruction Manual*.

Slot number 13 (top middle) is allocated for the Network Interface Module.

Figure 3. 2000T3 Frame Front Module Locations



**Note** The 2000NET module can be plugged in and removed from a 2000 Series Kameleon frame with power on. When power is applied to the module, LED indicators reflect the initialization process (see [Power Up on page 17](#)).



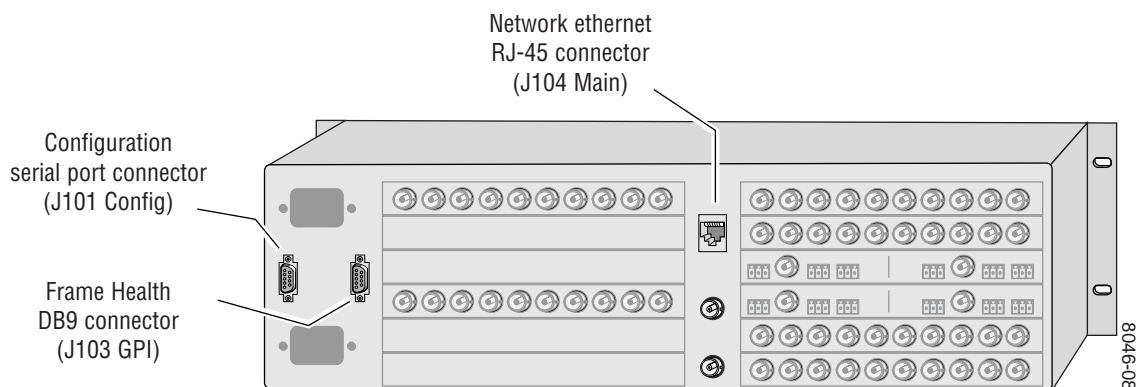
## Cabling

This section describes physical connections, the connectors and cables, used for network communications. Setup procedures for each type of connection are described in *Establishing Frame Network Identity* on page 20.

Control and monitoring connectors on the 2000T3 frame are illustrated in Figure 5.

**Note** The cables and adapters illustrated below for connection to a PC are available from Thomson Grass Valley as part of cable kit model 8900CAB. The standard Ethernet cable is not included.

Figure 5. 2000NET Input/Output Connectors



### Frame Health Alarm Connection

For information concerning the Frame Health Alarm connection, refer to the Installation section of the *2000 Series Frames Instruction Manual*.

### Configuration Serial Port Cable

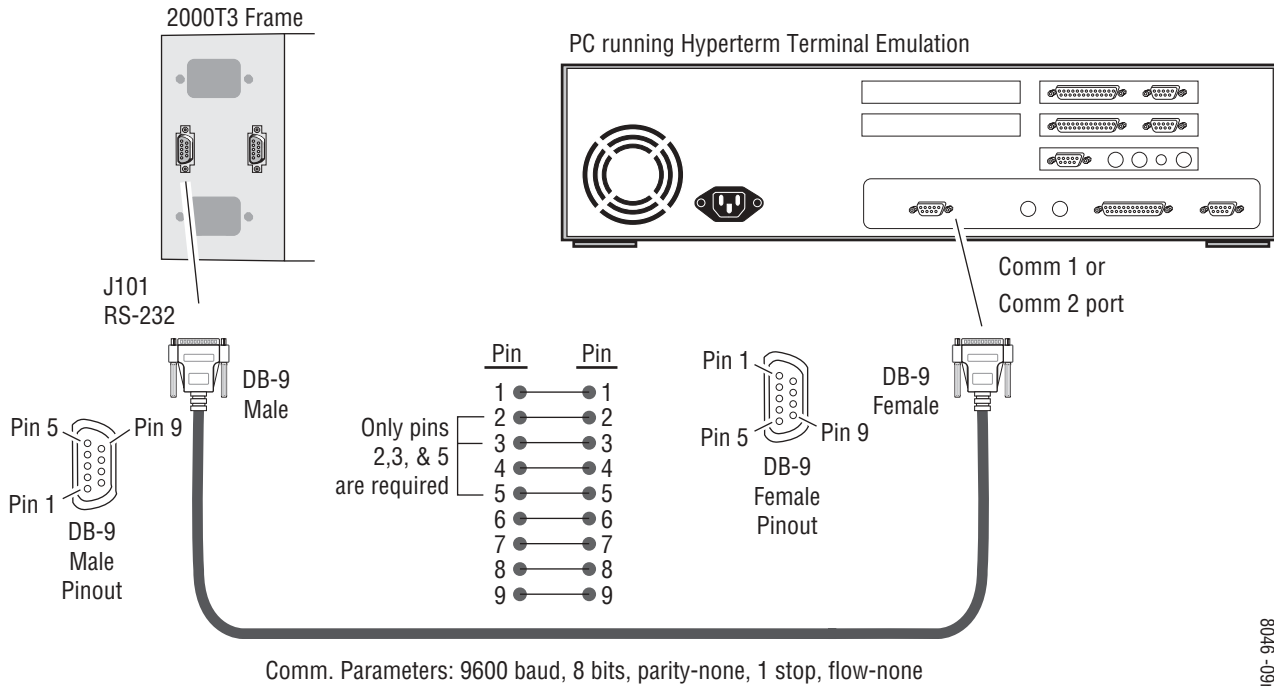
The nine-pin RS-232 serial port connector is used to connect the frame to a PC for initial setup of the frame's network communication parameters. After network communication is established, subsequent changes to these parameters can be made using the network GUI.

The communication parameters for the RS-232 connection are:

- Baud rate: 9600
- Data bits: 8
- Parity: none
- Stop bits: 1
- Flow control: none

The male end connects to J101 on the 2000T3 frame (see Figure 6) and the female end connects to either Comm 1 or Comm 2 on the PC, depending upon the configuration of the computer's I/O ports.

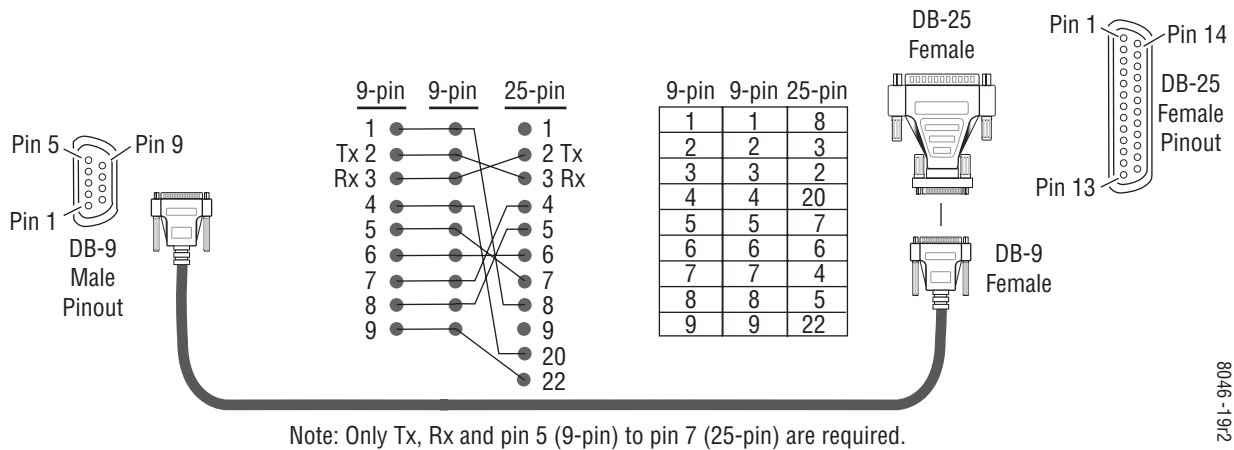
Figure 6. RS-232 to Initialization PC Cable and Pinout



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If the PC uses a 25-pin RS-232 connector, use a cable adapter as shown in Figure 7.

Figure 7. DB-9 Cable and DB-25 Cable Adaptor Pinout



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## Module Front RJ-45 Connector

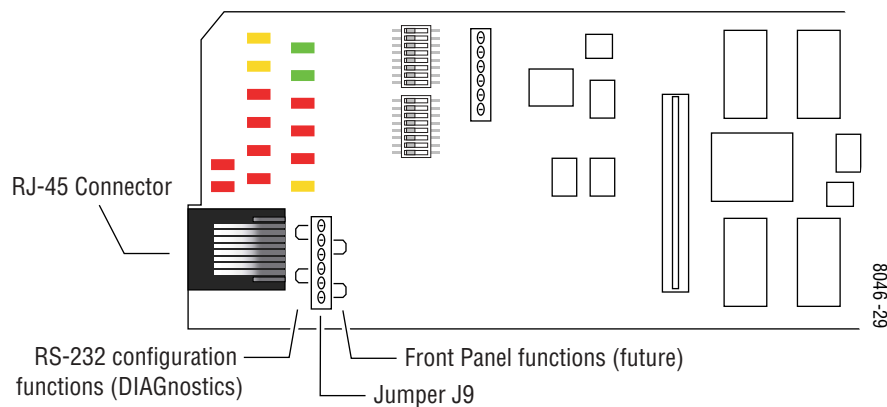
When the 2000NET module is installed in a one rackunit 2000 Series frame, the dual purpose RJ-45 connector on the front of the 2000NET module is used as the Serial Configuration port for the module. The RJ-45 connector is configured using the jumper positions shown in [Figure 8](#). Use the RS-232 (**DIAG**) jumper positions when connecting to a PC for initializing the 2000NET module. The **Front Panel** jumper configuration is for future use.

**CAUTION** This is not an Ethernet port. Damage can result from connecting Ethernet equipment to this connector.

In the three rackunit 2000T3 frame, with the jumpers set in the DIAG position, the RJ-45 connector is in parallel with the Serial Configuration port on the back of the frame (J101).

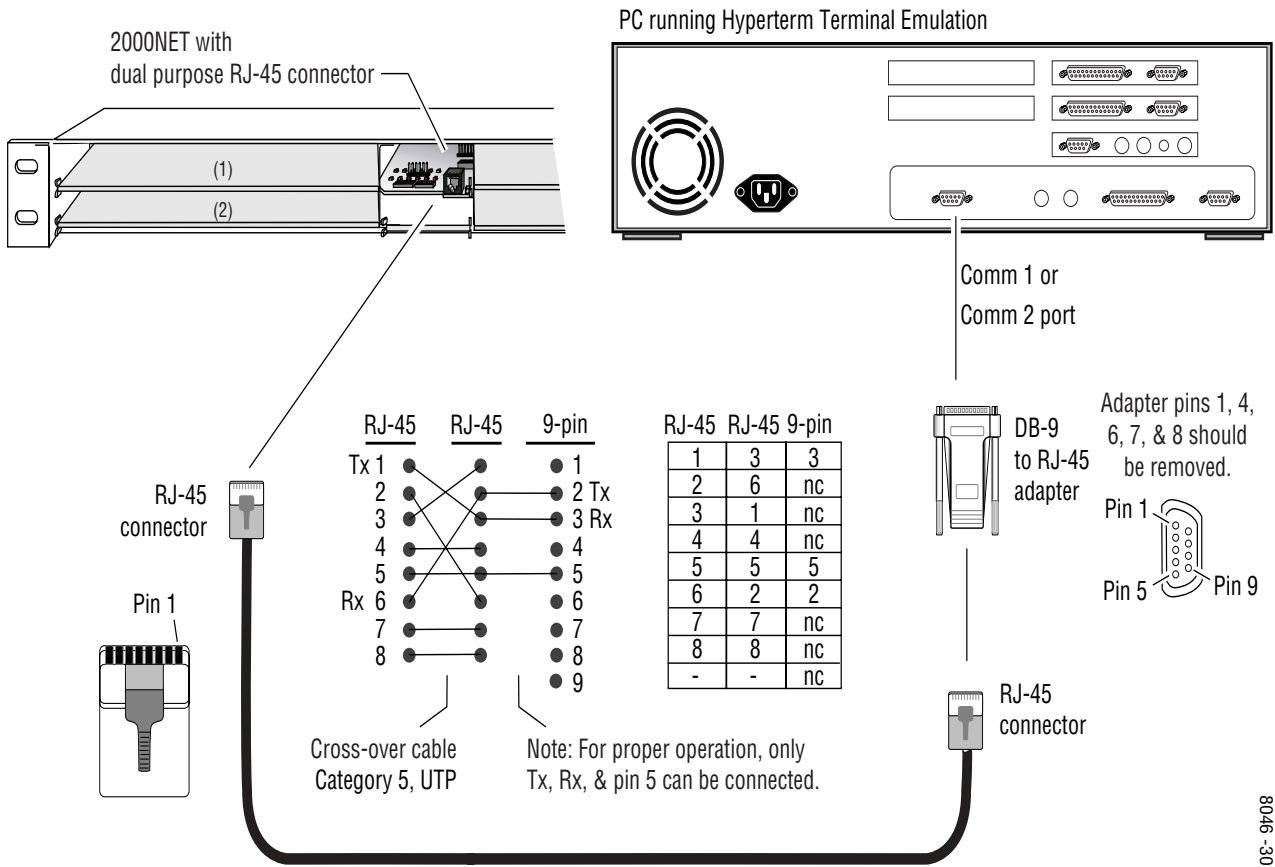
**Note** In the 2000T3 frame, the module front connector and rear frame connector cannot be used at the same time.

Figure 8. Dual Purpose RJ-45 Connector and Jumpers



[Figure 9 on page 14](#) shows the adapter and cable pinout required for the serial connection to a PC.

Figure 9. Module RJ-45 to PC Cable and Adapter Pinouts



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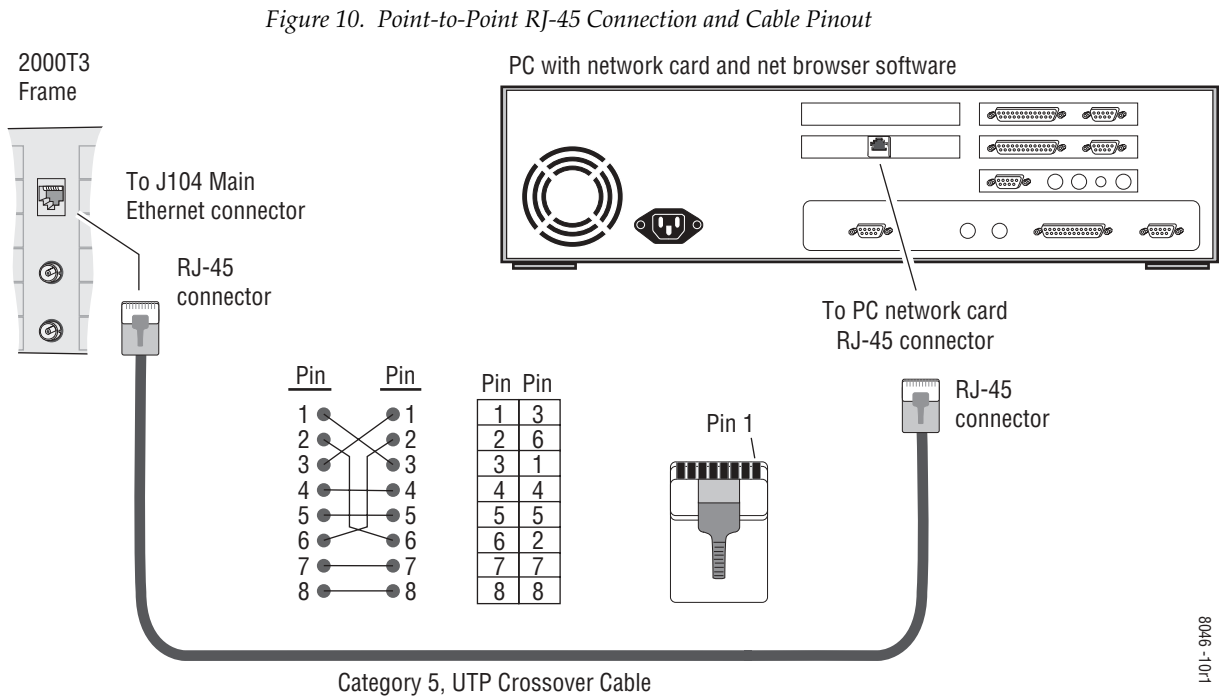
## Ethernet Cable

The 2000NET module enables the frame's RJ-45 Ethernet connector. Through this port the 2000 frame can connect to:

- A single PC with a network module (point-to-point), or
- A local area network (LAN) through a network hub.

### Point-to-Point Connection

Figure 10 illustrates the crossover cable connection and pinout for a point-to-point connection to the controlling PC.

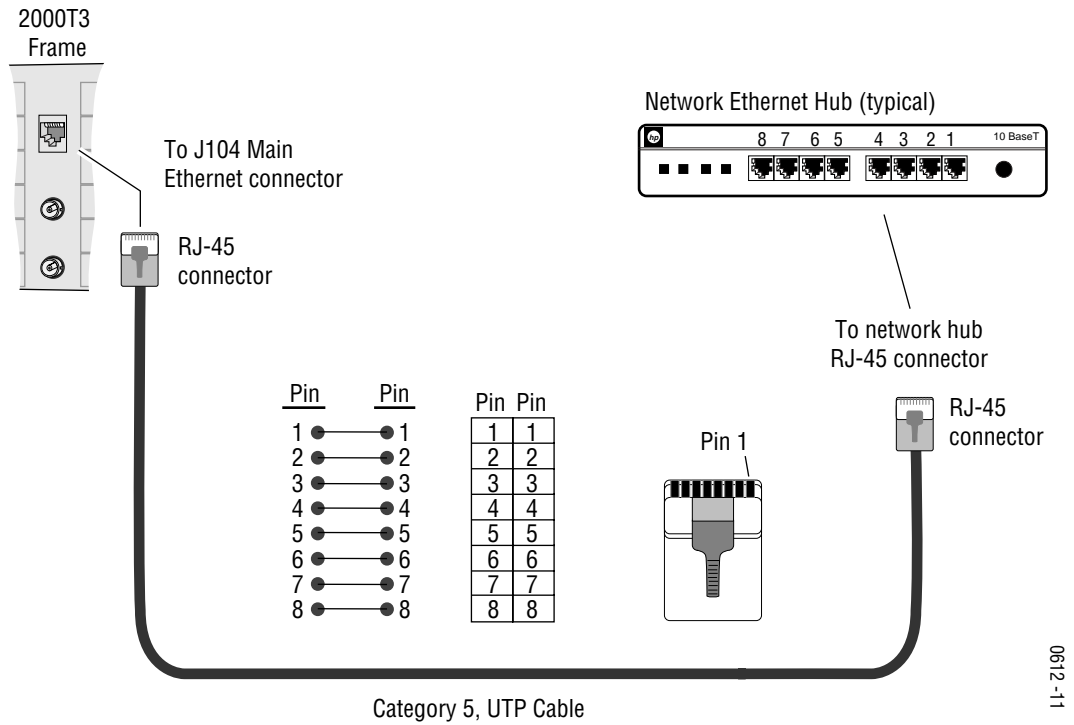


### Local Area Network (LAN) Connection

Figure 11 illustrates the cable connection for a LAN connection to a network hub.

**Note** Because of varying length requirements and ready availability from network equipment suppliers, this cable is not supplied by Thomson Grass Valley.

Figure 11. LAN RJ-45 Connection and Cable

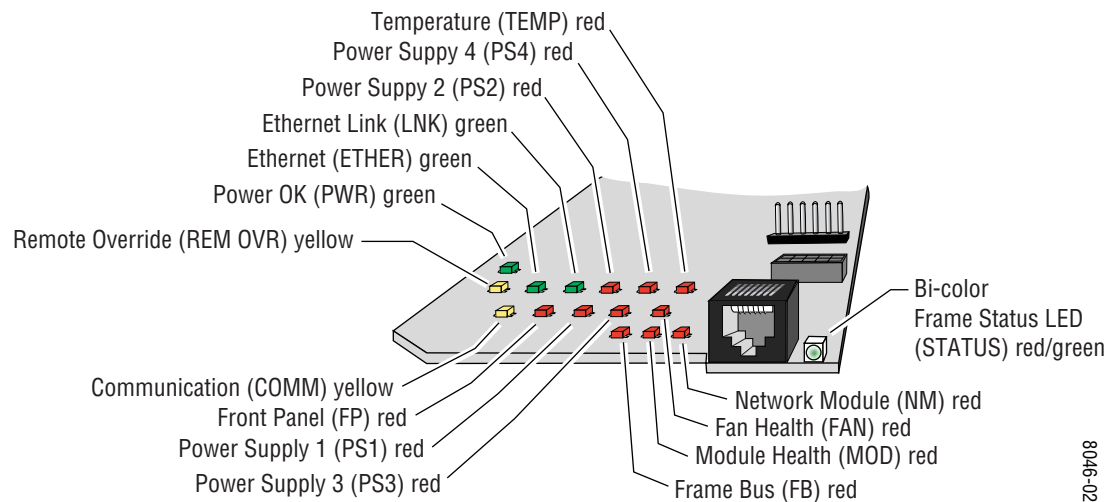




# Power Up

The various front LED indicators and configuration switches are illustrated in [Figure 12](#). Upon power-up, all LEDs should light for the duration of the initialization process. If all LEDs remain on, the module may not be fully seated in its slot. After initialization the Power OK LED (PWR) will be on and the red Network Module LED (NM) should go off. All other LEDs report detected conditions within the frame and the installed modules. If the NM LED does not go off, the board needs servicing.

Figure 12. LEDs and Configuration Switches



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The Frame Status LED is visible through the frame front cover. [Table 1](#) and [Table 2](#) on [page 18](#) describe the module LEDs and the conditions they indicate.

## Rebooting the Module

If you need to reboot the 2000NET module, either remove and replace the module in the slot or use the GUI to access the Configuration or Network pages. Both pages have a **Reboot** button (see [2000NET Module Interface](#) on [page 29](#)).

## Indicator LEDs

The frame Status LED, visible on the front cover, reports the conditions indicated in [Table 1](#).

Table 1. Frame Status LED and Conditions Indicated

LED State	Condition
Green	Frame and all modules functioning properly. Frame locator is inactive.
Red	One or more modules in the frame has detected an internal fault. Frame locator is inactive.
Long Flash Green	Frame locator – flashes when activated by a remote control device. Green indicates frame and all modules functioning properly.
Long Flash Alternating	Frame locator – flashes when activated by a remote control device. Alternating color indicates one or more modules in the frame has detected an internal fault.

The module LEDs and their possible status and indicated conditions are shown in [Table 2](#).

Table 2. Indicator LEDs and Conditions Indicated

LED	LED State	Condition
<b>POWER OK (green)</b>	Off	Power is off or on-board regulator has failed
	On continuously	Module is powered
<b>ETHER(NET) (green)</b>	Active	Indicates communication taking place on the Ethernet bus
<b>LNK (green)</b>	Active	Indicates active link established with another device on the Ethernet bus
<b>PS1 (red)</b>	Off	Power supply 1 is operating normally or is not installed
	On continuously	Power supply 1 is present and reporting output not within specified voltage range
<b>PS2 (red)</b>	Off	Power supply 2 is operating normally or is not installed
	On continuously	Power supply 2 is present and reporting output not within specified voltage range
<b>PS3 (red)</b>	Off	Power supply 3 is operating normally or is not installed
	On continuously	Power supply 3 is present and reporting output not within specified voltage range
<b>PS4 (red)</b>	Off	Power supply 4 is operating normally or is not installed
	On continuously	Power supply 4 is present and reporting output not within specified voltage range
<b>TEMP (red)</b>	Off	2000NET sensors reading temperature within specified parameters
	On continuously	Over-temperature condition detected in frame
<b>FP (Front Panel) (red)</b>	Off	Front Panel is working properly (for use with future front panel)
	On	Front Panel has detected an internal fault (for use with future front panel)
<b>REM OVR (yellow)</b>	Off	Module settings match those set onboard by switches and jumpers
	On	One or more settings have been overridden by remote control system (see <a href="#">Table 3</a> on page 19)
<b>COMM (yellow)</b>	Active	Indicates module is polling the devices on the internal frame communication bus
<b>FAN (red)</b>	Off	All fans in the frame are working properly
	On continuously	At least one fan in the frame is not rotating at its specified rate

Table 2. Indicator LEDs and Conditions Indicated - (continued)

LED	LED State	Condition
<b>FB (Frame Bus) (red)</b>	Off	Network module is communicating with modules on the Frame Bus
	On	Internal Frame Bus communication failure
<b>MOD (red)</b>	Off	None of the media or center communication/sync modules is reporting a fault
	On continuously	At least one of the media or center communication/sync modules is reporting a fault
<b>NM (Net Module) (red)</b>	Off	Network Module is working properly
	On continuously	Network Module has detected an internal fault and is not functioning

## Enabling Alarms

The 2000NET Module has two eight-position DIP switches (S1 and S2) that enable or disable the fault reporting functions. Disabling (or filtering) of fault reports can be useful in isolating problems in the frame. Refer to [Figure 12 on page 17](#) for the location of S1 and S2 and [Table 3](#) for the possible settings. A settings table is also silk-screened on the bottom of the module.

Table 3. Configuration DIP Switch Settings

S1 Segment	Left Position (open)	Right Position (closed)
1	PS1 fault reporting enabled	PS1 fault reporting disabled
2	PS2 fault reporting enabled	PS2 fault reporting disabled
3	PS3 fault reporting enabled	PS3 fault reporting disabled
4	PS4 fault reporting enabled	PS4 fault reporting disabled
5	(Currently not used)	
6	Fan fault reporting enabled	Fan fault reporting disabled
7	Module fault reporting enabled	Module fault reporting disabled
8	Frame Bus fault reporting enabled	Frame Bus fault reporting disabled
S2 Segment	Left Position (open)	Right Position (closed)
1	Status Enabled (enabled alarms are reported over SNMP)	SNMP Reporting is disabled except for Over Temp alarm
2	Net module remote control enabled	Net module remote control disabled
3	(Currently not used)	
4	Frame remote control enabled	Frame remote control disabled
5	(Currently not used)	
6	(Currently not used)	
7	(Currently not used)	
8	(Currently not used)	

**Note** Disabled fault reports are still detected by the network GUI but LEDs will be inactive.

## Establishing Frame Network Identity

The initial configuration of the 2000NET module, using the RS-232 port (refer to [Figure 6 on page 12](#)), establishes the frame's network identity to enable the operation of the Web-based GUI. A PC running a terminal emulation application is used to set the initial parameters for network communication. Once initial identity is established, the GUI can be used to make subsequent changes to the networking parameters. Parameters established include:

- Local IP address,
- Gateway IP address, and
- Subnet Mask.

**Note** If the 2000 Kameleon frame is to be connected point-to-point to a single PC workstation, both the frame and the PC must be on the same Subnet.

### Good Networking Practices

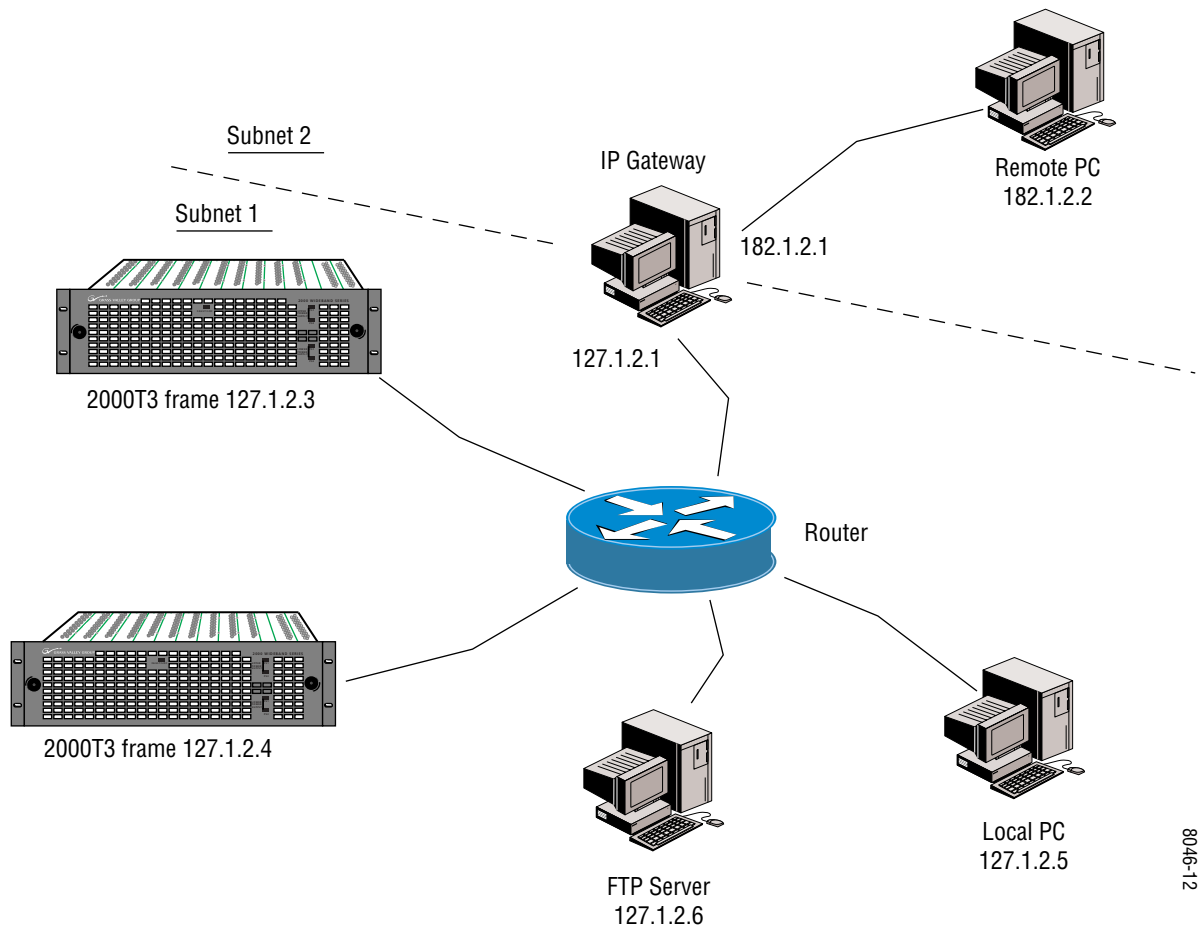
The Local IP Address form of a URL can be used within an intranet to address the 2000 Kameleon frame's Web page. An intranet is set up and maintained within your facility and is isolated from the Internet.

Access from outside, through the Internet, may require the use of a Domain Name and a firewall, depending upon your network architecture. Domain Name Addressing requires a Domain Name Server located within the intranet that maps the Domain Name to the frame's IP Address. The 2000 frame has no knowledge of its assigned Domain Name.

Remote workstations are also subject to network traffic delays. Local PC workstations should be used for real-time operation of the 2000NET.

The most direct and timely access to the frame is achieved by using a PC workstation that is assigned to the same Subnet (see [Figure 13](#)). A workstation in a different Subnet, even when located on the same router, will be subject to processing of the IP Gateway.

Figure 13. Local IP and Subnet Addressing



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## Setting Frame Network Identity

After you have connected the PC to the RS-232 port (refer to [Configuration Serial Port Cable on page 11](#)) and established communication using the terminal emulation application, press the **enter/return** key several times to see the active prompt.

At the prompt enter:

```
setup
```

You will see:

```
-> setup
```

Here are the current parameters and their values:

```
Local IP Address:      192.158.211.83
Gateway IP Address:   192.158.211.1
Subnet Mask:          255.255.255.0
If a change is made, it is necessary to reboot
```

this machine. This will occur automatically when you have completed making changes.

Do you wish to change any of the values? y/n (n): y

For each parameter, you will be given the name of the parameter and its current value in parenthesis. To change it, just type in the new value. If you don't wish to change it, just hit the Enter key.

If you make a mistake on a previous value, continue with the remaining parameters; you will be given an opportunity to modify the value again.

Please ensure that you change from Factory defaults to your network parameters.

The local Ip Address is the Internet address of this machine. It consists of four numbers separated by periods ('.'). Each number can be in the range of 0 to 255. For example: 192.167.221.45  
There must an IP address.

IP Address (192.158.211.83):

The Default Route is the Internet address of the machine which routes network packets outside of the local network. It consists of four numbers separated by periods ('.').

Each number can be in the range of 0 to 255.  
For example: 192.167.221.1  
If you respond with a single period (.), a default route will not be assigned.

Default Route (192.158.211.1):

The Subnet Mask is used in the routing algorithm. The Net Card will use the mask to determine if a address is in local net or to send the message to the default. It consists of four numbers separated by periods ('.').

Each number can be in the range of 0 to 255.  
For example: 192.167.221.1

If you respond with a single period (.), a Subnet Mask will not be assigned.  
Subnet Mask (255.255.255.0):

# Web Browser Setup

The recommended Web browser for use with the 2000NET Control and Monitoring System is either:

- Netscape Navigator 4.x or later, or
- Internet Explorer 4.x or later.

**Note** The use of Internet Explorer 4 with Windows NT has been found to be very slow.

Versions 3.x or earlier of these browsers may cause undesirable results in the presentation of HTML frames.

This section discusses setting up the Web browser to:

- Avoid Proxy Server Routing, and
- Address the frame URL (uniform resource locator).

## Avoid Proxy Server Routing

For best control and monitoring performance, configure the browser for direct HTTP requests to the frame rather than addressing a Proxy Web Server. Proxy Web Servers are used in intranets as a portal through the firewall to outside Web sites.

The Modular Frame Web Server will typically be installed inside the firewall. For best performance, if both the PC and the frame are on the same side of the firewall, bypass the proxy server using the following browser configuration.

### Netscape

The following steps describe the process of configuring Netscape version 4 to direct http requests to the Modular Frame Web Server:

1. Open Netscape.
2. Under the Edit pull down menu select **PREFERENCES...**  
In the preferences window expand the **ADVANCED** category.
3. Select **PROXIES** under the **ADVANCED** Category.
4. Select the **Manual Proxy Configuration** radio button.
5. Under **View/Configure** and in the **Exceptions/No proxy** section of the Manual Proxy Configuration Menu enter the IP Addresses and the Domain Names of Modular Frames that will be accessed directly (not through the proxy).

## Internet Explorer

The following steps describe the process of configuring Internet Explorer version 4 to direct HTTP requests to the Modular Frame Web Server:

1. Open Internet Explorer.
2. Under the **VIEW** pull down menu, select **INTERNET OPTIONS...**
3. Select the **Connection** tab.
4. In the **PROXY SERVER** section, check mark **Access the Internet using a proxy** (if applicable) and check mark **Bypass proxy server for local (Intranet) addresses**.

## Addressing the Frame URL

To address a 2000 Kameleon frame from an internet browser, enter the frame's default URL into the URL line of the browser (**LOCATION** in Netscape Navigator, **ADDRESS** in Internet Explorer). The URL will be the IP Address given to the frame during initial setup (see [Setting Frame Network Identity on page 21](#)), or a Domain name that has been mapped to the IP address in your Domain Name Server tables. The URL should look like this:

http://{Frame's IP Address}/

Example:

http://127.123.234.2/

Or:

http://{Frame's Domain Name}/

Example:

http://frame1.xyz.com/

The correctly entered URL will call up the 2000 frame's default first page—Frame Status.

## Default MAC (machine) Address

Each 2000 Kameleon frame has a unique ethernet physical level MAC address that is stored in the frame ID memory chip. If this memory has failed, the 2000NET module will substitute a default MAC address: 08-00-11-09-CD-AB. If more than one 2000 frame in your network is assigned the default MAC address, network conflicts will occur. To verify the frame has a unique MAC address refer to [Network Configuration Changes on page 35](#).



## Using the 2000NET GUI

Once you have accessed the 2000 Kameleon frame's first page, Frame Status (see [Figure 14](#)), use the hypertext Link List in the left column to select the desired device.

The Link List is a two-tier list with the frame's devices at the highest tier and sub-pages for each device in a secondary tier (sub-list) below the parent device.

To navigate from device to device, click on a device link. This will open the device's status page and open the sub-list of device pages. You can also click on the slot icon in the content display to access a particular module's status page.

Figure 14. 2000NET GUI for Frame Control

The Links section lists the frame and its current modules. The selected link's Status page is first displayed and the sub-list of links for the selection is opened. The sub-list allows you to select a particular information page for the selected device.

Content display section displays the information page for the selected frame or module (frame slot icons are also active links).

Refresh button for manual refresh of page

Online Manual Link

Temperature	Status	Pass	Fan	Status	PASS
Media Module	Net Card	Media Module	Power Sled		
Media Module		Media Module	Fan Sled		
Media Module	Aux Card	Media Module	Empty		
Media Module		Media Module			
Media Module		Media Module			
Empty		Media Module			

**Properties**  
 Vendor Grass Valley Group Software Version 3.1.0  
 Media Slots 13

To navigate to one of the device's pages click on any of the device's sub-list of links. This will update the content display to the right.

**Note** To update status, HTML pages must be manually refreshed by clicking on the **Refresh** button. Changes made at the frame or from other browsers on the network will not be displayed until the page is refreshed.

Using the web browser's reload function will always return you to the Frame Status page. To refresh a particular page, always click on that page's **Refresh** button next to the right of the page name.

The Online Manual Link will open a .PDF version of the appropriate instruction manual if you have set up an Online Manual Server as described in *Online Manuals* on page 51.

## Frame Interface

This section describes GUI functions for the frame.

### Frame Status

The Frame Status page displays an overall status for the frame. This includes status for each device, module, empty slot, power supply, and the 2000NET board.

**Note** 2000 and legacy Thomson Grass Valley modules that can reside in the 2000T3 frame are supported to different degrees by the 2000NET module.

The status of modules, empty slots, power supplies, and the 2000NET board are presented in icons arranged from left to right as they are in the physical frame. Each icon also provides a clickable link to the device's status page.

**Note** When the 2000NET is first installed or when many modules are installed simultaneously, it may take some time for the 2000NET to poll, update status, and build the HTML pages. This is especially true if there are modules that fail frame bus reporting. During these periods the Frame Status Page may fall behind temporarily until the 2000NET board can catch up and present a true current status.

During initial polling, modules that do not respond immediately may transition to a **WARNING, MODULE NOT RESPONDING** status. In this case, this is a temporary status until a maximum number of sequential attempts fail and a Fault is reported.

## Module Slot Status

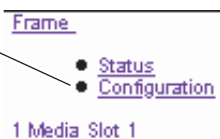
Module Slot Status icons report one of the following:

Table 4. Module Status Indicators

Icon Color	Module Status	Icon Text	Indication
White	None	Empty	No module detected in slot.
Gray	No Comm	No Comm	Slot contains a legacy module which was not designed to support Frame Bus communications with an 2000NET module.
Green	Pass	Module	Slot contains a fully Frame Bus capable module.
Yellow	Warning	Module	2000NET has detected a warning condition in module due to lack of input signal or incomplete support for remote monitoring and control. Ability of module to perform intended operation is limited.
Red	Fault	Module	2000NET has detected a fault condition in module. Fault may have been communicated over the Frame Bus, or may indicate a failure of the module to respond over the Frame Bus.

## Set Frame Configuration

Use  
This  
Link



Use the Frame Configuration page (Figure 15 on page 28) to:

- Activate the flashing Locate Frame LED,
- Save a frame configuration file or browse and Load a previously saved frame configuration file,
- Assign the frame a name, index, and location,
- Enter a Documentation Server Address to link to online manuals (see [Online Manuals on page 51](#)), and
- Enable/disable frame status reports for SNMP monitoring.

## Locate Frame

The **Locate Frame** function is explained in [Indicator LEDs on page 18](#).

## Save/Load Frame Configuration File

You may save a frame configuration to a file by clicking on the **Save To** button. A frame configuration is saved to a default file (FrameConfig-Data.mcm) and the name cannot currently be changed. Follow the file download instructions for saving the file. This file can be recalled on this or any other networked 2000 frame to create a duplicate configuration.

Use the **Browse** button to locate a saved frame configuration file or enter a path and file name into the display. Select the **Load** button to load the selected configuration to the frame.

## Frame Identification

Enter any name, an index number (for SNMP reporting), and a location name to identify a frame. You may also use the factory default frame name or location by selecting either **Default** button.

## SNMP Trap Reports

Refer to *SNMP Trap Reports on page 28* for more information on the SNMP reporting section.

Figure 15. 2000 Frame Configuration Information

**Configuration** 
Screen Refresh button

Model: 2000T3N Description: Module Frame  
 Frame Location: not assigned

**Locate Frame**

Flash  Off

**Save/Load Frame Configuration File**

Save to...

Enter filename:

**Frame Identification**

Frame Name:

Frame Index:

Frame Location:

Documentation Server Address:

**Frame SNMP Trap Reports**

	Frame Bus Status	Fan Status
Enabled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trap Severity	Alarm	Alarm

To locate the 2000 frame in your facility, flash the bi-color Status LED on the 2000NET module. It is visible through the Status lens on the front cover.

Save the current frame and slot configuration to a file

Enter a path and filename to a saved frame configuration file (file name is a default and cannot be changed)

Load the selected configuration file

Name the frame

Enter an index number for use in SNMP networking tables (not required)

Enter a location name

Enter IP Address for online manual server

Enable or disable the status reports used in SNMP network monitoring system

Note: To enable a report, on-board switches must also be enabled

# 2000NET Module Interface

This section describes GUI functions for the 2000NET module.


## Network Module Status

The 2000NET Status page (Figure 16) provides:

- Module identity, location, and pass/fail status,
- Status icons reporting network interface, internal module, and frame communications health (see Table 4 on page 27),
- Hardware and software versions and module identification numbers, and
- Current status of fault reporting enable switches.

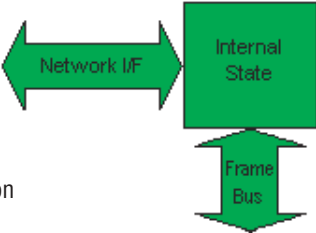


Figure 16. Network Module Status Page


**Status**

Model: **2000NET** Description: **Network Interface Module**  
 Frame Location: **not assigned** , Slot: **13**  
 Net Card Status: **PASS**

Color indicates status of each block:  
 Green = Pass  
 Red = Fault  
 Yellow = Warning  
 Grey = No communication  
 White = not present



**Properties**

Hardware Revision <b>01A1</b>	Serial Number <b>FP00340351</b>
Software Version <b>3.1.0</b>	Part Number <b>671-5231-01A1</b>

**Hardware Switches**

PS1 Status Reporting	Enabled	PS2 Status Reporting	Enabled
PS3 Status Reporting	Enabled	PS4 Status Reporting	Enabled
Fan Fault Reporting	Enabled	Module Status Reporting	Enabled
Frame Bus Fault Reporting	Enabled	Asynchronous Status Reporting	Enabled
Net Card Remote Control	Enabled	Frame Remote Control	Enabled

## Configuration Page for SNMP Setup



The Thomson Grass Valley Modular Control and Monitoring System uses the Simple Network Monitoring Protocol (SNMP) internet standard for reporting status information to remote monitoring stations. The 2000NET Configuration page provides SNMP setup. When SNMP Agent software is installed on the 2000NET module, enabled status reports are sent to an SNMP Manager such as the Thomson Grass Valley's NetCentral II.

**Note** There are both hardware and software report enable switches for each report. Both must be enabled for the report to be sent. For information on hardware switches, see [Enabling Alarms on page 19](#). Software report switches are set on the Configuration page for the Frame, the 2000NET module, and each module slot.

## SNMP Agent Installation

To use SNMP, the SNMP Agent software must be installed on the module. The Configuration page shown in [Figure 17](#) is displayed if the agent software has not already been installed. When you click on the install button you will see the license agreement.

Figure 17. Configuring the 2000 Network Module for SNMP



After reading the agreement, click on **Agree** to finish installing the SNMP Agent. Clicking the **Decline** button will abort the SNMP Agent installation.

Figure 18. Installing the SNMP Agent

All questions regarding the Agreement or the licenses granted herein should be directed to Contract Administration, Grass Valley Group, Inc., P.O. Box 59900, Nevada City, California 95959-7900.

\*070952001\*



When the SNMP Agent is successfully installed, the Configuration page will contain the setup items shown in Figure 19.

Figure 19. 2000NET Module Configuration for SNMP

**Configuration**

Model: 2000NET Description: Network Interface Module

Frame Location: QA Bay 1 - Mod Lab , Slot: 13

REBOOT

**Net Card SNMP Trap Reports**

	Net Card Status	Hardware Switch
Enabled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trap Severity	Alarm	Informational

**SNMP Trap Destinations**

IP Address	Community Name	Status	Operation
192.168.42.134	public	Active	<input type="text"/>
192.168.42.231	public	Active	<input type="text"/>
10.16.6.4	public	Active	<input type="text"/>
10.255.104.188	public	Active	<input type="text"/>
10.255.104.188	public	Active	<input type="text"/>

Apply

Report  
Activation  
Mode  
Selection

- Create-Go
- Create-Wait
- Active
- Not In Service
- Delete

## SNMP Report Activation Modes

Each report destination has an activation control that can select one of the following modes of operation:

- **CREATE – GO** creates a new report destination that becomes active after the next module reboot.
- **CREATE – WAIT** creates a new report destination that remains out of service until the user selects active and then reboots the module.
- **ACTIVE** changes a **NOT IN SERVICE** report destination to active after the next module reboot.
- **NOT IN SERVICE** changes an active report destination to inactive after the next module reboot.
- **DELETE** removes the report destination entry. If the entry was active it remains active until the next module reboot.

**Note** Report destination status does not change until the 2000NET module is rebooted.

The status column to the left of the activation operation pull-down window provides one of the following status reports:

- **<BLANK>** – No entry has been applied.
- **ACTIVE** – All new status reports will be sent to this destination.
- **NOT IN SERVICE** – The destination has a valid definition but the user has not activated it.
- **ACTIVE PENDING REBOOT** – This entry indicates the report destination will become active upon the next module reboot.
- **NOT IN SERVICE PENDING REBOOT** – This entry indicates the report destination will become inactive upon the next module reboot.
- **NOT READY** – The destination entry is invalid. The IP Address may not be properly defined or there is no IP Address or Community entry.

## SNMP Status Reports

Status reports (traps) are unsolicited reports sent from the SMMP Agent to one or more SNMP Managers such as NET Central. Each module slot can be configured to enable these reports. See the Configuration page for the individual module slot to enable/disable reports. Report severity can be one of three degrees:

- Warning – a limitation in the module's intended performance,
- Alarm – a failure in communication with the module, or
- Informational – a configuration change such as a switch setting.



## Power Supply Slot Pages



The 2000NET provides power supply slot status and configuration pages that provide:

- Power sled status – pass/fail status of each supply and fan in the power supply sled (see [Figure 20](#)).
- SNMP slot report configuration.

Figure 20. Power Supply Slot Status Page

---

**Status**

Model: 2000PS Description: Power/Fan Sled

Frame Location: QA Bay 1 - Mod Lab , Slot: 19

Sled Slot Status **PASS**

Power Supply 1 State **PASS**

Power Supply 2 State **PASS**

Fan 1 State **PASS**

Fan 2 State **PASS**



The power supply slot configuration page allows you to enable the SNMP slot reports shown in [Figure 21](#). The severity indication that is reported for each enabled report is shown at the bottom of the page (Warning, Alarm, or Informational severity).

Figure 21. Power Supply Slot Configuration Page

---

**Configuration**

Model: 2000PS Description: Power/Fan Sled

Frame Location: QA Bay 1 - Mod Lab , Slot: 19

**Hardware Switch Controls**

PS1 Fault **Enabled** PS2 Fault **Enabled**

Fan Fault Reporting **Enabled** Asynchronous Status Reporting **Enabled**

**Power Sled SNMP Trap Reports**

	PS1 Fault	PS2 Fault	Sled Removed SNMP Trap	Fan Status SNMP Trap
Enabled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trap Severity	Alarm	Alarm	Warning	Alarm

## Fan Sled Slot Pages






The 2000NET provides fan sled slot status and configuration pages that provide:

- Fan sled status – pass/fail status of each fan in the fan sled (see Figure 22), and
- SNMP slot report configuration.

Figure 22. Fan Sled Slot Status Page

---

 **Status** 

Model: 2000FAN Description: Fan Sled 

Frame Location: QA Bay 1 - Mod Lab , Slot: 20

Sled Slot Status **PASS**

Fan 1 State **PASS**



Fan 2 State **PASS**




The fan sled slot configuration page allows you to enable the SNMP slot reports shown in Figure 23. The severity indication that is reported for each enabled report is shown at the bottom of the page (Warning, Alarm, or Informational severity).

Figure 23. Fan Sled Slot Configuration Page

---

 **Configuration** 

Model: 2000FAN Description: Fan Sled 

Frame Location: QA Bay 1 - Mod Lab , Slot: 20

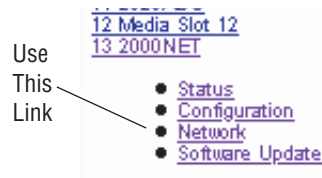
### Hardware Switch Controls

Fan Fault Reporting **Enabled** Asynchronous Status Reporting **Enabled**

### Fan Sled SNMP Trap Reports

	Fan Sled Removed	Fan Status
Enabled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trap Severity	Warning	Alarm

## Network Configuration Changes



After initial frame network addressing is done using the RS-232 port, subsequent address changes may be made using the menu on the 2000NET Network page illustrated in Figure 24.

The 2000NET module must be rebooted before changes will take effect. You can reboot the module from the Network page by clicking the **Reboot** button. The **Reboot** button can also be found on the Configuration page.

Figure 24. Configuring the 2000 Network

**Network**

Model: 2000NET Description: Network Interface Module  
 Frame Location: not assigned , Slot: 13  
 Reboot the Net Card for any changes to take effect

**REBOOT**

Frame Machine Address: MAC Address: 00-B0-09-00-0D-54

**Network Parameters**

IP Address: 192.158.211.56

SubNet Mask: 255.255.255.0

Gateway IP Address: 192.158.211.1

Enter and Apply Network Parameters

**Note** SubNet Mask and Gateway IP Address are required.

## Media Module Slot Configuration



Media module slots may be named to reflect specific functions for that slot or module within the facility. The configuration for the module can also be saved to slot memory on the 2000NET module.

**Note** Both frame and module names and configuration information can be saved to file and recalled as necessary. This allows quick and easy reconfiguration of the 2000NET module if it must be replaced or moved to another frame (see [Set Frame Configuration on page 27](#)).

## Slot Identification

You may identify the module by typing a specific name in the **Name** field. The assigned name is stored on the 2000NET module and travels with the 2000NET module if it is moved to another frame. Select **Default** to enter the factory default module name.

Figure 25. Slot Configuration Page

**Slot Config**  
 Model: KAM-AV Description: Kameleon Module  
 Frame Location: not assigned , Slot 2

**Slot Identification**  
 Name:    
 Restore upon Install

**Locate Module**

**Hardware Switch Controls**  
 Module Status Reporting Enabled Asynchronous Status Reporting Enabled

**Slot SNMP Trap Reports**

	Slot Fault	Module Removed	Signal Loss	Reference Loss
Enabled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trap Severity	Alarm	Warning	Warning	Warning

**Annotations:**  
 - Use This Link: Points to the 'Slot Config' link in the navigation menu.  
 - Name the module slot: Points to the 'Name' input field.  
 - Check box to restore saved config when new module installed: Points to the 'Restore upon Install' checkbox.  
 - Learn module configuration to this slot: Points to the 'Learn Module Config' button.  
 - Enable/disable module locator function: Points to the 'Locate Module' dropdown menu.  
 - Read-only status of 2000NET module hardware settings necessary for enabling SNMP Trap Reports: Points to the 'Hardware Switch Controls' section.  
 - Enable/disable specific SNMP reports for the slot: Points to the 'Slot SNMP Trap Reports' table.  
 - Read-only severity level assigned to each event: Points to the 'Trap Severity' row in the table.

The slot configuration for each media module is automatically saved periodically to the 2000NET module in that frame. You may also select the **Learn Module Config** button at any time to save the current configuration for this slot. The configuration is saved on the 2000NET module. If the 2000NET module is removed or powered down, the stored configurations are not saved.

When the **Restore upon Install** box has been checked, the current configuration saved to this slot is saved as slot memory. When the current module is removed and another module of the same type is installed, the configuration saved to the 2000NET module will be downloaded to the new module. The box must be checked before the current module with the saved configuration is removed.

## Locate Module

When enabled, the **Locate Module** function flashes the yellow COMM and CONF LEDs on the front of the module to make it easy to locate in the frame.

## Hardware Switch Controls

This section is a read-only status report of 2000NET module switch settings for Module Status Reporting and Asynchronous Status Reporting. These functions must be enabled for the following Slot SNMP Trap Reports to function.

## Slot SNMP Trap Reports

This section is displayed only when the SNMP Agent software has been installed on the 2000NET module. Slot SNMP traps can be enabled only when the hardware switches for Module Fault reporting and Asynchronous Status reporting are in enabled on the 2000NET module (dipswitch S1 segment 7 and dipswitch S2 segment 1).

The enabled SNMP traps will be reported to any SNMP manager that is identified as an SNMP Report Destination in 2000NET configuration. Trap severity is read-only hard-coded information that is interpreted and responded to by the SNMP Manager software configuration.

## Updating Software

The following procedure describes the software download process for both the 2000NET module and for media modules residing in the networked 2000 Kameleon frame.

### Overview

The Modular Remote Monitoring and Control System is an extension of the Thomson Grass Valley Signal Management System (SMS) routing system and uses the same File Transfer Protocol (FTP) technique to download software.

This procedure assumes your Local FTP server is a 32-bit Windows host running Windows 95, 98, 2000, or NT.

If you do not have an FTP server, Thomson Grass Valley provides a free FTP server package that is easy to install and operate. This procedure assumes you will use the Xitami FTPD provided. If you already have an FTPD available, you can skip steps 3 through 5.

The software update process consists of the following steps:

1. Acquire the software update files and, if needed, the FTP Server package.
2. Extract the module software update files into an FTPD modular directory.
3. Extract the FTP Daemon (Xitami FTPD).
4. Run the Xitami installation program.
5. Move the FTPD configuration files to the Xitami directory.
6. Start the FTPD.
7. Use the 2000 GUI to initiate software updates.
8. Verify the software update results.

## Software Update Procedure

**CAUTION** Always read the release notes before updating a module's software. The notes may contain critical information about the download process for that module. If the procedure is not done correctly, the module can be damaged.

1. Acquire the software update files from Thomson Grass Valley (refer to Figure 26).

Software upgrade packages are available on the Thomson Grass Valley web site. The free FTP server software is also available.

- a. Connect to the Thomson Grass Valley modular software upgrade site using the following URL:

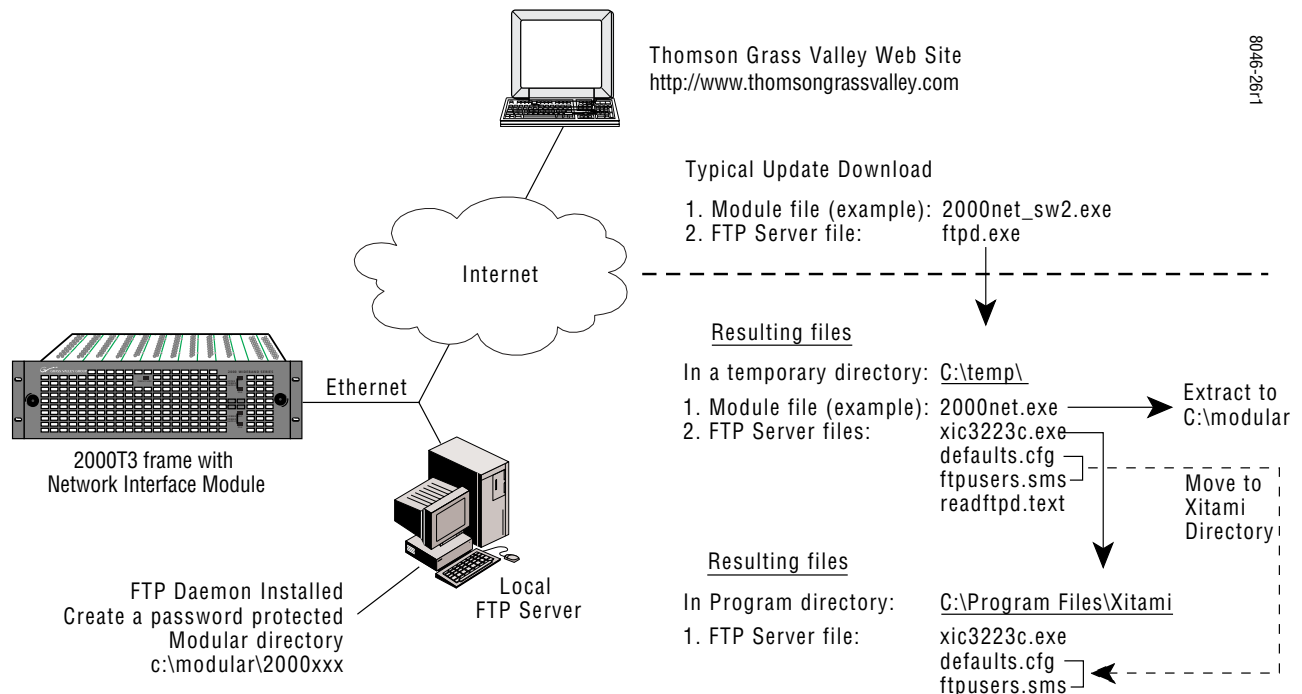
`http://www.thomsongrassvalley.com/downloads/`

Files for the various 2000 Series modules are located under **2000 WIDEBAND SERIES MODULES**. Here you will also find the important software release notes and free FTP server software.

- b. Create a temporary download directory on your PC:

`c:\temp\`

Figure 26. Acquiring 2000 Software from Thomson Grass Valley Download Site



- c. Using the web browser, select the desired files. Each file is a self-extracting .exe file. Double-click to extract and download the file. You are queried to either **Open** the file or **Save As**. Select the **Save As** option and set the path to the temporary directory on your computer.

This process will trigger the download of the file to your computer.

**Note** If you have access to an existing FTP server directory, the module update files can be extracted directly into that directory.

2. Extract the module update files into an FTPD modular directory.

The module software update files must reside in a directory that the FTPD can access. The Thomson Grass Valley supplied FTPD is configured to access a directory designated:

```
\modular
```

The module update .exe files contain the new software for the 2000 module, either a binary file (.bin extension) or a field update file (.fld extension). Binary files are for the 2000NET module updates and field update files are for the 2000 media modules.

- a. Open Windows Explorer on the local server.
- b. If one does not already exist, create a directory on the C drive:

```
c:\modular
```

- c. Create a subdirectory using the model name of the file being updated, for example:

```
c:\modular\8960enc
```

```
c:\modular\8960dec
```

```
c:\modular\2000net
```

- d. Double-click the module software .exe file (in the temporary directory) and save it to the appropriate directory. The resulting file will be a .bin or .fld (8960ENC shown):

```
c:\modular\8960enc\8960enc_sw301a_fw1.fld
```

**Note** The file name shown indicates: 8960 Encoder, software version 3.01a, firmware version 1.0.

3. Extract the FTPD (Xitami FTP Server) files.

**Note** This section is for facilities that do not already have an FTP Daemon (FTPD) (also known as a File Transfer Protocol (FTP) server) installed on the 2000 frame's network. For those facilities that already have an FTPD or other FTP service available in their network, go to step 6.

Thomson Grass Valley provides a free FTP server for those facilities that do not have a local FTP service. The FTP server package is the same Xitami Web Server FTP package that is provided with the Thomson



Thomson Grass Valley SMS router upgrade package. The version of the Xitami Web FTP server distributed with module software upgrades is for a 32-bit Windows host.

The FTP Daemon in the temporary directory is a self-extracting file (ftpd.exe). To extract the files:

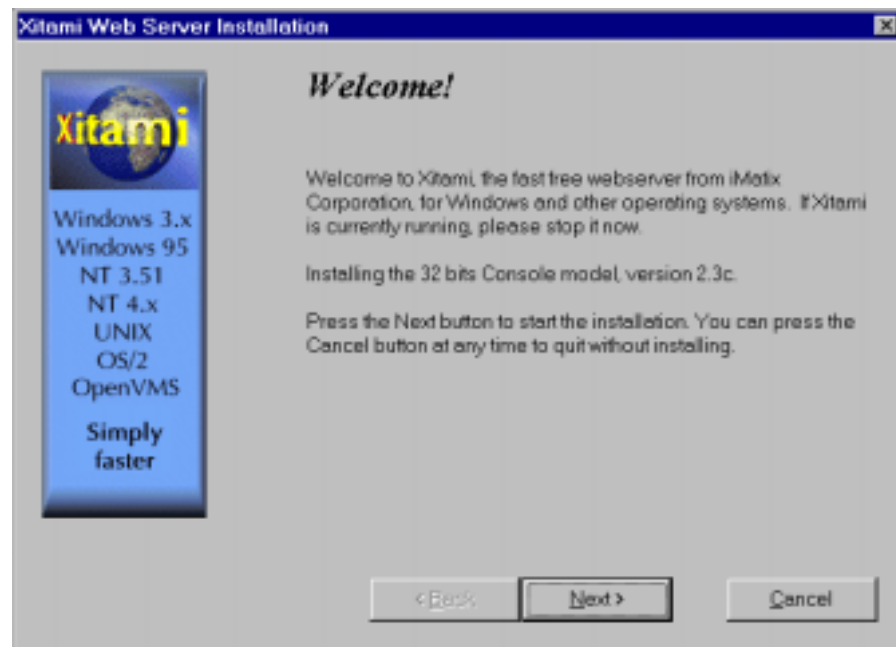
- a. Open Windows Explorer and find the ftpd.exe file.
- b. Double click on the .exe file and extract the files to the temporary directory.

These files will be extracted:

- xic3223c.exe – the Xitami installation file,
- defaults.cfg – an FTPD configuration file that has been modified specifically for Thomson Grass Valley software downloads,
- ftpusers.sms – the FTPD admin file specifying user names and passwords for network access to files in the FTP server directories, and
- Readftpd.txt – a Readme file.

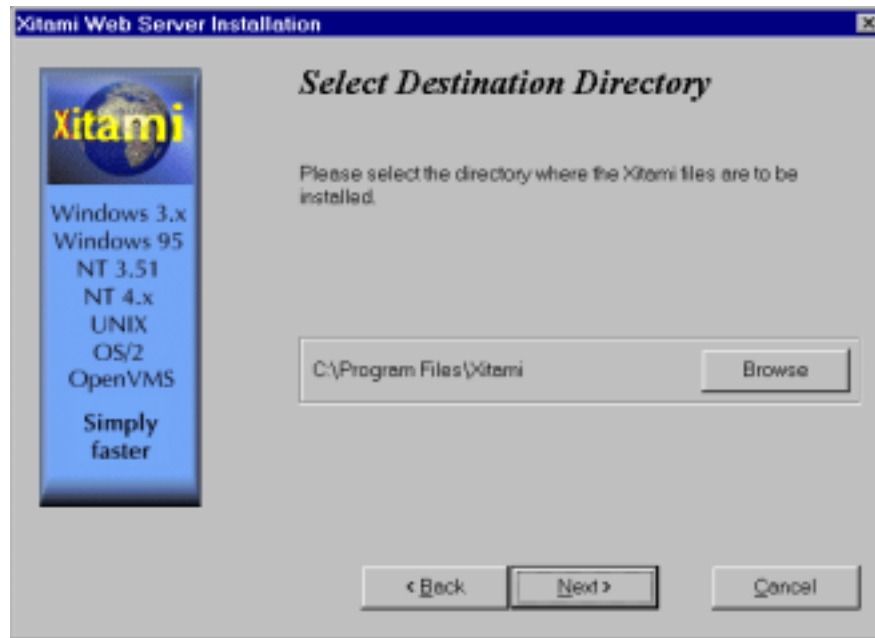
4. Run the Xitami installation program.
  - a. Double click on xic3223c.exe. You will see the Xitami Welcome (Figure 27).

Figure 27. Xitami Web Server Welcome



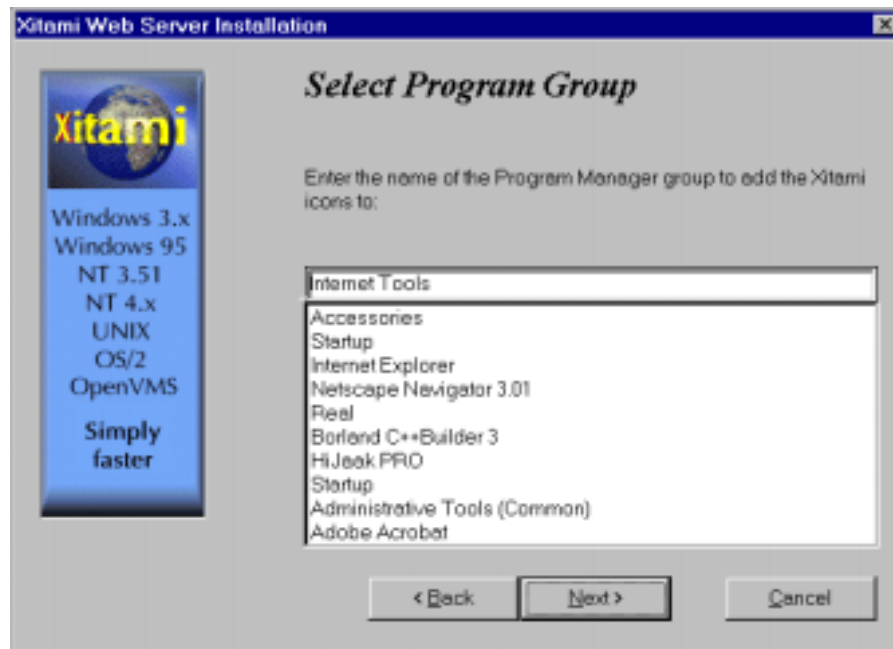
- b. Click on **Next>**. You will see Xitami Installation Notes.
- c. Click on **Next>**  
You will see Select Destination Directory (Figure 28).

Figure 28. Select Destination Directory



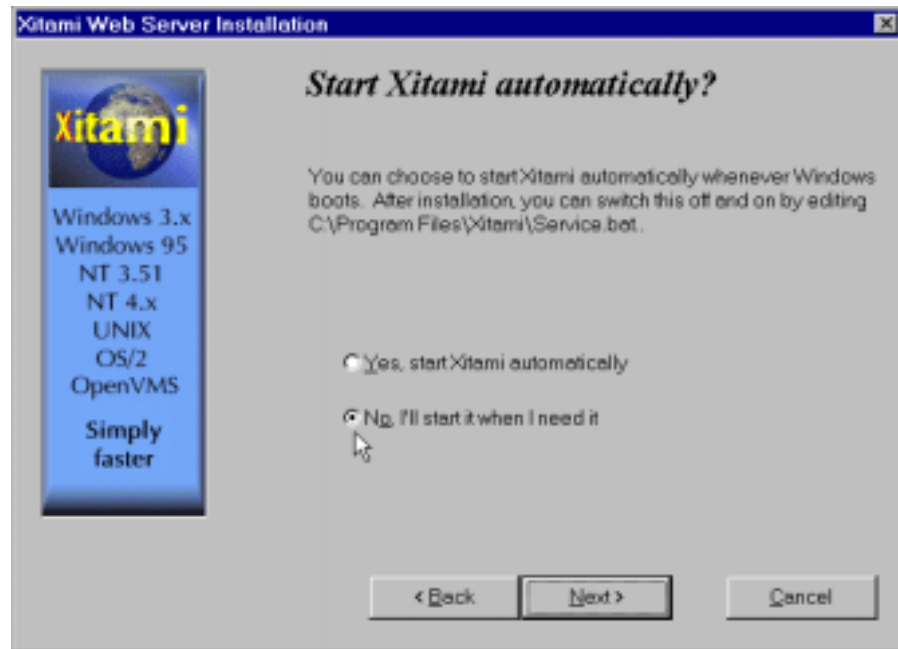
- d. Do not change the default settings. Click on **Next>**. You will see the Select Program Group screen (Figure 29).

Figure 29. Select Program Group



- e. Do not change the default settings. Click on **Next>**. You will see the Automatic Startup Query screen (Figure 30).

Figure 30. Automatic Startup Query



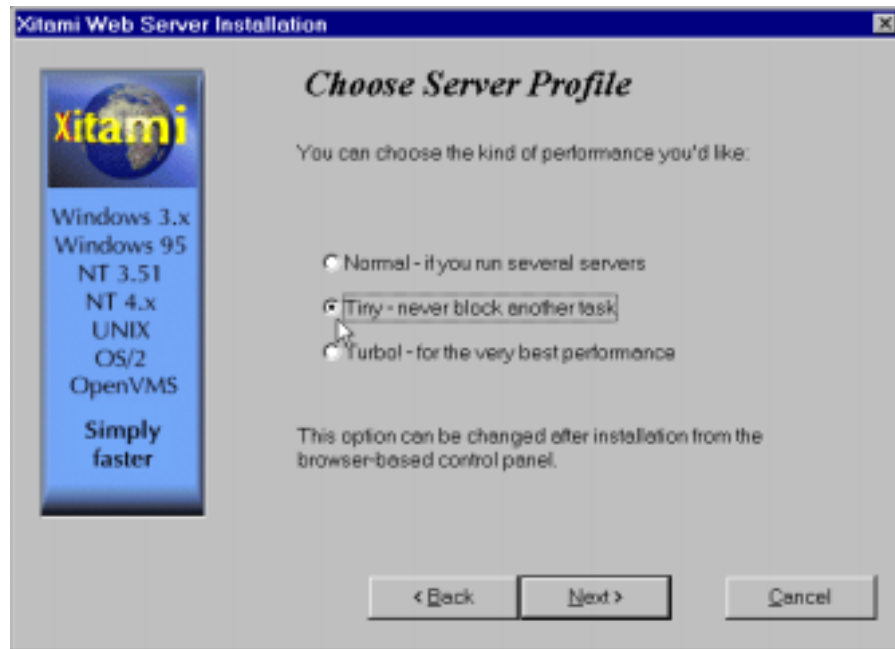
- f. Select **No**, then click on **Next>**. You will see the Administration Password screen (Figure 31).

Figure 31. FTPD Server Administration Password



- g. Do not enter anything in these fields. Click on **Next>**. You will see the Choose Server Profile screen (Figure 32).

Figure 32. Choose Server Profile



h. Select **Tiny - never block another task**. Click on **Next>**. You will see the Ready To Install screen.

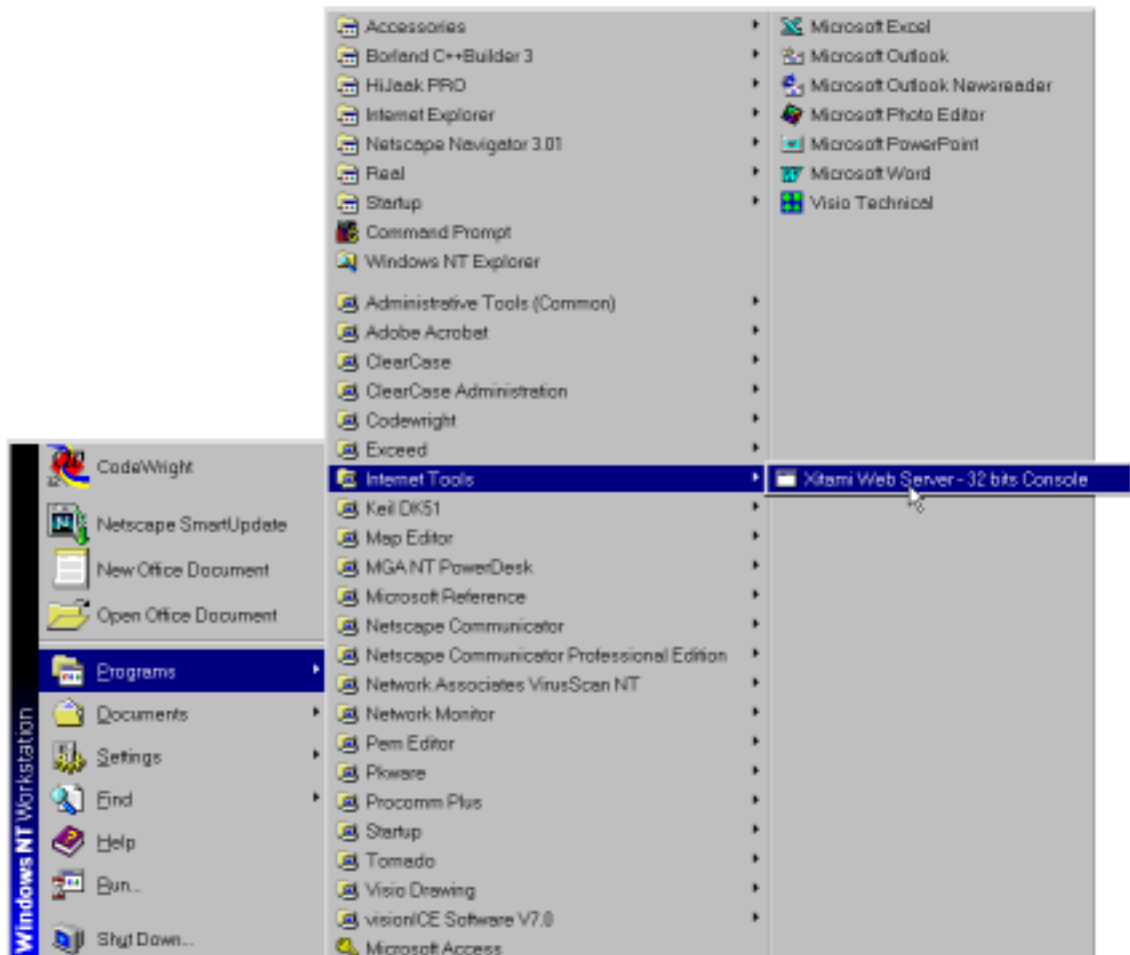
i. Click on **Next>**.

An installation meter box will appear, and upon completion, you will see the Installation Complete! screen.

j. Click on **Finish**.

An Icon (see [Figure 33](#)) will have been created in the Program Group window that was selected in [Step d](#) (see [Figure 28](#) on page 42).

Figure 33. FTPD Icon in Program Group Window



5. Move the FTP Daemon Start-up Configuration Files.

The FTP Daemon that has been installed requires that configuration files be placed in the Xitami directory.

- a. Open Windows Explorer.
- b. From the Explorer window, return to the FTPD directory and move the extracted defaults.cfg and ftpusers.sms files to the directory at:

c:\Program Files\Xitami

The defaults.cfg and the ftpusers.sms files contain default configuration instructions that the FTPD application reads at start-up.

6. Start the FTPD.

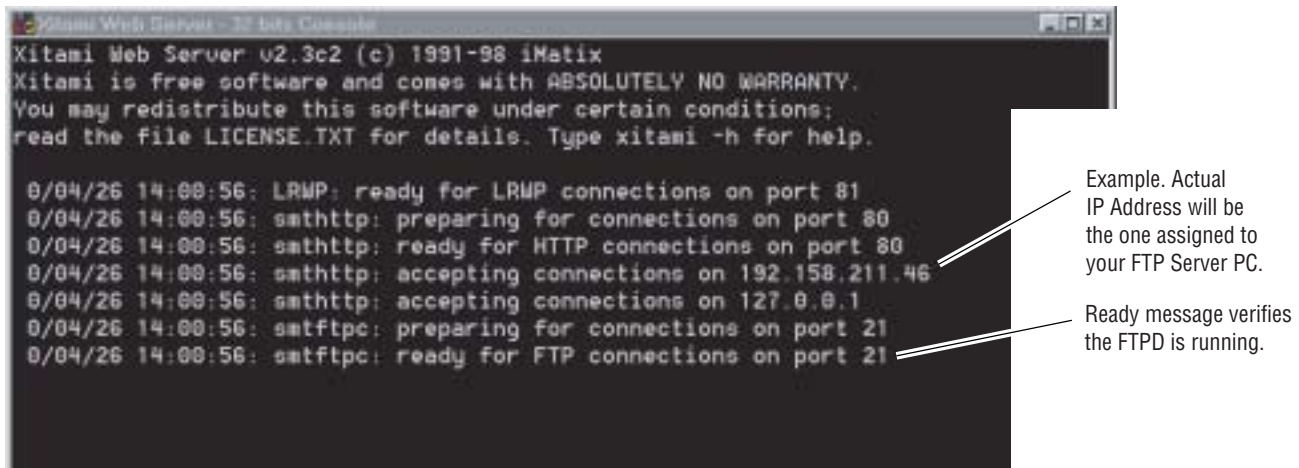
If the Xitami Web Server (FTPD) is not already running, start it.

- a. Click on the **Start** popup window on the PC.

- b. Select **PROGRAMS**, then **INTERNET TOOLS**, and click on **Xitami Web Server – 32 bit console** (Figure 33 on page 45).

The Xitami Console will open as a DOS window. There will be a log of events, at least one of which will indicate it is accepting connections (see Figure 34).

Figure 34. Typical FTPD Console Screen



The IP Address line should actually indicate the IP address of the PC you are using for the FTP server. This is the IP Address that will be used to initiate the software update.

The line that verifies that the FTPD is running reads:

```
ready for FTP connections on port 21
```

7. With the FTPD running, use the 2000 GUI to initiate software updates.

You will use the web-browser to:

- Access the appropriate Software Update page for a given module slot,
- Enter the required data into the HTML form on that page, and
- Submit the form.

The 2000 Frame uses the data in the form to contact the FTPD on your server, download the software update file, and reprogram the targeted module.

**Note** Prior to attempting update of software, refer to the target module's manual and confirm that the Remote/Local Only jumper is in the Remote position.

- a. Open a web browser on a PC that is connected over the network to the 2000 frame.
- b. Enter the URL of the frame where the module to be updated resides. The frame's main status page will appear.

- c. Click on the module's link and then click on **Software Update** (the 2000NET module link is shown in Figure 35).

Figure 35. Network Module Software Update Page

Click on Software Update to access the update page.

**Software Update**

Model: **2000NET** Description: **Network Interface Module**  
 Frame Location: **not assigned** , Slot: **5**  
 Software Version: **3.1.0**  
 Enter FTP Server IP, Username, Password and File to Initiate

	selection	current setting
FTP Server Address:	<input type="text" value="192.158.211.31"/>	192.158.211.31
File Path:	<input type="text" value="/proj/modular/2000/Flid"/>	/proj/modular/2000/Flids/
FTP UserName:	<input type="text" value="modular"/>	modular
FTP Password:	<input type="password"/>	

The module's Software Update page will appear. This form is the same for all 2000 modules that support network software update.

If the module does not support network software update, the page will be blank except for the header and status information.

**CAUTION** Always read the Release Notes for the specific module for download procedure notes that are critical to successful software downloading.

- d. In the FTP Server Address field, enter the IP Address of the PC that has the FTPD installed and running.
- e. You can enter the Host Name of the PC that has the FTPD running into the FTP Server Name field. This is an optional step and can be omitted.
- f. Click on **Apply** to set the FTP Address.

The web page will refresh and the new FTP address should be displayed as the Current Settings.





8. Verify the software update results by checking the Installed Software Version on the device's Properties web page.

The software and firmware (if applicable) numbers should match that indicated in the .bin or .fld file name (see [Step 2](#) of this procedure for file names and version numbers).

## Password Protection for Software Upgrades

The FTPD distributed for software downloads provides user name and password protection for 2000 module and 2000NET software updates. User name and password entry is required in the Software Update web pages.

The assignment of User names and Passwords for a given FTP root directory is administered by editing the ftpuser.sms file included in the FTPD distribution (see [Step 3](#) of this procedure). This file initially contains the default user name and password (user name: moduser, password: moduser) for access to the modular root directory and instructions for setting up an account.

The contents of the file are shown in [Figure 37 on page 50](#). (The file also includes the SMS7000 account for customers with Thomson Grass Valley SMS routers.)

Figure 37. User Name and Password File ftpuser.sms

```

#
# ftpusers.sms - FTP users file for XITAMI
#
# Each section [Xxxx] defines a user who can connect to the FTP service.
# The user name is not case sensitive. Possible options for a user are:
#
# access=(G|P|D|M|R)+      Access rights, get/put/delete/mkdir/rmdir
# password=(-|*|""|text)   * = anonymous; - = disabled; "" = none
# root=directory          With leading '/' is absolute path; "" is
#                          main ftproot directory.
#
# aliases=1              Has access to aliases? By default 1 if
#                          root="", else defaults to 0. Note: this
#                          command is not currently implemented.
#
# NOTE: do not modify this file except for testing. When you re-install
# Xitami, this file may be replaced. Instead, change the ftp:user-file
# option and copy this file.
#
#*END

[smsuser]
  Access=G
  Password=smsuser
  Root=/sms7000          #Must be able to find file

[moduser]
  Access=G
  Password=moduser
  Root=/modular          #Must be able to find file

```

Modular product user name

Modular product password

**Note** The FTPD configuration files should be installed in a password protected directory.

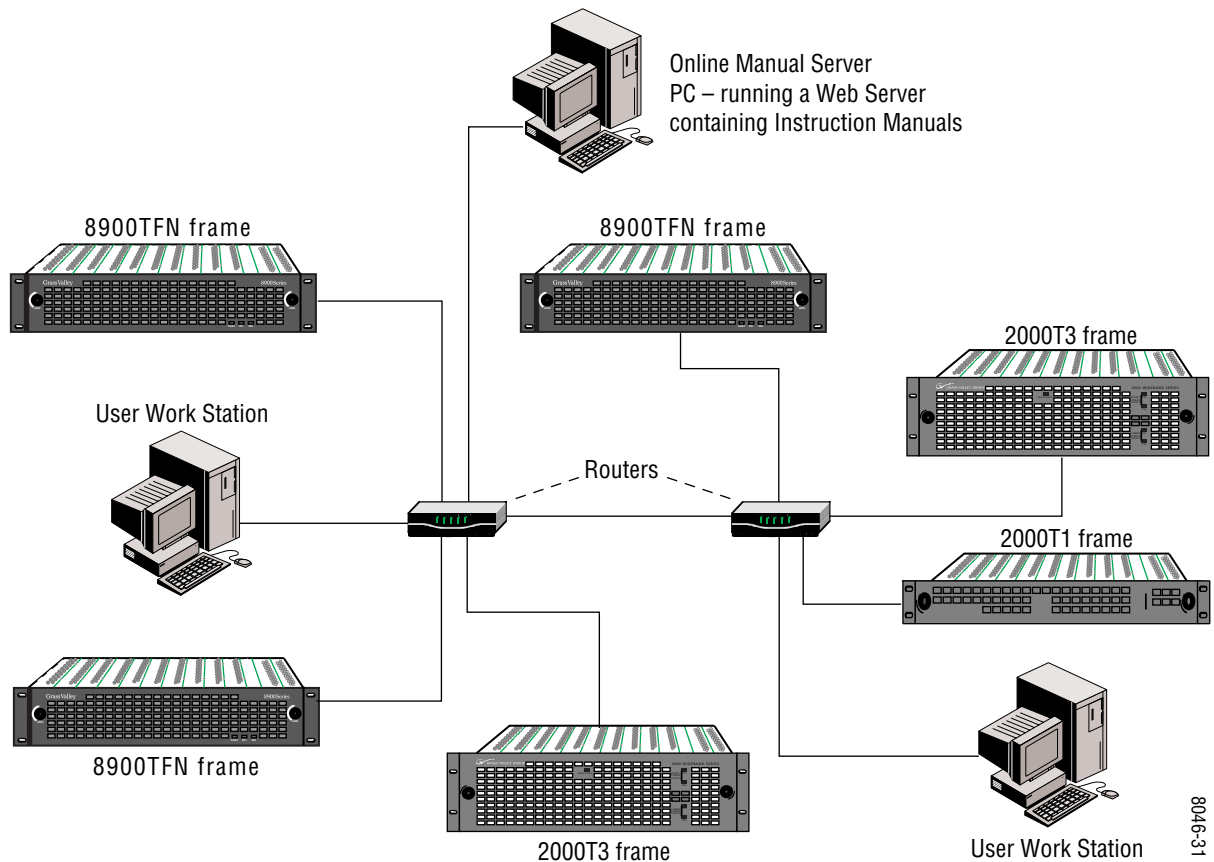
# Online Manuals

Online  
Manual  
Link



Software versions 2.2.0 of both the 8900NET and 2000NET Network Interface Modules support direct online linking to electronic PDF formatted instruction manuals. To use this feature you must set up a library of manuals on a PC running a Web Server application (refer to [Figure 38](#)). The electronic manual PDF files are stored in the web page directories of the online manual server.

Figure 38. Network Diagram with Manual Server



8046-31

## Requirements

- Networked PC running eNetCentral or other Web Server application,
- Adobe Reader (3.0 or later) or Adobe browser plug-in for user workstations,
- Version 2.2.0 or later 8900NET and/or 2000NET software, and
- PDF format Instruction Manuals from Thomson Grass Valley.

**Note** The instruction manuals must be renamed from Thomson Grass Valley part numbers to the module model name.

## Install the Web Server on a PC

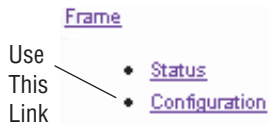
Download a version of the Xitami Web Server from <http://www.imatix.com>. Follow the installation instructions provided with the software.

## Install the Manuals on the Web Server

Follow this procedure to set up the manual directory:

1. Under the default web pages directory, create a subdirectory named:  
`gvg_manu als`
2. Download the desired manuals from the Thomson Grass Valley documentation web site (<http://www.thomsongrassvalley.com/cgi-bin/doc.pl>).
3. Rename the downloaded manual from the Thomson Grass Valley part number to the module model name as shown in the following example:  
`071_8029_00.pdf` changes to `2090MDC_MANUAL.pdf`

## Configure the 2000NET for Online Manual Links



Go to the 2000 Frame Configuration page and enter the IP Address for your Documentation Server as shown in the example in [Figure 39](#). Reboot the 2000NET module.

Figure 39. Frame Configuration Page

**Frame Identification**

Frame Name:	<input type="text" value="QA Bay 1"/>	<input type="button" value="Default"/>
Frame Index:	<input type="text" value="0"/>	
Frame Location:	<input type="text" value="QA Bay 1 - Mod Lab"/>	<input type="button" value="Default"/>
Documentation Server Address:	<input type="text" value="192.168.23.101"/>	

Enter IP Address for online manual server.

# Specifications

Table 5. 2000NET Specifications

Parameter	Value
<b>Recommended Software</b>	
Web browser	Netscape 4.x or Internet Explorer 4.x or later
PC operating system	Windows 95/98 or later
Terminal emulation	HyperTerminal
<b>Environmental</b>	
Frame temperature range	0 to 45° C
Operating humidity range	0 to 90% non-condensing
Non-operating temperature	0 to 45° C
<b>Mechanical</b>	
Frame type	2000 Series
RS-232 connector	DB-9 female
Ethernet connector	RJ-45
SMPTE fault alarm connector	BNC
<b>Power Requirements</b>	
Supply voltage	+24 V
Power consumption	5 Watts

# Service

The 2000NET modules make extensive use of surface-mount technology and programmed parts to achieve compact size and adherence to demanding technical specifications. Circuit modules should not be serviced in the field.

If your module is not operating correctly, proceed as follows:

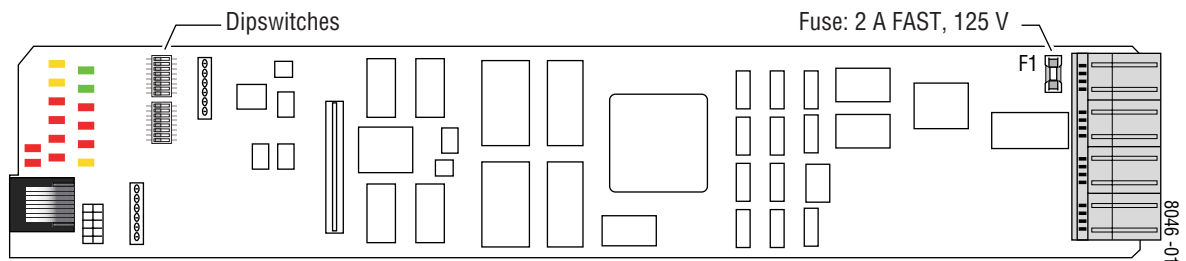
- Check frame and module power and signal present LEDs.
- If frame power is okay but module power is absent, check Fuse F1 (see [Figure 40](#)).
- Check network connections at the frame and network routing devices.
- Verify that all Ethernet devices have a unique MAC and IP Address/ Domain Name.
- Reboot the 2000NET module (see [Rebooting the Module on page 17](#)).

Refer to [Figure 12 on page 17](#) for the location of PWR LED and [Table 2 on page 18](#) for proper LED indications.

If the module is still not operating correctly, replace it with a known good spare and return the faulty module to a designated Thomson Grass Valley repair depot. Call your Thomson Grass Valley representative for depot location.

Refer to [Contacting Grass Valley Group](#) at the front of this document for the Customer Service Information number.

Figure 40. 2000NET Module Fuse



## Troubleshooting GUI Operation

The following is a list of possible 2000NET GUI and network problems and logical steps for troubleshooting them.

### Cannot Open Any of the Frame's Web Pages

1. Check power to the frame.
  - a. Is at least one of the power supplies operating?
  - b. Is the 2000NET module's PWR LED on?
2. Check that the frame is physically connected to the network.
  - a. Is a cable plugged into the RJ-45 connector of the frame or 2000NET module?
  - b. Is that cable also connected to a 10Base-T Ethernet hub?
  - c. Does the 2000NET module's ETHER LED indicate network activity?
  - d. Does the Ethernet hub have any indication that a link is established to the frame?

3. Is the correct IP Address/URL being used to address the frame?

If a Domain Name is being used to address the frame, try to connect using the frame IP Address instead.

The Domain Name may not be properly assigned in the local Domain Name Server or in the workstation's host file.

The Domain Name Server may not be available to the workstation. Check that the 2000NET module has been properly configured.

- a. Is the correct IP Address or URL being addressed in the web browser?
  - b. Was the 2000NET module configured over the serial connection with the **SETUP** command?
  - c. Has the 2000NET module been assigned the correct IP Address in **SETUP** (re-run setup over the serial connection)?
  - d. Is the workstation in the same subnet as the frame? If not:
    - Has the 2000NET module been assigned the correct Default Routing Address?
    - Has the 2000NET module been assigned the correct Subnet Mask?
  - e. Has the 2000NET module been rebooted since new IP Address, Default Routing, or Subnet Mask were assigned or changed?
4. Check if the frame web pages can be opened from a different workstation on the network.

5. Is the subject workstation physically connected to the network?
6. Check that the workstation and browser have been properly configured.
  - a. Can the frame be opened from a different workstation?
  - b. Has the workstation been assigned a proper IP Address?
  - c. Has the workstation been assigned a Gateway Address?
  - d. Is the browser configured to connect to the correct port?

Is it attempting to connect through a modem when it should be connecting through a network interface module?

Some laptops have two separate network ports, one for stand-alone operation, and the other for operation with a docking station. Is the correct port being used?

7. Check that network traffic can be routed between the workstation and the frame.
  - a. If the workstation supports a network ping, ping the frame. For example, using Windows NT:

Open a command prompt (DOS window)

In the DOS window, enter:

**C:\> PING** [frame's ip address]

The results will indicate if the ping reached the frame.

- b. If the workstation does not support a network ping, ping the workstation from the frame serial interface:

In the frame serial command window, enter:

**->PING** [workstation's IP address]

The workstation's IP address must be inside the double quotes. The results will indicate if the ping reached the workstation.

- c. If the network ping failed, there may be a network problem between the frame and the workstation. To ensure it is not the frame, check the frame with a point-to-point connection:

Using a crossover Ethernet cable, connect the frame directly to a workstation. The workstation should be assigned an IP Address on the same Subnet as the frame. Attempt to load the frame's web page from a Browser on this workstation.



8. If the point-to-point connection attempt fails call Customer Service. If the point-to-point connection attempt succeeds, the problem is somewhere in the network between the original workstation and the frame.
  - a. Check the connectivity to the frame from different locations in the network to attempt to isolate physical disconnect problems.
  - b. Check the connectivity to the frame from inside and outside the frame's subnet to isolate IP Gateway routing problems.
  - c. Check for possible Ethernet MAC Address collisions.

If the Frame ID Memory chip installed on the rear of the frame is missing or has failed, the frame adopts the default Ethernet MAC Address.

If more than one frame in the Network adopts the default Ethernet MAC Address, there could be address resolution problems. Upon power up the frame will indicate in the serial port console window, either:

**“MAC ADDRESS IS UNIQUE!” – THE FRAME HAS SUCCESSFULLY RETRIEVED A UNIQUE ETHERNET MAC ADDRESS FROM THE FRAME ID MEMORY CHIP**

or

**“MAC ADDRESS IS DEFAULT!” - THE FRAME IS USING THE DEFAULT ETHERNET MAC ADDRESS. THE FRAME ID MEMORY CHIP IS MISSING OR HAS FAILED. CALL THOMSON GRASS VALLEY CUSTOMER SERVICE**

### **Cannot modify parameters on Web Page**

1. Check if parameters can be set for other modules.
 

If so, the module may be in a remote lockout state.

  - a. Check if the LOC/REM – LOCAL jumper on the module is set for local control only. (Refer to that specific module's manual for help.)
  - b. In version 2.0 and later of the 2000NET module software, the web pages for a module in the remote lockout state will indicate that module remote control is disabled and the module's controls on the web pages will be in read-only mode.

If other modules are not controllable, the entire frame may be in a remote lockout state. In this state, software updates to the modules and the 2000NET module are also locked out.

- c. Check The 2000NET module's status page if the frame remote control is disabled.

If so, flip Switch 3 on the S2 DIP switch block (FRAME CNTRL) to the enabled setting.

2. If only a specific parameter is read-only, the module may be in a mode assigning read-only operation to that parameter. Refer to the module's instruction manual.
3. If only the 2000NET module is read-only, the 2000NET module may be in remote lockout mode.
  - a. Check the 2000NET module's status page to see if the **NET CARD REMOTE CONTROL** status is disabled.
  - b. If so, flip Switch 2 on the S2 DIP switch block (NM CNTRL) to the enabled setting (see *Table 3 on page 19*).

### **Cannot Connect to the Frame From a VTECS1 VideoFrame Control Panel**

1. Check that the frame is powered and configured with a 2000NET module on the network.
2. Check that the control panel has been properly configured with IP Address, Gateway IP Address, and Subnet Mask. (Refer to the control panel's help feature or instruction manual.)
3. Check that the frame's correct IP Address has been configured in the control panel's frame address.
4. Check that the control panel is physically connected to the network.
  - a. Check that the control panel is connected to a port on an Ethernet hub.
  - b. Check if the L LED (L for link) on the back of the control panel is on.  
If the LED indicates no link (off), try a different hub port connection.  
If the LED still indicates no link, change the cable.  
If the LED still indicates no link, contact VideoFrame.
5. Check that the frame is addressable by the control panel.
  - a. Check if the T LED (T for transmit) on the back of the control panel flashes upon the attempt to connect to the frame.  
If T does not flash, contact VideoFrame.
  - b. Check if the R LED (R for receive) on the back of the control panel flashes upon the attempt to connect to the frame.  
If R does not flash, there may be a problem in the network path between the frame and the control panel.

6. Check that the frame is addressable on the network from a Web browser, refer to the steps on [page 55](#).
  - a. Attempt to connect to a different frame.
 

If successful the problem may be with the original frame or the path between the control panel and the original frame.
  - b. Check from a workstation connected to the same Ethernet hub as the control panel. If unsuccessful, there may be a problem with the network path between the frame and this hub.

### **Event Messages From the Frame Are Not Being Displayed by NetCentral or Another SNMP Manager Application**

1. Check that the frame is powered on and configured with an 2000NET module on the Network.
2. Check that the 2000NET module in the frame is loaded with software version 2.2.0 or later.

Earlier versions of software do not support SNMP.

3. Check that the SNMP Agent has been installed and configured on the 2000NET module.

View the 2000NET module **CONFIGURATION** page and note the event configuration parameters, the **NET CARD EVENT REPORTS** form and **REPORT DESTINATIONS** table.

If these are not visible, install the SNMP Agent per the instructions in the manual.

4. Check that the IP Address and Community Name for the SNMP Manager has been assigned in the **REPORT DESTINATIONS** table and is Active.
  - If there is no entry for the SNMP Manager in the Table, the SNMP manager's IP Address and Community name must be entered (see [Configuration Page for SNMP Setup on page 30](#)).
  - If the entry for the SNMP Manager is incorrect, it must be corrected, activated, and the 2000NET module must be rebooted.
  - If the entry has been entered and the Status of the entry is reported **NOT IN SERVICE**, the Active operation for that entry must be selected, applied and the 2000NET module must be rebooted.
  - If the entry has been entered and the Status of the entry is **NOT READY**, the entry must be corrected, activated and the 2000NET module must be rebooted.
  - If the entry has been entered and the Status of the entry is **ACTIVE – PENDING REBOOT**, the 2000NET module must be rebooted.

5. Check that the particular event has been enabled in the frame.
  - For all events, check that the STATUS switch (Switch 1) on the S2 DIP switch block of the 2000NET module is Enabled.
  - For Module Failure-Fixed events:

Check that the MODULE switch (Switch 7) on the S1 DIP switch block of the 2000NET module is Enabled, and

Check that the **SLOT STATUS REPORTING** parameter on the slot's **SLOT CONFIG** page is Enabled.
  - For Power Supply Failure-Fixed events:

Check that the PS1, PS2, PS3, or PS4 switch (Switch 1, 2, 3, or 4) on the S1 DIP switch block of the 2000NET module is Enabled, and

Check that the **POWER SUPPLY STATUS REPORTING** parameter on the power supply's **CONFIGURATION** page is Enabled.
  - For 2000NET module Failure-Fixed events, check that the **NET CARD STATUS REPORTING** parameter on the 2000NET module's **CONFIGURATION** page is Enabled.
  - For Hardware Switch change events, check that the **HARDWARE SWITCH REPORTING** parameter on the 2000NET module's **CONFIGURATION** page is Enabled.
  - For Frame Bus Failure-Fixed events:

Check that the FRAME BUS switch (Switch 6) on the S1 DIP switch block of the 2000NET module is Enabled, and

Check that the **FRAME BUS STATUS REPORTING** parameter on the frame's **CONFIGURATION** page is Enabled.
  - For Front Cover Removed -Installed events, check that the **COVER STATUS REPORTING** parameter on the frame's **CONFIGURATION** page is Enabled.
  - For Frame Bus Failure-Fixed events:

Check that the FRAME BUS switch (Switch 6) on the S1 DIP switch block of the 2000NET module is Enabled, and

Check that the **FRAME BUS STATUS REPORTING** parameter on the frame's **CONFIGURATION** page is Enabled.
  - For Cooling Fan Failure-Fixed events:

Check that the FAN switch (Switch 4) on the S1 DIP switch block of the 2000NET module is Enabled, and

Check that the **FAN STATUS REPORTING** parameter on the frame's **CONFIGURATION** page is Enabled.
  - For Module Health Failure-Fixed events,

Check that the MODULE switch (Switch 5) on the S1 DIP switch

block of the 2000NET module is Enabled, and

Check that the **MODULE HEALTH REPORTING** parameter on the frame's **CONFIGURATION** page is Enabled.

- Check that the SNMP Manager is properly configured to receive the Event Messages.

Check that the SNMP Manager has been assigned the same community name as in the frame's configuration.

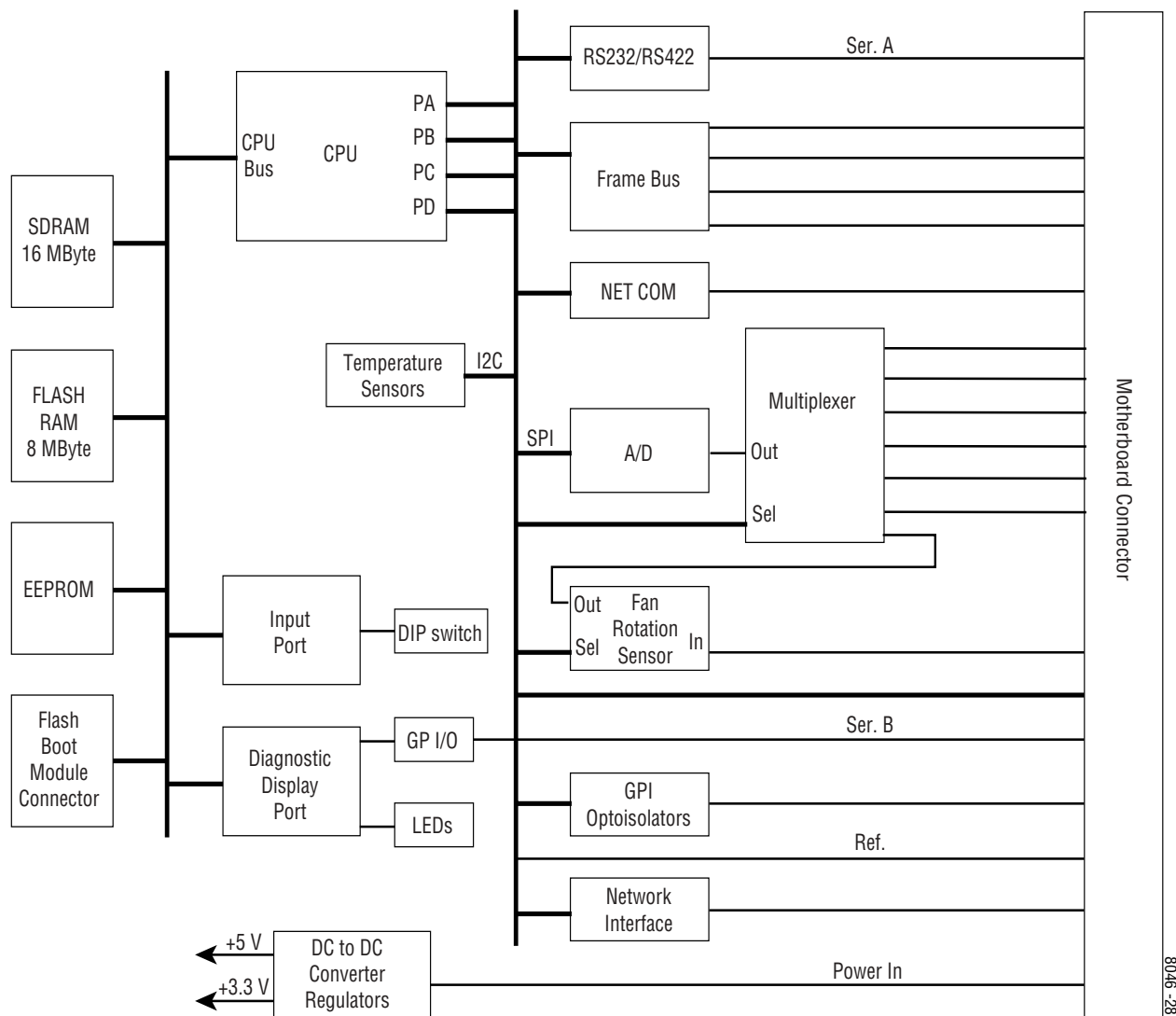
6. Check the network connectivity between the SNMP Manager and the frame as described in the steps on [page 55](#).

# Functional Description

The 2000NET is designed to allow remote control and monitoring of modules in a 2000 Series Kameleon frame. It communicates to remote devices through an Ethernet connection. It communicates with modules in the frame via the frame bus. It also performs the error monitoring of the power supplies, modules, temperature and fans. It does error reporting through on board LEDs, the front panel LEDs, and the frame alarm relay (via a DB9 connector on the back of the frame).

Refer to the block diagram in [Figure 41](#) while reading the following functional description.

Figure 41. 2000NET Block Diagram



## Processor (CPU)

The 2000NET processor runs at 50 MHz. All 2000NET software runs on this processor.

## Memory

The 2000NET has three different memory types, SDRAM, FLASH and non-volatile.

The SDRAM consists of two 4 Mb x 16 ICs for a total of 16 MB configured as 4 Mb x 32. During boot-up, the program code is loaded into SDRAM and the program executes out of SDRAM after boot-up.

The flash RAM consists of two 2 Mb x 16 ICs for a total of 8 MB configured as 2 Mb x 32. The program code is stored in flash and loaded into SDRAM at bootup.

The non-volatile memory consists of a single 8kb x 8 IC for a total of 8 kilo-Bytes. Various configuration information is stored in this memory.

## Temperature Sensing

The module has two temperature sensors. One is located near the motherboard side of the module and is used to measure frame temperature. The other is near the front cover side of the module and is used to measure ambient temperature. The processor reads these temperature sensors through an I2C bus.

## DIP switches

The NET module has two DIP switches (S1 and S2) for status report enabling/disabling. The DIP switches are read by the processor through the Input Port.

## General Purpose (GP) I/O

The general purpose inputs and outputs are through two relays (K3 and K4) that can be open or closed through software control.

There are two general purpose inputs. Each has two pins, and a current must be passed through them for the processor to read a logic high.

## LEDs

There are twenty LEDs on the module and support for an LED on the front cover. DS1, DS2, DS5, and DS6 are for factory use only. The remainder of the LEDs on the module provide status information to the user.

The power LED is DS20. This LED is driven directly by the 3.3V power rail.

The Ethernet activity LED (ETHR) is driven directly by a 100Base-T transceiver. It indicates when there is either transmit or receive traffic on the Ethernet connection.

**Note** Note: The Ethernet activity LED will indicate receive activity even if the packet is not addressed to the 2000NET module.

Processor driven LEDs include the following:

- MOD
- FB
- COMM
- PS1
- PS2
- PS3
- PS4
- FAN
- TEMP
- REM OVR
- NM
- FP

These LEDs are all controlled by the processor through a register. The power-up state of these LEDs is on.

The bi-color LED is a right angle LED that is labeled STATUS. It powers on in the red state, and can be shown red or green by the processor. It lines up with a light pipe on the front cover and is visible when the front cover is on the frame.

## RS-232 Serial Port

The RS-232 port is used to initialize the module with critical network parameters including a static assigned IP Address. The Ethernet MAC address is stored on a serial EPROM on the frame. (The frame needs both MAC and IP addresses.)



## Frame Bus

The Frame Bus provides serial communication to each of the media modules for remote configuration and monitoring over a network.

## Multiplexer and A/D Converter

The Multiplexer and A-to-D converter circuit is used to read the following lines:

- Media Module Present Lines (12 front media modules, 12 rear media modules)
- Center module preset lines
- Power Supply/Fan Slots Module Preset
- Frame Version
- Frame Type
- Fan Rotation
- Front Panel Fault/Presence
- Power Supply Health

The circuitry consists of five multiplexers, an A/D converter, and miscellaneous passive circuitry. The processor selects the line to read then drives the multiplexer to select a particular input of that multiplexer. The processor then waits a fixed amount of time for the circuit to settle and then reads the level using the A/D converter. Most of the input lines are connected to ground through a resistor.

This circuit also has protection on most inputs. A 1 k $\Omega$  resistor and diodes clamp each input (except fan rotation) to 3.3 V to prevent a bad input from causing the whole circuit to fail.

The processor should get a value of between 2.1 V and 2.7 V when reading power supply health.

## Fan Rotation Sensor

The fan rotation circuit consists of a multiplexer and a one-shot IC followed by an RC filter. The multiplexer is used to select one of the eight possible fan rotation lines. When connected to a fan, these lines carry a square wave with a frequency proportional to the fan speed. The one-shot circuit produces a DC output proportional to the frequency of the square wave. This circuit requires about 1 second to settle once one of the lines is selected. The fans used in the 2000 series frame have a rotation sense period of approximately 3.4 ms.

## **Network Interface**

Network Interface circuitry contains 100Base-T interface circuitry. Although this circuitry will work at both 10Base-T and 100Base-T rates, currently the 2000NET software works only in 10Base-T mode.

## **DC-to-DC Converter**

DC-to-DC Converter circuitry converts the +24 V into the board to +5 V. It also contains a regulator that generates +3.3 V from the +5 V. Fuse F1 protects the +24 V rail.

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