

# 2031RDA-SM/-MM

SINGLE/MULTI MODE SD RECLOCKING REAR DA

Instruction Manual

SOFTWARE VERSION 1.0.0

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**FAQ Database** — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

**Software Downloads** — Software updates, drivers, and patches can be downloaded.

# Contents

**Preface**..... 5  
 About This Manual..... 5

**2031RDA-SM/-MM Single/Multi Mode Fiber SD Reclocking Rear DA**

Introduction ..... 7  
 Installation ..... 8  
 Module Placement in the Kameleon Frame..... 8  
 Cabling ..... 10  
 Electrical Input ..... 10  
 Electrical Outputs..... 10  
 Fiber Input..... 10  
 Fiber Output ..... 10  
 Power Up ..... 11  
 Operation Indicator LEDs ..... 11  
 Configuration and Monitoring ..... 13  
 Configuration Summary..... 13  
 Local On-board Configuration ..... 14  
 Local or Local/Remote Control..... 14  
 Auto/270 Mb/Bypass ..... 14  
 Fiber TX Enable/Disable..... 14  
 Fiber or Electrical Input Enable ..... 14  
 Remote Configuration and Monitoring ..... 16  
 2000NET Module Information..... 16  
 Newton Control Panel Configuration..... 16  
 Web Browser Interface ..... 17  
 2031RDA-SM/-MM Links and Web Pages ..... 19  
 Status Web Page..... 20  
 Settings Web Page ..... 22  
 Recall Factory Defaults Web Page..... 24  
 Slot Config Web Page ..... 25  
 Software Update Web Page ..... 27  
 Status Monitoring ..... 28  
 LEDs ..... 28  
 Frame Alarm ..... 29  
 Web Browser Interface ..... 29  
 SNMP Reporting ..... 30  
 Specifications ..... 31  
 Service..... 33  
 Power-up Diagnostics Failure ..... 33  
 Troubleshooting..... 33  
 Module Repair ..... 34  
 Functional Description..... 34  
 Input Processing ..... 34

*Contents*

Microprocessor .....	35
Output Processing .....	35
Power Supply .....	35
<b>Index</b> .....	<b>37</b>

# *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 *Kameleon 2000 Series Frames Instruction Manual*).



# *2031RDA-SM/-MM Single/Multi Mode Fiber SD Reclocking Rear DA*

## **Introduction**

The 2031RDA-SM (Single)/-MM (Multi) Mode SD Reclocking Rear DA provides reclocking and distribution of one electrical or optical SDI input to eight electrical outputs and one optical output. Two module versions are available supporting either a single or multimode fiber input and output. The single module resides in any rear slot of a Kameleon 2000 Series frame and is independent of any front card for operation.

The module is designed to be used as an optical to electrical converter, an electrical to optical converter, or a distribution amplifier for standard definition serial digital video.

The features of the 2031RDA-SM/-MM include:

- Eight reclocked electrical BNC outputs,
- Single or multi-mode fiber input and output interface,
- Hot-swappable in the Kameleon 2000 frame,
- Ideal for monitoring or distributing reclocked signals from adjacent 2000 modules, and
- NetConfig and NetCentral support, and
- Remote control and monitoring support including the Newton Control Panel interface.

# Installation

Installation of the 2031RDA-SM/-MM module is a process of:

- Placing the module in a rear frame slot, and
- Cabling signal ports.

The 2031RDA-SM/-MM module can be plugged in and removed from a Kameleon 2000 Series frame with power on. When power is applied to the module, LED indicators reflect the initialization process (see [Power Up on page 11](#)).

## Module Placement in the Kameleon Frame

There are twelve slot locations in the both the front and rear of a 3 RU frame and four slot locations in a 1 RU frame to accommodate 2000 and Kameleon Series media modules (audio/video signal handling modules).

The 2031RDA-SM/-MM rear module plugs into any one of the rear slots of the Kameleon 2000 frame.

To install a 2031RDA-SM/-MM rear module in a 2000 Series frame:

1. Locate a vacant slot in the rear of the 3 RU frame ([Figure 1](#)) or the 2000T1DNG frame ([Figure 2 on page 9](#)).

Figure 1. 2000T3NG Frame, Rear View

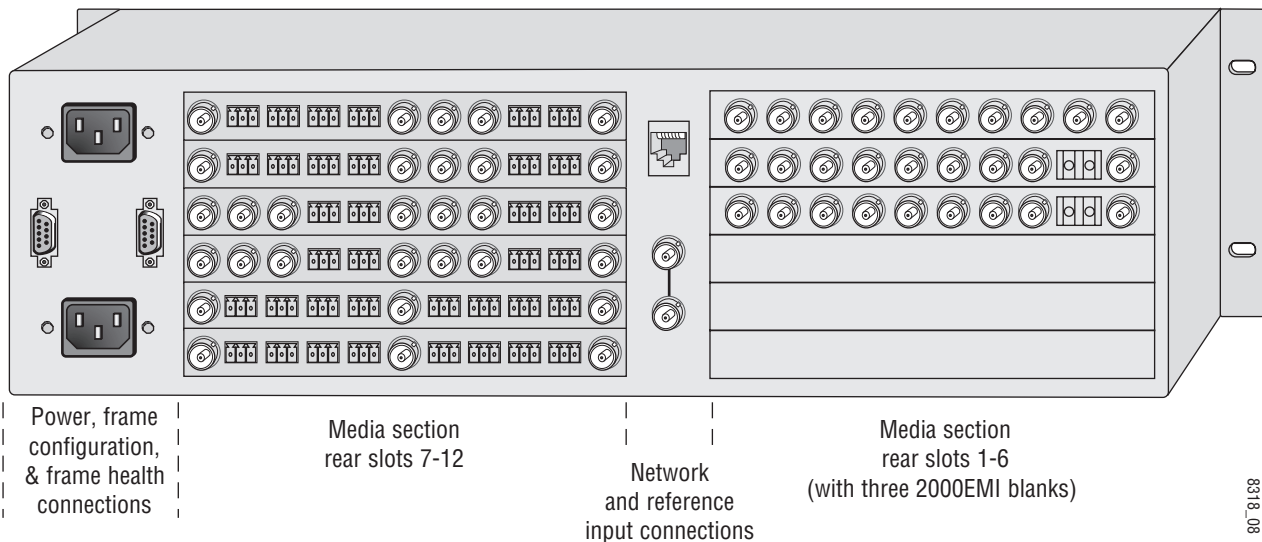
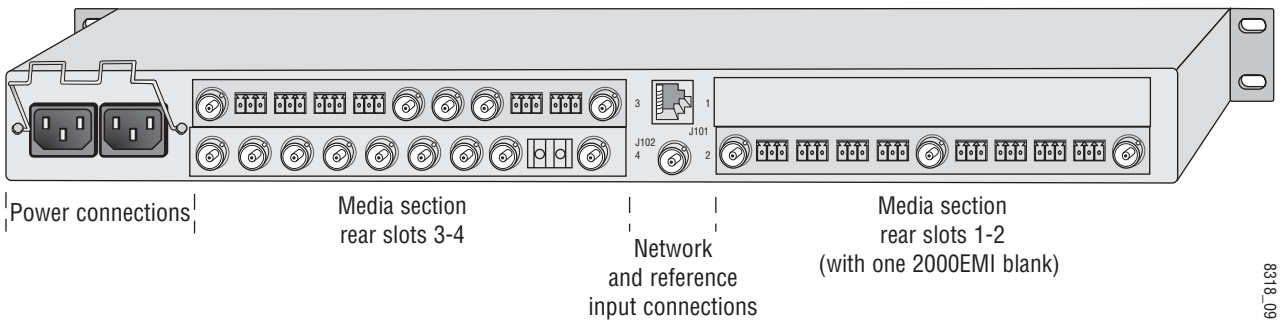




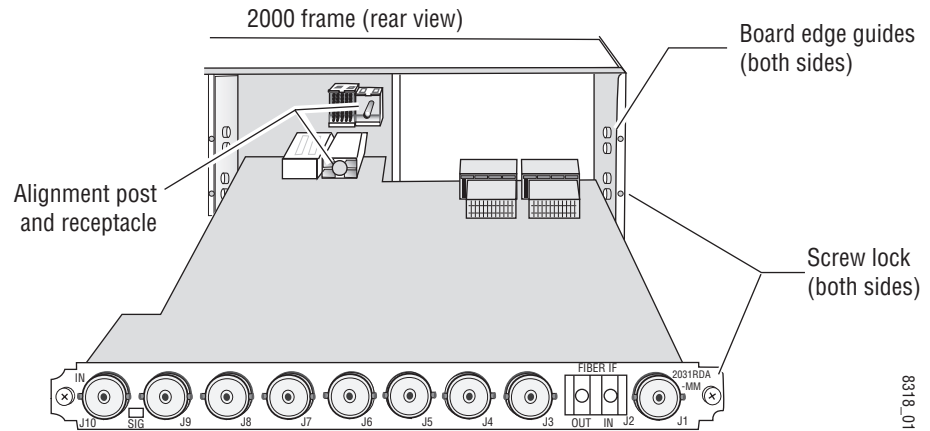
Figure 2. 2000T1DNG Frame, Rear View



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2. Install the module by inserting it into any rear slot of the frame as illustrated in Figure 3.
3. Verify that the module connector seats properly against the midplane.
4. Secure the module to the rear of the frame with the two screw locks on either side of the back panel using a crossblade screwdriver.

Figure 3. Installing 2031RDA-SM/-MM Module



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## Cabling

Cabling to the 2031RDA-SM/-MM module is done on the BNCs and the fiber connector on the rear of the module. Refer to [Figure 4](#) for a detailed illustration of the rear connections referenced below.

The input can be either electrical or fiber optic and the desired input must be enabled using an on-board jumper or with remote controls. The outputs can be both electrical and fiber optic. The fiber optic output must be enabled using an on-board jumper or remote controls.

For configuration, refer to [Configuration and Monitoring](#) on page 13.

### Electrical Input

Connect an SDI electrical video input to BNC J10. This input must be enabled for use during configuration.

### Electrical Outputs

Connect electrical video destinations to any of the eight outputs at connectors J1, J3– J9. Terminate any unused outputs. These outputs are always active and do not need to be enabled.

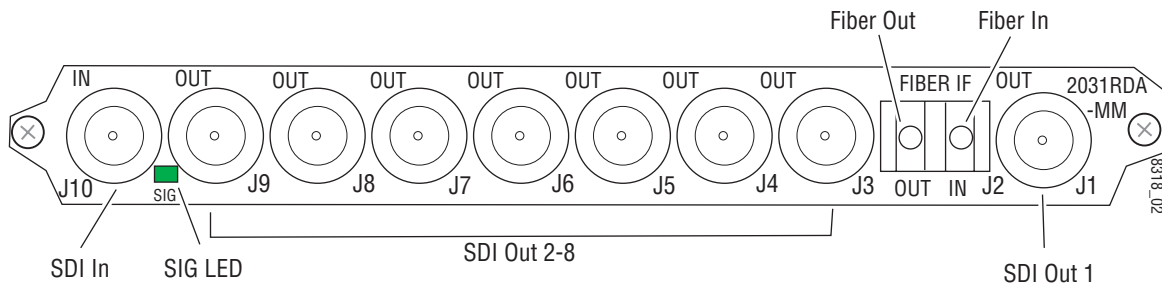
### Fiber Input

Connect a fiber input to the right side of the FIBER IF connector J2. This input must be enabled for use in configuration.

### Fiber Output

The fiber output is available on the left side of the FIBER IF connector J2. This output must be enabled for use in configuration.

Figure 4. 2031RDA-SM/-MM Input/Output Connectors



# Power Up

The on-board LED indicators are illustrated in [Figure 5 on page 12](#). Upon power-up, the green PWR LED should light and the yellow CONF LED should illuminate for the duration of module initialization.

## Operation Indicator LEDs

With a valid input signal connected, the green on-board PWR LED and the SIG LED (visible from the rear) should be on. A red FAULT LED indicates an error situation and, when noted with the other indicator LEDs, can indicate a specific problem area. [Table 1](#) describes signal output and LED indications for the various combinations.

Table 1. Indicator LEDs and Conditions Indicated

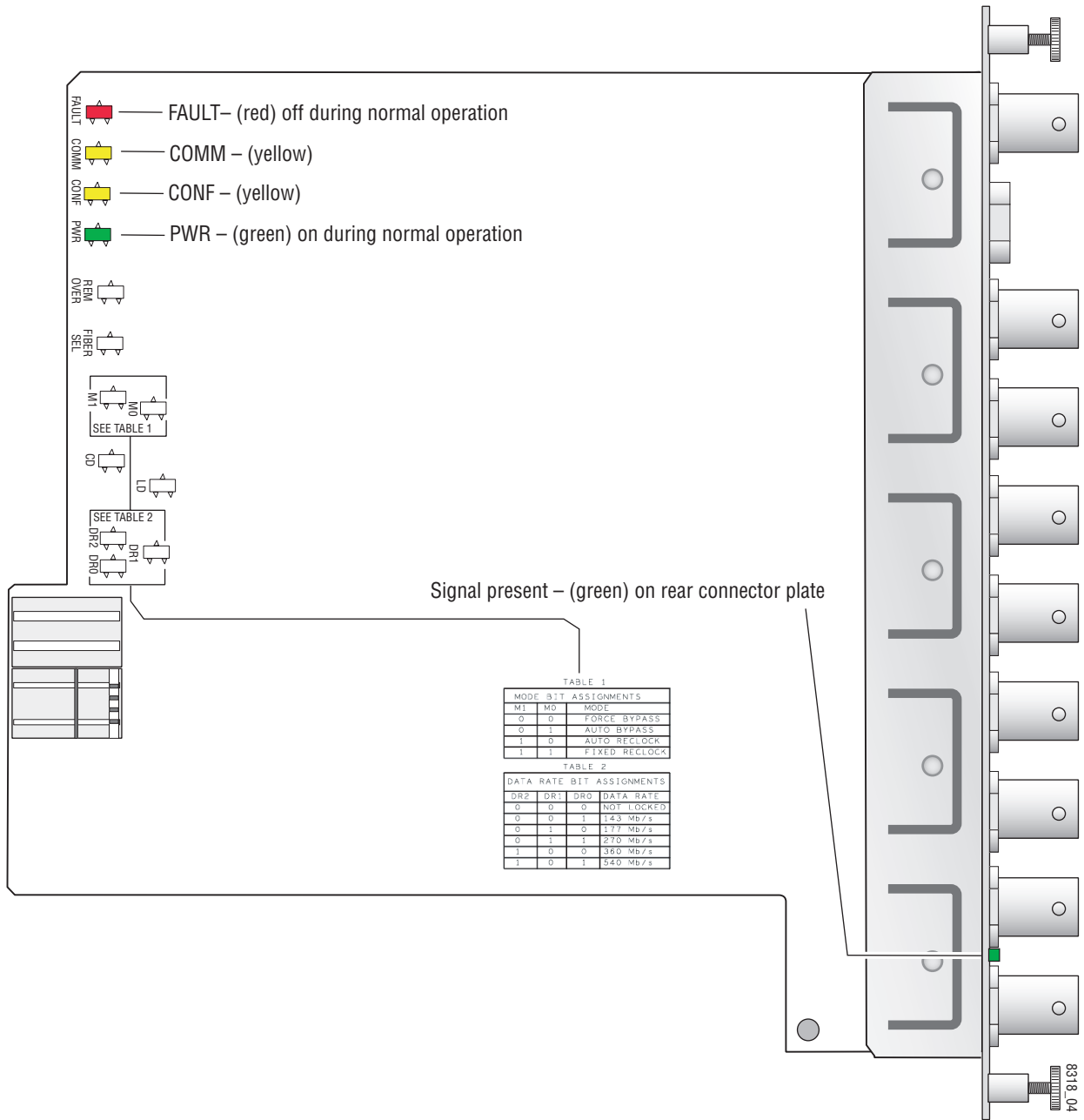
LED	Indication	Condition
<b>FAULT (red)</b>	Off	Normal operation
	On continuously	Module has detected internal fault.
	Long flash	No input signal or input signal does not meet selected standard.
<b>COMM (yellow)</b>	Off	No activity on frame communication bus.
	Long flash	Location command received by the module from a remote control system.
	Short flash	Activity present on the frame communication bus.
<b>CONF (yellow)</b>	Off	Module is in normal operating mode.
	Short flash	Module is initializing, changing operating modes or updating firmware.
<b>PWR (green)</b>	Off	No power to module or module's DC/DC converter failed.
	On	Normal operation, module is powered.
<b>SIG PRES (green on rear of module)</b>	Off	Carrier input signal is present at either the coax or fiber optic input.
	On	No carrier input signal is present at either the coax or fiber optic input.

[Table 2](#) provides the possible input and output conditions that result from different input signals and conditions.

Table 2. Input and Output Conditions

Input Condition	Output Condition
Serial Digital Component (SDI)	Serial Digital Component (SDI)
Other carrier	Other carrier
No input	Muted
Cable exceeding 200 meters	Muted

Figure 5. LEDs and Configuration Switches



# Configuration and Monitoring

The 2031RDA-SM/-MM can be configured locally using on-board switches or remotely using the 2000NET network interface GUI or a Newton Control Panel. Operation of these control types is explained in detail in their respective sections of this manual.

**Note** Not all available functions are configurable with the local on-board controls.

Refer to the following sections for configuration instructions:

- Configuration Summary (page 13)
- Local On-board Configuration (page 14)
- Remote Configuration and Monitoring (page 16)

## Configuration Summary

The configuration parameters and monitoring functions available with the local on-board jumpers, web browser interface, and the Newton Control Panel are summarized in Table 3. The parameter defaults, choices, ranges, and resolution are provided for each function.

Table 3. Summary of 2031RDA-SM/-MM Configuration Functions

Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	On-Board Jumper Setting	Newton Control Panel <sup>1</sup>
Input		Coax or Fiber	Settings/ Input pulldown	J112 pins 1-2 = Electrical Input J112 pins 2-3 = Fiber Input	InpSel
Mode	Reverts to on-board jumper settings	Bypass Auto Auto Reclock Manual 143M Manual 177M Manual 270M Manual 360M Manual 540M	Settings/ Mode Pulldown	J106 pins 1-2 = AUTO J106 pin 2 only =270 Mb J106 pins 2-3 = BYPASS	Mode
Optic Tx		Enabled or Disabled	Settings/ Optic TX pulldown	J110 pins 1-2 = Fiber Tx En J110 pins 2-3 = Fiber Tx Dis	OpticTx
Recall factory defaults	–	See Default column	Recall Factory Defaults <b>Recall Factory Defaults</b> button	N/A	N/A

<sup>1</sup> Newton Control Panel operation for this module requires a 2000NET module running version 4.0.0 or later in the frame.

## Local On-board Configuration

Jumpers are provided on the module for setting the following functions in local mode:

- Local or Local/Remote control
- Auto/270 Mb/Bypass mode
- Fiber Tx enable/disable
- Fiber Input or Electrical Input enable

Refer to [Figure 6 on page 15](#) for jumper locations.

### Local or Local/Remote Control

Set jumper J107 to LOCAL (pins 1-2) to lock out remote control or LOCAL & REMOTE (pins 2-3) for both local and remote control.

### Auto/270 Mb/Bypass

Set jumper J106 for AUTO (pins 1-2) to enable auto reclocking (for signal data rates of 143 Mb/s, 177 Mb/s, 270 Mb/s, or 360 Mb/s), 270 Mb reclocking only (jumper pin 2 only), or BYPASS (pins 2-3) to bypass reclocking (for signals with data rates of 50 Mb/s to 540 Mb/s).

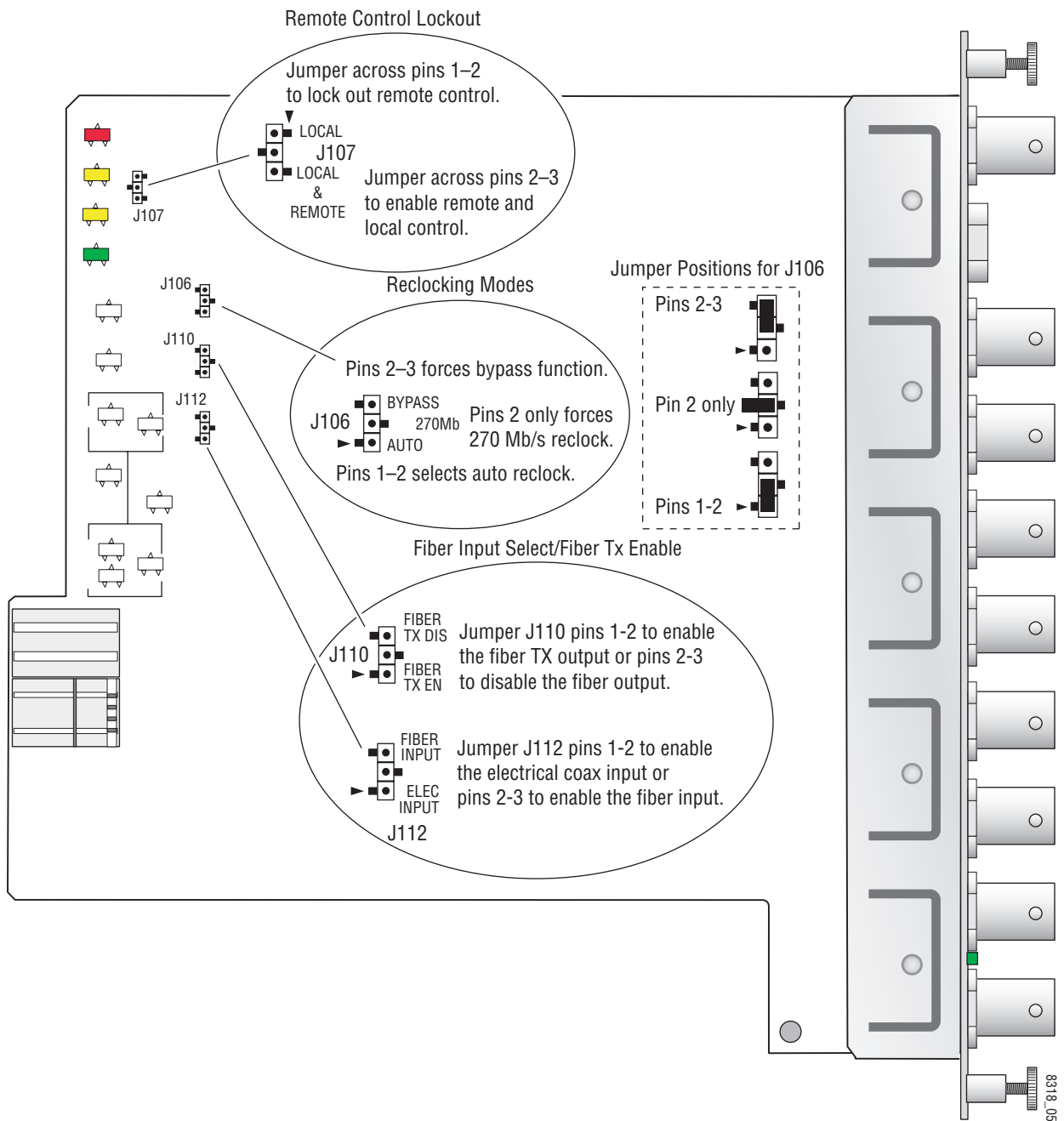
### Fiber TX Enable/Disable

Set jumper J110 to FIBER TX EN (pins 1-2) to enable the fiber output or FIBER TX DIS (pins 2-3) to disable the fiber output.

### Fiber or Electrical Input Enable

Set jumper J112 to ELEC INPUT (pins 1-2) to enable the electrical (BNC) input or FIBER INPUT (pins 2-3) to enable the fiber input.

Figure 6. Onboard Jumper Locations



## Remote Configuration and Monitoring

Configuration and monitoring can be performed using a web browser GUI interface or a networked Newton Control Panel when the 2000NET Network Interface module is present in the video frame. Each of these interfaces is described below.

### 2000NET Module Information

Refer to the 2000NET Network Interface Module Instruction Manual for information on the 2000NET Network Interface module and setting up and operating the Kameleon 2000 frame network.

### Newton Control Panel Configuration

A Newton Control Panel (hard or soft version) can be interfaced to the Kameleon 2000 Series frame over the local network.

**Note** For Newton control of this module, the 2000NET module in the frame must be running software version 4.0.0 or later.

Control panel access offers the following considerations for module configuration and monitoring:

- Ability to separate system level tasks from operation ones, minimizing the potential for on-air mistakes.
- Ability to group modular products—regardless of their physical locations—into logical groups (channels) that you can easily manipulate with user-configured knobs.
- Update software for applicable modules and assign frame and panel IP addresses with the NetConfig Networking application.
- Recommended for real-time control of module configuration parameters, providing the fastest response time.

**Note** Not all module functions are available with the control panel, such as factory default recalls. The available control panel controls for the module are listed in [Table 3 on page 13](#).

An example of the Newton Configurator is shown in [Figure 7 on page 17](#).



Figure 7. Newton Configurator Example

Module (drag and drop from Device View)

Module Name: 2031RDA-MM      Frame Name: Tim's 2KT3N     

Slot: 2      Frame IP Address: 10 . 16 . 18 . 100     

Label	Descript...	Type	PID	IID
Mode	Mode	switch	710	0
InpSel	Input	switch	711	0
AutoRate	Auto Rate	switch	712	0
CoaxIn	Coax In	switch	714	0
OpticIn	Optic In	switch	715	0
Reclockr	Reclocker	switch	717	0
OpticTx	Optic TX	switch	719	0

Refer to the documentation that accompanies the Newton Modular Control System for installation, configuration, and operation information.

## Web Browser Interface

The web browser interface provides a graphical representation of module configuration and monitoring.

Use of the web interface offers the following considerations:

- Provides complete access to all module status and configuration functions, including factory parameter and name default recalls, slot configuration, and SNMP monitoring controls.
- Web access will require some normal network time delays for processing of information.
- Configuration parameter changes may require pressing the **Apply** button or **Enter**, upload processing time, and a manual screen refresh to become effective.
- Web interface recommended for setting up module signal and slot names, and reporting status for SNMP and monitoring.

Refer to the Frame Status page shown in [Figure 8 on page 18](#). The Kameleon and 2000 modules can be addressed by clicking either on a specific module icon in the frame status display or on a module name or slot number in the link list on the left.

**Note** The physical appearance of the menu displays on the web pages shown in this manual represent the use of a particular platform, browser and version of 2000NET module software. They are provided for reference only. Displays will differ depending on the type of platform and browser you are using and the version of the 2000NET software installed in your system. This manual reflects 2000NET software version 3.2.2.

Figure 8. 2000NET GUI

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 update of page

**Bay 2 QA 2000 Frame**

- [Status](#)
- [Configuration](#)
- [1 Media Slot 1](#)
- [2 Media Slot 2](#)
- [3 2040RDA-16FR](#)
- [4 2031RDA-MM](#)
- [5 Media Slot 5](#)
- [6 Media Slot 6](#)
- [7 Media Slot 7](#)
- [8 Media Slot 8](#)
- [9 2031RDA-SM](#)
- [10 Media Slot 10](#)
- [11 Media Slot 11](#)
- [12 Media Slot 12](#)
- [13 2000NET](#)
- [15 2000GEN](#)
- [19 Power Sled 19](#)
- [20 Fan Sled 20](#)
- [21 Power Sled 21](#)

**Status**

Model: 2000T3N Description: Module Frame  
 Frame Location: Mod Lab - Bay 2  
 Frame Health Alarm **ALARM** Temperature Status **Pass**  
 Fan Status **PASS**

Media Module	Net Card	Empty	Power Sled
Empty		Media Module	
Media Module	Aux Card	Media Module	Empty
Media Module		Empty	
Media Module		Empty	Power Sled
Media Module		Media Module	

**Properties**  
 Vendor Thomson, Grass Valley Software Version 3.2.2  
 Media Slots 13

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## 2031RDA-SM/-MM Links and Web Pages

The 2000 GUI provides the following links and web pages for the 2031RDA-SM and 2031RDA-MM modules (Figure 9):

- Status – reports input and reference signal status and module information (page 20),
- Settings – provides controls for setting input/output enables and bypass and reclocking functions (page 22),
- Recall Factory Defaults – provides recall of factory defaults (page 24),
- Slot Config – provides a Locate Module function, Slot Identification name and asset tag fields, and Slot Memory controls (page 25), and
- Software Update – gives information on software updating (page 27).

Figure 9. 2031RDA-SM/-MM Web Page Links

<a href="#">9 2031RDA-SM</a>	<a href="#">4 2031RDA-MM</a>
<a href="#">R - 2031RDA-SM</a>	<a href="#">R - 2031RDA-MM</a>
<a href="#">Status</a>	<a href="#">Status</a>
<a href="#">Settings</a>	<a href="#">Settings</a>
<a href="#">Recall Factory Defaults</a>	<a href="#">Recall Factory Defaults</a>
<a href="#">Slot Config</a>	<a href="#">Slot Config</a>
<a href="#">Software Update</a>	<a href="#">Software Update</a>

**Note** The web page examples in this manual are shown for the 2031RDA-SM. The web pages for the 2031RDA-MM are identical except for the Model name in the heading or where otherwise indicated.

## Status Web Page

Use this link — [9 2031RDA-SM](#)  
[R - 2031RDA-SM](#)  
[Status](#)  
[Settings](#)  
[Recall Factory Defaults](#)  
[Slot Config](#)  
[Software Update](#)

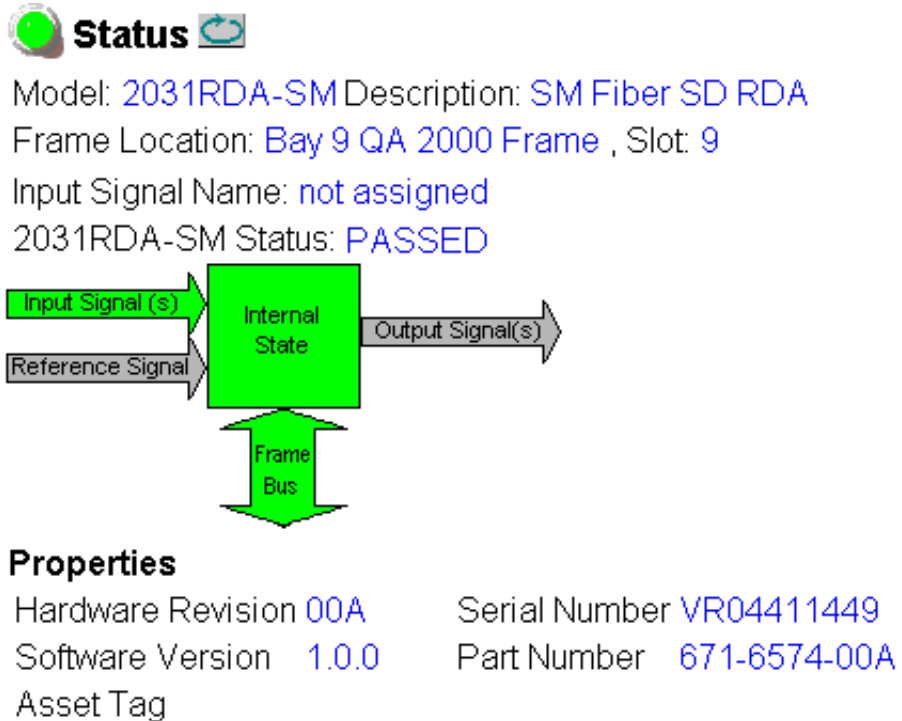
The Status web page shows the status of the input signal(s) and the frame bus communication. Color coding of the display indicates the signal status. In general, colors used on the frame and modules indicate:

- Green – normal operation, (Pass) or signal present, module locked.
- Red – On continuously = fault condition, flashing = internal error.
- Yellow – On continuously = active condition (configuration mode or communication), flashing in sequence = module locator function.
- Grey – not monitored, such as the Reference Signal and the Output Signal(s) for this module.

Information about the module, such as part number, serial number, hardware revision and software version, and Asset Tag number are given in a read-only **Properties** section at the bottom of the display.

The Status page for the 2031RDA-SM is illustrated in [Figure 10](#).

Figure 10. 2031RDA-SM Status Web Page



**Status**



Model: [2031RDA-SM](#) Description: [SM Fiber SD RDA](#)  
 Frame Location: [Bay 9 QA 2000 Frame](#) , Slot: [9](#)  
 Input Signal Name: [not assigned](#)  
 2031RDA-SM Status: [PASSED](#)

**Properties**

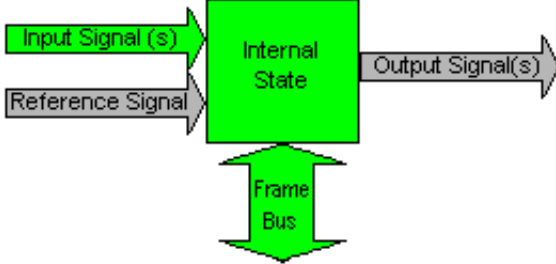
Hardware Revision	<a href="#">00A</a>	Serial Number	<a href="#">VR04411449</a>
Software Version	<a href="#">1.0.0</a>	Part Number	<a href="#">671-6574-00A</a>
Asset Tag			

The Status page for the 2031RDA-MM is illustrated in Figure 11.

Figure 11. 2031RDA-MM Status Web Page

 **Status** 

Model: [2031RDA-MM](#) Description: [MM Fiber SD RDA](#)  
Frame Location: [Bay 9 QA 2000 Frame](#) , Slot: [2](#)  
Input Signal Name: [not assigned](#)  
2031RDA-MM Status: [PASSED](#)



**Properties**

Hardware Revision	<a href="#">10A</a>	Serial Number	<a href="#">VR04411450</a>
Software Version	<a href="#">1.0.0</a>	Part Number	<a href="#">671-6574-10A</a>
Asset Tag			

## Settings Web Page

Use this link  
[9 2031RDA-SM](#)  
[R - 2031RDA-SM](#)  
[Status](#)  
[Settings](#)  
[Recall Factory Defaults](#)  
[Slot Config](#)  
[Software Update](#)

The Settings web page (Figure 12) provides both status reporting and controls for the module.

The following read-only status reports are provided:

- **Coax In** – reports the presence of a signal carrier on the coax input.
- **Optic In** – reports the presence of a signal carrier on the optic input.
- **Reclocker** – reports the reclocking status as **Locked**, **Unlocked**, or **N/A** (when set for Bypass).
- **Auto Rate** – reports the currently detected bit rate or **N/A** if mode is set to Bypass or **Unknown** if mode is Auto or Auto Reclock and signal is not locked.

Figure 12. Settings Web Page



Model: [2031RDA-SM](#) Description: [SM Fiber SD RDA](#)  
Frame Location: [Bay 9 QA 2000 Frame](#) , Slot: [9](#)

Coax In: [Present](#)  
Optic In: [Present](#)  
Reclocker: [Locked](#)  
Auto Rate: [270Mb](#)

Input:	selection	current setting
	<input type="text" value="Coax"/>	<a href="#">Coax</a>
	<input type="button" value="Apply"/>	
Mode:	selection	current setting
	<input type="text" value="Auto"/>	<a href="#">Auto</a>
	<input type="button" value="Apply"/>	
Optic TX:	selection	current setting
	<input type="text" value="Enabled"/>	<a href="#">Enabled</a>
	<input type="button" value="Apply"/>	

The following parameter controls are provided on the Settings web page. Select the **Apply** button after each parameter selection.

### Input

Select **Coax** or **Fiber** as the input to the module.

### Mode

Set the reclocking mode to one of the following with the menu pulldown:

- **Bypass** – reclocking is completely bypassed. The input signal passes directly to the outputs without reclocking.
- **Auto** – if the module detects the input signal as one of the SMPTE standard definition rates (143 Mb/s, 177 Mb/s, 270 Mb/s, 360 Mb/s, or 540 Mb/s), it will reclock the signal at that rate. If one of these rates is not detected, the module will not reclock the signal (bypass the reclocker) and distribute the signal to the outputs.
- **Auto Reclock** – if the module detects the input signal as one of the SMPTE standard definition rates (143 Mb/s, 177 Mb/s, 270 Mb/s, 360 Mb/s, or 540 Mb/s), it will reclock the signal at that rate. If one of these rates is not detected, the signal will not be reclocked and will be passed to the output as is (corrupted).

**Note** This mode will not reclock/bypass DVB-ASI signals reliably. Use the Auto mode for these signal types.

- **Manual 143Mb** – the module will attempt to reclock the input signal at 143 Mb/s. If this signal rate is not detected, the signal will not be reclocked and will be passed to the output as is (corrupted).
- **Manual 177Mb** – the module will attempt to reclock the input signal at 177 Mb/s. If this signal rate is not detected, the signal will not be reclocked and will be passed to the output as is (corrupted).
- **Manual 270Mb** – the module will attempt to reclock the input signal at 270 Mb/s. If this signal rate is not detected, the signal will not be reclocked and will be passed to the output as is (corrupted).
- **Manual 360Mb** – the module will attempt to reclock the input signal at 360 Mb/s. If this signal rate is not detected, the signal will not be reclocked and will be passed to the output as is (corrupted).
- **Manual 540Mb** – the module will attempt to reclock the input signal at 540 Mb/s. If this signal rate is not detected, the signal will not be reclocked and will be passed to the output as is (corrupted).

### Optic TX

Use this control to enable or disable the optical output of the module.

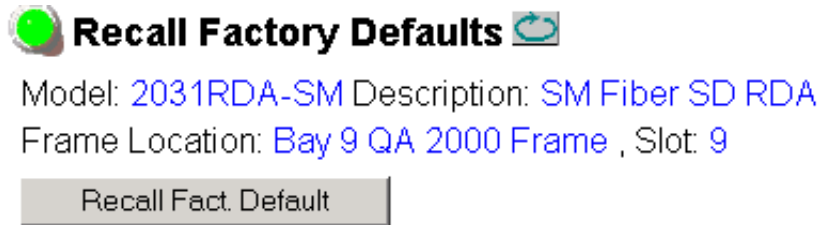
## Recall Factory Defaults Web Page

Use  
this  
link

- [9 2031RDA-SM](#)
- [R - 2031RDA-SM](#)
- [Status](#)
- [Settings](#)
- [Recall Factory Defaults](#)
- [Slot Config](#)
- [Software Update](#)

The Recall Factory Defaults web page (Figure 13) provides a **Recall Fact. Default** Button to restores the module to the default values shown in Table 3 on page 13.

Figure 13. Recall Factory Defaults Web Page





## Slot Config Web Page

Use  
this  
link

[9 2031RDA-SM](#)  
[R - 2031RDA-SM](#)  
[Status](#)  
[Settings](#)  
[Recall Factory](#)  
[Defaults](#)  
[Slot Config](#)  
[Software Update](#)

Use the Slot Config web page ([Figure 14 on page 26](#)) to perform the following functions on the 2031RDA-SM/-MM module:

- **Locate Module** – selecting the **Flash** radio button flashes the yellow COMM LED on the front of the module so it can be located in the frame.
- **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.

You may also assign a name to the input signal in the **Input Signal Name** field. Select **Default** to enter the factory default signal name.

An asset identification of up to 16 characters may be entered in the **Asset Tag** field. This will appear on the module Status web page and in the NetConfig inventory report.

- **Slot Memory** – the slot configuration for each media module is automatically saved periodically (once an hour) 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.

- **Frame Health Reporting** – the reporting of Slot Fault, Signal Loss, and Reference Loss can be enabled or disabled to the Frame Health connector on the rear of the Kameleon frame by selecting or deselecting the corresponding checkbox.
- **Hardware Switch Controls** – a read-only status report of 2000NET module switch settings for Module Status Reporting and Asynchronous Status Reporting (dipswitch S1 segment 7 and dipswitch S2 segment 1). These functions must be enabled for the following Slot SNMP Trap Reports to function.
- **Slot SNMP Trap Reports** – 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.

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.

Figure 14. 2031RDA-SM/-MM Slot Config Web Page

 **Slot Config** 

Model: [2031RDA-SM](#) Description: [SM Fiber SD RDA](#)  
 Frame Location: [Bay 9 QA 2000 Frame](#) , Slot: [9](#)

**Locate Module**

Flash  Off

**Slot Identification**

Name:

Input Signal Name:

Asset Tag:

**Slot Memory**

Restore upon Install

**Frame Health Reporting**

	Slot Fault	Signal Loss	Reference Loss
Enabled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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	<a href="#">Alarm</a>	<a href="#">Warning</a>	<a href="#">Warning</a>	<a href="#">Warning</a>

## Software Update Web Page

Use  
this  
link

- [9 2031RDA-SM](#)
- [R - 2031RDA-SM](#)
- [Status](#)
- [Settings](#)
- [Recall Factory Defaults](#)
- [Slot Config](#)
- [Software Update](#)

The Software Update web page (Figure 15) indicates that module software updates via the web or using the NetConfig networking application are not supported. For instructions on updating to the latest software, refer first to the 2031RDA-SM/-MM Release Notes that accompany the software update for complete details.

Currently, the only recommended method of software updating is done with a software kit (8900-FLOAD-CBL) that includes a CD-ROM with the current software files and a serial cable assembly available from Grass Valley.

Refer to the *8900-FLOAD-CBL Software Upgrade Instruction Manual* in pdf format on the CD-ROM for complete updating instructions and the required software files for the 2031RDA-SM/-MM.

Figure 15. Software Update Web Page

**Software Update**

Model: [2031RDA-SM](#) Description: [SM Fiber SD RDA](#)  
 Frame Location: [Bay 9 QA 2000 Frame](#) , Slot: [9](#)  
 Software Version: [1.0.0](#)  
 Module Update: [Not Supported](#)

[Override Unsupported Update](#)

## Status Monitoring

This section provides a summary of status monitoring and reporting for a Kameleon 2000 Series system. It also summarizes what status items are reported and how to enable/disable reporting of each item. There are a number of ways to monitor status of modules, power supplies, fans and other status items depending on the method of monitoring being used.

2000 Frame status will report the following items:

- Power supply health,
- Status of fans in the frame front cover,
- Temperature,
- Module health, and
- Frame bus status.

Module health status will report the following items:

- Internal module state (and state of submodule or options enabled) including configuration errors (warning), internal faults, and normal operation (Pass).
- Signal input states including valid/present (pass), not present or invalid (warning), not monitored, and not available (no signal inputs).
- Reference input states including locked/valid (pass), not locked/invalid (warning), and not monitored.
- Signal output states with reporting functionality (reference output).

## LEDs

LEDs on modules in the frame and on the front of the 2000 frames indicate status of the frame and the installed power supplies, fans in the front covers, and modules.

When a red FAULT LED is lit on a frame front cover, the fault will also be reported on the 2000NET or Frame Monitor module. The LEDs on the front of these modules can then be read to determine the following fault conditions:

- Power Supply 1 and 2 health,
- Fan rotation status,
- Frame over-temperature condition,
- Frame Bus fault (2000NET only), and
- Module health bus.

In general, LED colors used on the frame and modules indicate:

- Green – normal operation, (Pass) or signal present, module locked.
- Red – On continuously = fault condition, flashing = configuration error.
- Yellow – On continuously = active condition (configuration mode or communication), flashing in sequence = module locator function.

Status LEDs for this module are described in [LEDs on page 28](#). LEDs for the 2000NET module are described in the *2000NET Network Interface Instruction Manual*.

## Frame Alarm

Connection and use of the Frame Alarm is covered in detail in the *2000NET Network Interface Instruction Manual*.

## Web Browser Interface

When the 2000NET module is installed in the frame, a web browser GUI can indicate frame and module status on the following web pages:

- Frame Status web page – reports overall frame and module status in graphical and text formats.
- Module Status web page – shows specific input and reference signal status to the module along with enabled options and module versions.
- A Status LED icon on each web page to report communication status for the frame slot and acts as a link to the Status page where warnings and faults are displayed (2000NET version 3.0 or later).

In general, graphics and text colors used indicate the following:

- Green = Pass – signal or reference present, no problems detected.
- Red = Fault – fault condition.
- Yellow = Warning – signal is absent, has errors, or is mis-configured.
- Grey = Not monitored (older 2000 module).
- White = Not present.

Status reporting for the frame is enabled or disabled with the configuration DIP switches on the 2000NET module. Most module status reporting items can be enabled or disabled on individual configuration web pages.

## SNMP Reporting

The Kameleon Series system uses the Simple Network Monitoring Protocol (SNMP) internet standard for reporting status information to remote monitoring stations. When SNMP Agent software is installed on the 2000NET module, enabled status reports are sent to an SNMP Manager such as the Grass Valley's NetCentral application.

There are both hardware and software report enable switches for each report. Both must be enabled for the report to be sent. Software report switches are set on the 2000NET Configuration page for the Frame, the 2000NET module, and each module slot. Refer to the *2000NET Network Interface Instruction Manual* for installation instructions.

# Specifications

Table 4. 2031RDA-SM/-MM Specifications

Parameter	Value
<b>Serial Digital Component Coax Input</b>	
Number and type of inputs	1 BNC
Input impedance	75 Ohm
Return loss	> 15 dB from 5 MHz to 540 MHz
Signal type, auto-equalizing only	50 Mb/s to 540 Mb/s: rise/fall time – 20 to 80%, 400-800 ps, signal level – 800 mV ± 10%)
Signal type, auto-equalizing and reclocking	SMPTE 259M-1997 with the following bit rate tolerances: 143 Mb/s ± 5% 177 Mb/s ± 5% 270 Mb/s ± 5% 360 Mb/s ± 5% ETSI TR 101 891v1.1.1 (DVB-ASI) with the following bit rate tolerance: 270 M/b/s ± 5% SMPTE 344M-2000 with the following bit rate tolerance: 540 Mb/s± 5%
Auto equalization cable lengths (for any of the above signal types)	Up to 300 m of Belden 1694A cable for bit rates up to 270 Mb/s Up to 100 m of Belden 1694A cable for bit rates > 270 Mb/s and < 540 Mb/s
Input jitter tolerance	≥ 1 UI p-p from 10 Hz to 200 Hz ≥ 0.2 UI p-p from 200 Hz to 15 MHz
<b>Serial Digital Component Fiber Input</b>	
Connector	LC (1 input)
Fiber types	2031RDA-MM: multimode complying with ANSI/TIA/EIA-492AAAA-A (maximum attenuation of 1.5 dB per kilometer at 1310 nm) 2031RDA-SM: singlemode complying with ANSI/TIA/EIA-492CAAA (maximum attenuation of 1.0 dB per kilometer at 1310 nm)
Wavelength	1270-1355 nm
Input power	2031RDA-MM: -28 dB (minimum) to -7.5 dB (maximum) 2031RDA-SM: -20 dB (minimum) to 0 dB (maximum)
Signal type	Same as Signal type, auto-equalizing only and Signal type, auto-equalizing and reclocking above
Fiber length	2031RDA-MM: 2 kilometers minimum at 270 Mb/s 2031RDA--SM: 7 kilometers minimum at 270 Mb/s
Jitter (on any specified signal type)	> 0.2 UI p-p, 10 Hz to 10 MHz
<b>Serial Digital Component Coax Outputs</b>	
Connector	BNC (8 outputs)
Output impedance	75 Ω
Return loss	> 15 dB from 5 MHz to 540 MHz
Signal level	SDI 800 mV p-p, ± 10% maximum
Rise/fall time	400-800 ps
Output polarity	Non-inverted
Output jitter	< 0.2 UI p-p

Table 4. 2031RDA-SM/-MM Specifications - (continued)

Parameter	Value
<b>Serial Digital Component Fiber Outputs</b>	
Connector	LC (1 output)
Fiber types	2031RDA-MM: multimode complying with ANSI/TIA/EIA-492AAAA-A (maximum attenuation of 1.5 dB per kilometer at 1310 nm) 2031RDA-SM: singlemode complying with ANSI/TIA/EIA-492CAAA (maximum attenuation of 1.0 dB per kilometer at 1310 nm)
Wavelength	1290-1330 nm
Output power	-12 to -7.5 dBm
Standard	Other than LC connector, conforms to SMPTE 297-2000
Polarity	Non-inverting
Output jitter	< 0.2 UI
<b>Power</b>	
Input power maximum	< 6 W
<b>Environmental</b>	
Frame temperature range	See Kameleon 2000 frame specification
Operating humidity range	0 to 90% non condensing
Non-operating temperature	-10 to 70 ° C



# Service

The 2031RDA-SM/-MM 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 unless otherwise directed by Customer Service.

## Power-up Diagnostics Failure

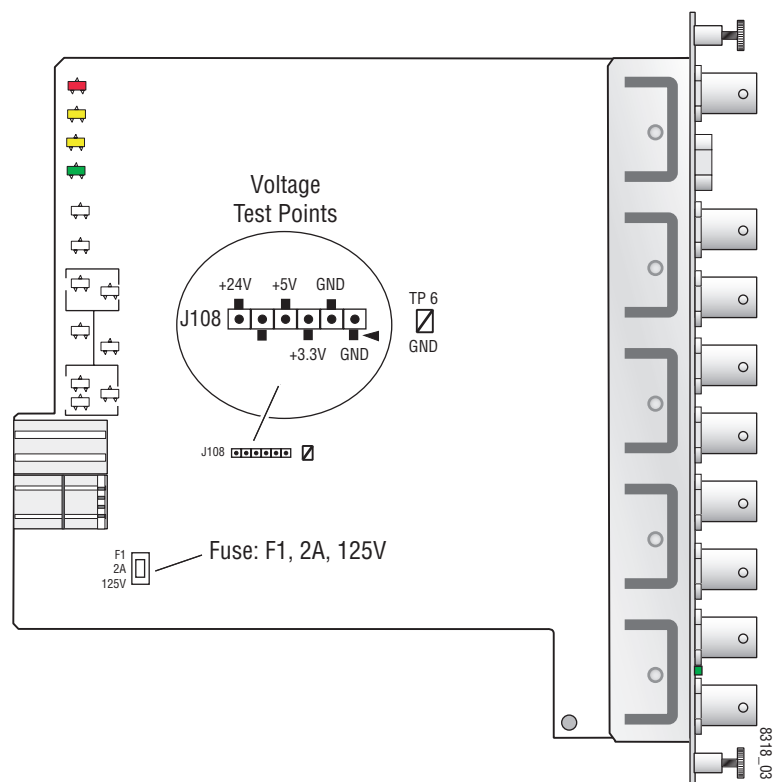
If the module has not passed self-diagnostics, do not attempt to troubleshoot. Return the unit to Grass Valley (see [Module Repair](#)).

## Troubleshooting

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

- Check frame and module power. If power is not present, check the fuse and voltage testpoints on the module as illustrated in [Figure 16](#).
- Check for presence and quality of input signals.
- Verify that source equipment is operating correctly.
- Check cable connections.

Figure 16. Location of Module Fuse



## Module Repair

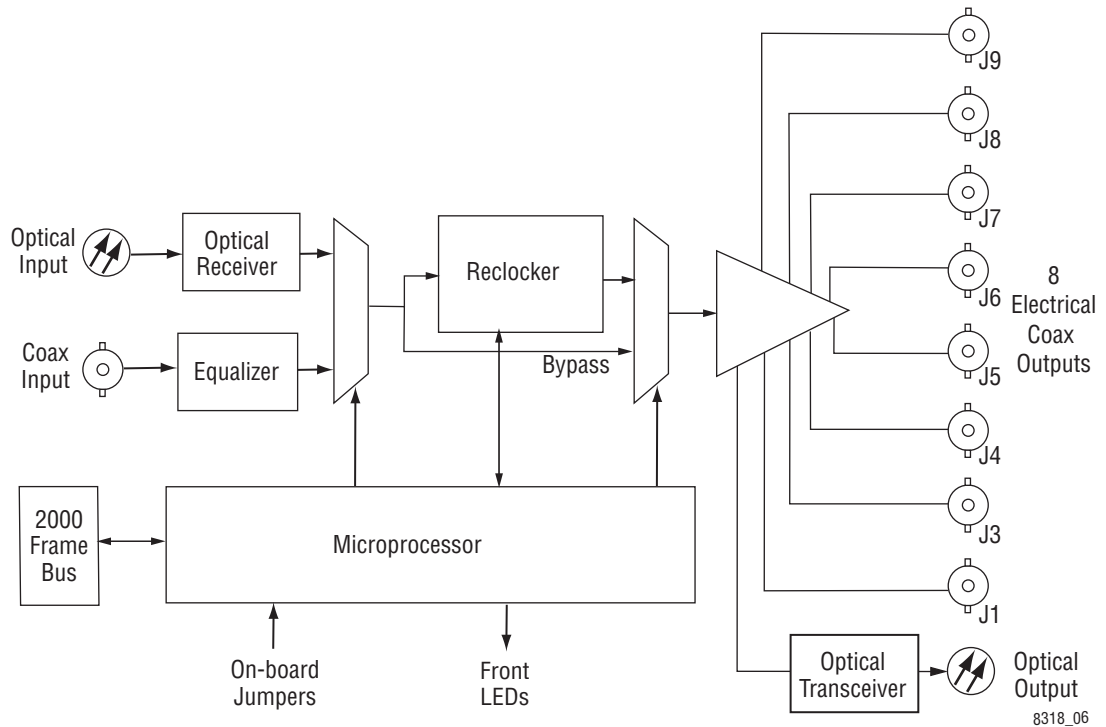
If the module is still not operating correctly, replace it with a known good spare and return the faulty module to a designated Grass Valley repair depot. Call your Grass Valley representative for depot location.

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

## Functional Description

A block diagram of the 2031RDA-SM/-MM is shown in [Figure 17](#).

Figure 17. 2031RDA-SM/-MM Block Diagram



## Input Processing

The wideband serial SD signal enters the module from rear BNC J10 (labeled In) to an input amplifier. It is then equalized for the specified cable lengths in the equalizer circuit.

## Microprocessor

The main functions of the microprocessor include:

- Providing remote control and monitoring capability for the module (through ethernet),
- Communicating with equalizer IC to monitor signal present status,
- Relaying module status through on-board LEDs, and
- Configuring module components at power up.

## Output Processing

Driver circuits drive each of the eight serial digital outputs to the rear BNCs J2 through J9. These outputs are non-inverting and are in-phase with each other.

## Power Supply

Power is fed from +24 V rails of the frame's switching power supply. Each stage of the module receives its own, separate, highly regulated and filtered power source. The power input is protected by a socketed fuse ([Figure 16 on page 33](#)).



# Index

## Numerics

- 2000 frame
  - status reporting 28
- 2000NET module
  - software requirements 16
- 8900-Fload/Bload 27

## A

- Asset Tag assignment 25

## B

- block diagram 34

## C

- cabling
  - inputs 10
  - outputs 10
- circuit descriptions 34
- COMM LED 11, 25
- CONF (configuring) LED 11
- configuration
  - Remote, GUI 16
- configuration summary 13
- control panel 16

## D

- documentation online 2
- Dual Optical Transmitter submodule
  - summary table 13

## E

- enable SNMP 30
- environmental 32

## F

- FAQ database 2
- FAULT LED 11
  - troubleshooting 28
- fault table 11
- Frame Health Reporting
  - enabling and disabling 25
- Frame Status web page 29
- frequently asked questions 2
- fuse 33, 35

## G

- graphical user interface (GUI) 19
- Grass Valley web site 2

## I

- input signal name
  - assigning 25
- inputs 10
  - specifications 31
- installation 8

## L

- Learn Module Config button 25
- LEDs 11
- locate module function 25

## M

- module health status 28
- Module Status web page 29

## N

- Newton Control Panel
  - 2000NET software requirement 13
  - control summary table 13

overview 16

Grass Valley 2  
software download 2

## **O**

online documentation 2  
outputs 10

## **P**

PWR LED 11

## **R**

Recall Factory Defaults web page 24  
repair depot 33  
report enable switches 30

## **S**

Settings web page 22  
SIG LED (rear) 11  
Slot Config  
    hardware switch controls 25  
    slot identification 25  
    slot memory 25  
Slot Config web page 25  
SNMP reporting  
    enabling 25  
    overview 30  
software download from web 2  
Software Update web page 27  
specifications 8, 31  
status monitoring 28  
Status web page 20

## **T**

troubleshooting 33

## **W**

web browser  
    overview 17  
web site  
    documentation 2  
    FAQ database 2