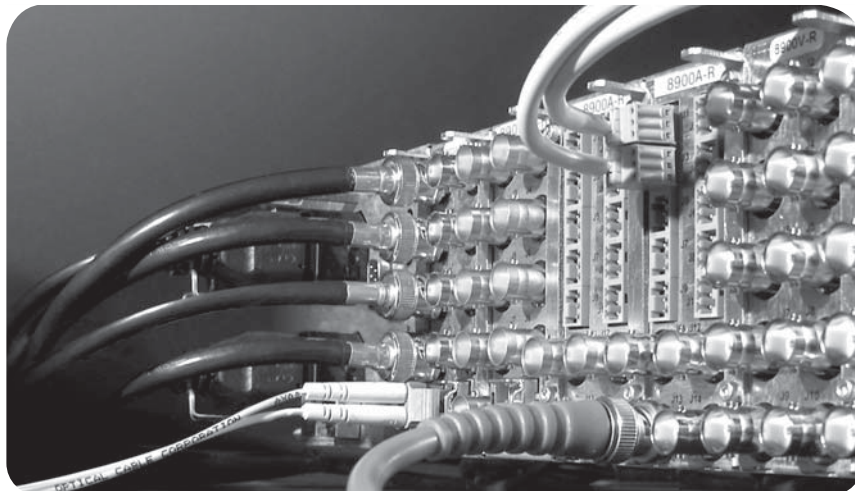grass valley

8947RDA-D/-FR
SD/HD FIBER READY RECLOCKING DA

Instruction Manual

Software Version 1.3.1

KEMA

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Including its implementation, meets the requirements of the standard:

ISO 9001:2008

Scope:
The design, manufacture and support of video and audio hardware and software products and related systems.

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8947RDA-D/-FR
SD/HD FIBER READY RECLOCKING DA

Instruction Manual

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Contacting Grass Valley

International Support Centers	France 24 x 7	+800 8080 2020 or +33 1 48 25 20 20	United States/Canada 24 x 7	+1 800 547 8949 or +1 530 478 4148
Local Support Centers (available during normal business hours)	Asia	Hong Kong, Taiwan, Korea, Macau: +852 2531 3058 **Indian Subcontinent:** +91 22 24933476 Southeast Asia/Malaysia: +603 7805 3884 **Southeast Asia/Singapore:** +65 6379 1313 China: +861 0660 159 450 **Japan:** +81 3 5484 6868		
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Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

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For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.grassvalley.com/about/environmental-policy

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Preface

About This Manual

This manual describes the features of a specific 8900 module in the GeckoFlex Signal Processing System families. As part of this module family, it is subject to Safety and Regulatory Compliance described in the GeckoFlex 8900 Series frame documentation (see the *GeckoFlex Frames 8900FX/FF/FFN Signal Processing System Instruction Manual).*

All Modular product manuals can be found on-line in PDF format at this link:

www.grassvalley.com/docs/modular

8947RDA-D/-FR SD/HD Reclocking DA Modules

Introduction

This manual covers installation, configuration, and operation of the 8947RDA-D Dual SD/HD Reclocking DA and the 8947RDA-FR SD/HD Reclocking Fiber Ready DA, both of which must be installed in a Grass Valley GeckoFlex frame.

The 8947RDA-D is a dual SD/HD re-clocking distribution amplifier with automatic format detection. It provides four (in dual mode) to eight (in single mode) reclocked outputs and can equalize up 125 meters of Belden 1694A cable for HD-SDI. It can be used to distribute either SD-SDI or HD-SDI making it ideal for mixed format applications or installations where an upgrade is planned. It requires the 8900WE-R rear module.

The 8947RDA-FR is a fiber-ready reclocking distribution amplifier with automatic format detection. It provides eight reclocked electrical pouts and can equalize up to 125 meters of Belden 1694A cable for HD-SDI. In addition, the module supports fiber optic inputs and outputs when an optional fiber optic SFP device is installed.

One of three SFP devices can be used: Dual Transmitter (two fiber optic outputs), Dual Receiver (two fiber optic inputs), or Transceiver (one fiber optic input and one fiber optic output). It requires the 8900WFR-R rear module.

The modules can also distribute eight non-inverted DVB-ASI outputs making them ideal for receiving signals from distant downlinks or transmitting to remote uplinks.

Features

The features of the 8947RDA modules include:

- Multi-format SD-SDI or HD-SDI on electrical or optical inputs (fiber capability on 8947RDA-FR only),

- Up to eight reclocked SD or HD on electrical and/or optical outputs (fiber capability on the 8947RDA-FR only) which reduce jitter on the incoming signal,

- Auto cable equalization for up to 330m of cable in the case of SD and ASI and for up to 125m of cable in the case of HD signals,

- Accepts a wide range of standard definition or high definition input signals,

- Non-inverted outputs allow distribution of compressed signals for handling signals such as DVB-ASI,

- Provides a bypass mode for non-supported signal rates,

- Provides separate alarm (signal presence detection) for Coax input 1 and Coax input 2 and status management,

- Supports SNMP MIB reporting basic board alarms,

- An optional fiber optic SFP device provides optical input/output interfaces for the 8947RDA-FR. Refer to Table 3 on page 18 for a list of SFP devices that can be used with this module.

- Remote control and monitoring support: web pages, Newton control panel, NetConfig management system.

Installation

The front and the rear modules are delivered together as a set: 8947RDA-D front module with the 8900WE-R rear module or the 8947RDA-FR front fiber-ready module with 8900WFR-R rear module. The optional fiber optic SFP device used on the 8947RDA-FR is ordered and shipped separately.

The front modules can be plugged in and removed from a GeckoFlex frame with power on without disrupting operation on adjacent running modules. When power is applied to the module, LED indicators reflect the initialization process (see *Power Up* on page 24).

Installation of the 8947RDA module set is a process of:

1. Placing the 8900WE-R or 8900WFR-R rear module in a rear frame slot,

2. Configuring the local onboard settings if not using an 8900NET (Net Card) (see *Local Configuration* on page 14),

3. Placing the front module in the corresponding front slot, and

4. Installing an optional Fiber Optic SFP device in the 8947RDA-FR module rear cage if being used.

Module Placement in the GeckoFlex Frame

There are ten front and rear cell locations in the 2 RU GeckoFlex frame (Figure 1) to accommodate either audio, analog and digital video modules. The 8947RDA module set may be plugged into any one of the available GeckoFlex frame slots. It requires a single rear slot.

Figure 1. GeckoFlex Frame
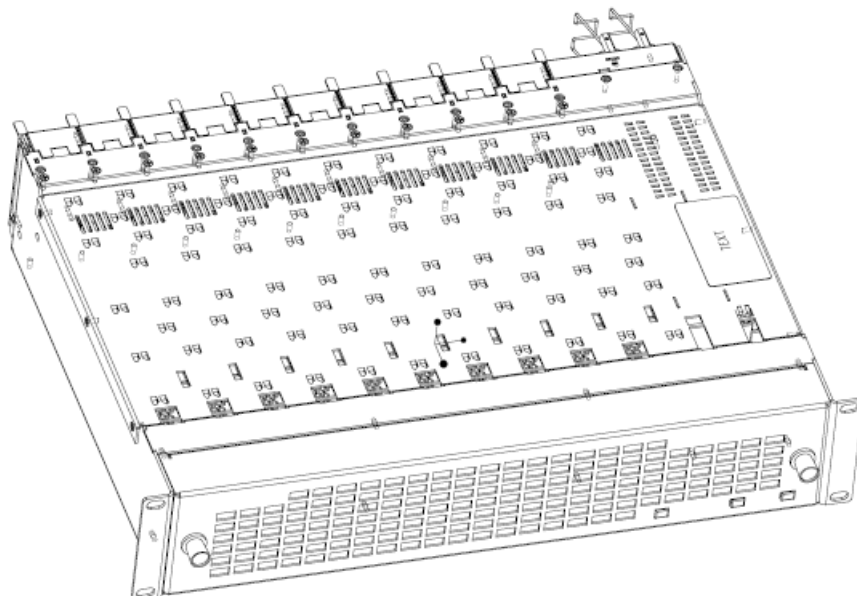
Module Installation Precautions

Please read and follow the precautions listed below before installing the front and rear modules and any optional fiber optic SFP device (8947RDA-FR models only):

- Use standard anti-static procedures during installation. As modules can be installed or removed when the GeckoFlex frame is powered up, before removing the cover, please use an anti-static bracelet tied to a metal part of the frame.

- Install the rear module first, then the front module, then the optional fiber optic SFP device if being used on the 8947RDA-FR.

- When installing or removing a rear module, loosen or tighten the screws holding the retainer clips to the frame manually with the retainer clip tool provided inside the front cover of the frame or use a 2 mm (5/64") hex screwdriver. Please do not use an electric screwdriver.

Note   On newer 751- version GeckoFlex frames, a Rear Retainer Clip removal tool and 2 extra retainer clips and screws for installing them are provided on the inside of the frame cover.

- Make every effort to leave the screws holding the retainer clips in place (do not remove them completely). They are very small and can easily drop into other equipment causing a shorting hazard. (Two turns of the screw should be enough to loosen the screws, 3 turns or more will remove it.)

- When installing a rear module, tighten the screws on the retainer clips just until snug. Do not apply more force than is necessary to seat the rear module. Refer to the **Mechanical** specifications given in Table 7 on page 53.

- If using an optional fiber optic SFP device on the 8947RDA-FR fiber ready module, handle it carefully, use anti-static precautions, and read the *Fiber Optic Cleaning Requirement* on page 18 before cabling.

Rear Module Installation

1. To remove a blank rear adapter cover (or a rear module already present), manually loosen the two screws holding each retainer clip on the rear adapter cover or rear module to the frame with the retainer clip tool provided inside the front cover of the frame (751- model frames only) or a 2 mm (5/64") hex screwdriver.

Note To remove a rear module already installed, follow the same steps. It is helpful to first remove the front module so the rear can be pulled out more easily.

1. After loosening the retainer clip screws, pull up on each retainer and completely remove it, leaving the screws in place.

2. Remove the blank rear adapter cover by inserting the retainer clip tool or needlenose pliers into the slots in the blank cover and pulling it off (Figure 2).

3. Insert the rear module into the empty slot, guiding it carefully into place.

4. Replace each retainer clip over the two screws on both sides of the module and push down to seat the retainer clip.

5. Tighten the two screws on each retainer clip just until they come into contract with the retainer clip then tighten about a 1/4 turn more (maximum torque is 4-5 inch-lb/0.45-0.6Nm). Do not force or torque the screws too tightly. The clips should not bend or be bowed.

Note All unused rear slots in a GeckoFlex frame should have a blank rear adapter cover installed.

Figure 2. Installing Rear Module

Use retainer clip or needlenose pliers to pull out blank after removing retainer clips

8444_23r0
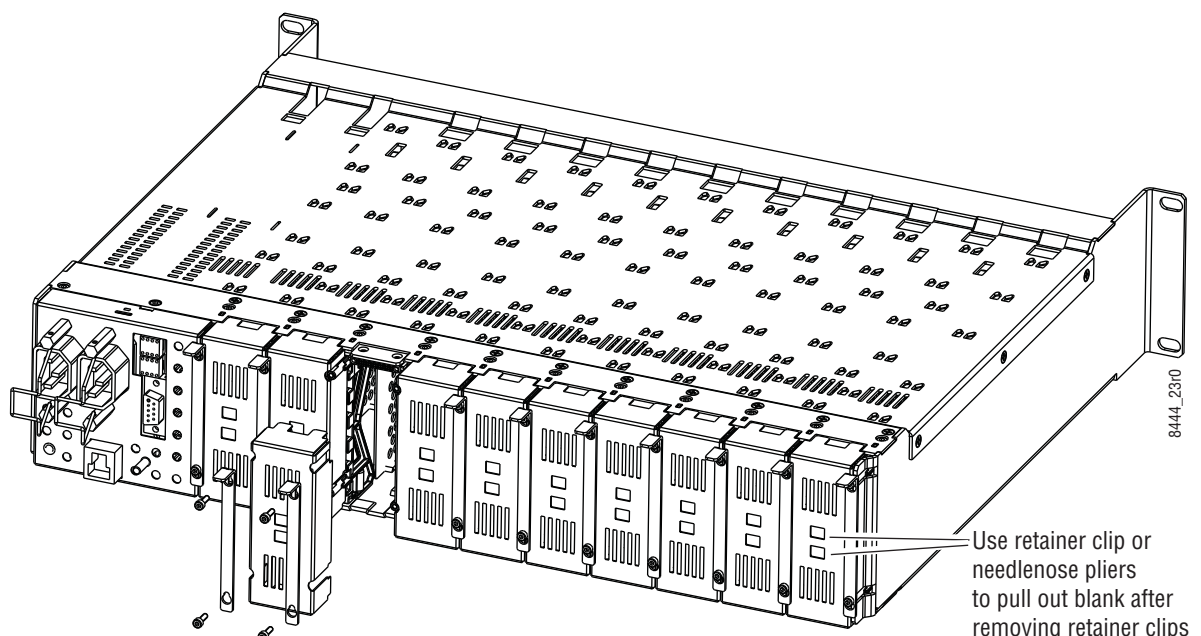
Front Module Configuration

If you have an 8900NET module (Net Card) in your frame and will be configuring the module remotely with a web browser or the Newton Control Panel, you may configure and monitor the module remotely over the network with the web browser.

If you do not have an 8900NET module in the GeckoFlex frame for remote monitoring and configuration, you will need to configure the module using the local onboard controls before installing it in the frame.

Do this configuration before installing the front module into the frame.

Local Configuration

Local configuration of either model 8947RDA consists of two DIP switches (S1 and S2) highlighted in the lower left corner of Figure 3. Refer to Table 1 on page 15 for configuring the 8947RDA-D and for Table 2 on page 16 for configuring the 8947RDA-FR.

Figure 3. Configuration Switches on 8947RDA-D/-FR Modules

Local Configuration Switches S1 and S2
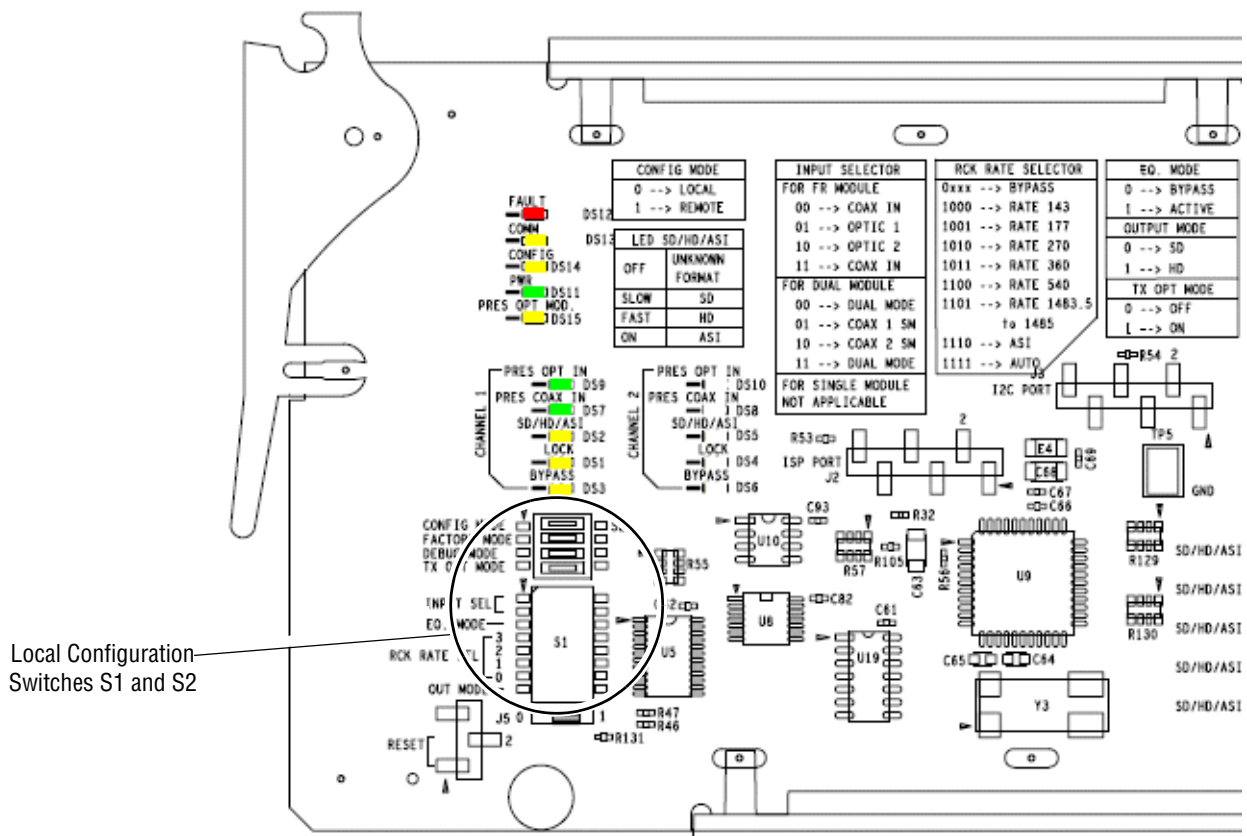
Configuration Switches S1 and S2

Table 1 gives the configuration parameters set with the onboard switches S1 and S2 on the front of the 8947RDA-D circuit board.

Table 2 on page 16 gives the configuration parameters set with the onboard switches S1 and S2 on the front of the 8947RDA-FR circuit board.

Parameters may also be set using the web page controls or the Newton Control panel when the 8900NET module is installed in the GeckoFlex frame.

Note   Remote control settings made with the web interface will override local settings. To lock out remote control, set the Config Mode to Off (LOCAL).

Table 1. 8947RDA-D Switch S1 and S2 Settings

Switches S1 and S2	Function	Pin	0 (Left/Off)		1 (Right/On)	
	Switch S2					
	Config Mode	**1**	LOCAL (Remote control locked out)		LCL&REM (Local and Remote)	
	Factory Mode	**2**	Off		Factory use only	
	Test Mode	**3**	Off		Factory use only	
	Tx Opt Mode	**4**	Not applicable for the 8947RDA-D			
	Switch S1					
	Input Select-Signal Routing					
	Set Coax Input Mode		Coax In J9[1]	Coax In J10	Coax In J9 (single)	Coax In J10 (single)
		1	0	1	1	0
		2	0	1	0	1
	Coax Outputs Mode		J1, J2, J3, J4	J3, J5, J7, J9	J1, J2, J3, J4, J5, J6, J7, J8	J1, J2, J3, J4, J5, J6, J7, J8
	Eq. Mode	**3**	Bypass		Active	
	Rck Rate Sel (Reclocking rate selection)					
		4	Not applicable for the 8947RDA-D			
		5				
		6				
		7				
	Output Mode	**8**	SD		HD	

[1] For Dual mode, Coax in J1 and J10, set Switch S1, pins 1 and 2 to either 00 or 11.

Table 2. 8947RDA-FR Switch S1 and S2 Settings

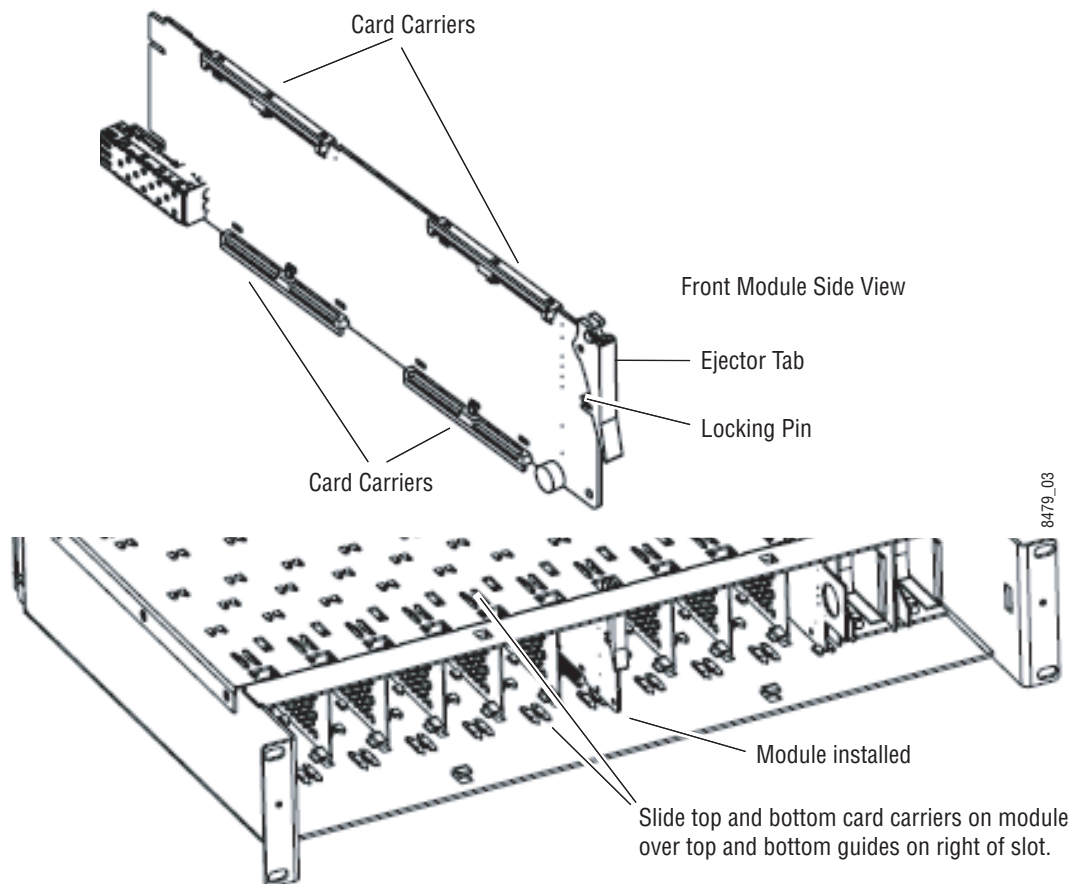| Switches S1 and S2	Function	Pin	0 (Left/Off)				1 (Right/On)			
	Switch S2									
	Config Mode	**1**	LOCAL (Remote control locked out)				LCL&REM (Local and Remote)			
	Factory Mode	**2**	Off				Factory use only			
	Test Mode	**3**	Off				Factory use only			
	Tx Opt Mode	**4**	Off (disable transmit outputs)[1]				On (enable transmit outputs)[1]			
	Switch S1									
	Input Select-Signal Routing									
	Set Input Mode		Coax In J9			Fiber In 1[1]			Fiber In 2[1]		
		1	0			1			0		
		2	0			0			1		
	Outputs		Coax J1, J2, J3, J4, J5, J6, J7 J8 and fiber optic option if applicable								
	Eq. Mode	**3**	Bypass				Active			
	Rck Rate Sel (Reclocking rate selection)									
	Reclock Rate (MHz)		Bypass	143	177	270	360	540	1438.5	ASI	Auto
		4	0	1	1	1	1	1	1	1	1
		5	X	0	0	0	0	1	1	1	1
		6	X	0	0	1	1	0	0	1	1
		7	X	0	1	0	1	0	1	0	1
	Output Mode	**8**	SD				HD			

[1] Fiber inputs and outputs present depend on type of optional fiber optic SFP device installed.

Installing Front Module

After installing the rear module and configuring the front module using local controls if required, install the front module as follows:

1. Remove the front cover of the frame.

2. Locate the front slot corresponding to the rear module you have already installed.

3. Insert the front module so that the plastic card guides on the module top and bottom edges go over the upper and lower raised rail guides on the right of the top and bottom of the slot (Figure 4 on page 17).

4. Carefully slide the module into the rear connector, making sure the fiber optic cage connector on the 8947RDA-FR module fits into the rear module properly.

5. Lock the front module ejector tab into the locking pin.

6. Replace the frame front cover during normal operation to maintain optimum cooling conditions.

Figure 4. Front Module Installation

Card Carriers

Front Module Side View

Ejector Tab

Locking Pin

Card Carriers

Module installed

Slide top and bottom card carriers on module over top and bottom guides on right of slot.

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Optional Fiber Optic SFP Device Installation (8947RDA-FR)

After the front and rear modules have been installed, install the optional Fiber Optic SFP device if being used on the 8947RDA-FR module, into the metal cage labeled FIBER (Figure 5 on page 19) accessible from the 8900WFR-R rear module. The SFP device is hot-pluggable and may be installed or removed with power applied to the module.

CAUTION   Use anti-static precautions and handle the SFP device carefully when installing and the removing it. Before inserting the fiber cable, it is important to clean all fiber connections as described in *Fiber Optic Cleaning Requirement* below.

Refer to Table 3 for the correct model of SFP device to use with different software versions of the 8947RDA-FR module.

Table 3. Fiber Optic SFP Device Summary

SFP Device	Type	SW 1.3.1 and later	SW 1.3.1 and earlier
SFP-13103G-M1DRX	Dual Receiver	X	–
SFP-13103G-M2DTX[1]	Dual Transmitter	X	–
SFP-13103G-M1TRX	Transceiver	X	–
1310nm-DRL	Dual Receiver	X	X
1310nm-DTL	Dual Transmitter	X	X
1310nm-TRL	Transceiver	X	X

[1] The only Dual Transmitter SFP device model that can be used on the 8947RDA-FR is the SFP-13103G-M2DTX.

Fiber Optic Cleaning Requirement

Before making any fiber optic cable mating connections, including installation, and after every de-mating cycle, use an industry standard fiber optic cleaning kit, including oil-free compressed air, to clean the fiber connectors and the connectorized fiber end faces. This helps ensure optimum performance of the fiber optic interface. Industry standard fiber optic cleaning kits can be purchased on the web and in electronics stores.

To install the optional fiber optic SFP device:

1. Slide the fiber optic SFP device into the cage connector connected to the front module at the rear of the frame (label on right).

2. When installed properly, the front end of the SFP device will line up with the rear module BNCs. Do not try to force it in further.

Figure 5. Fiber Optic SFP Device
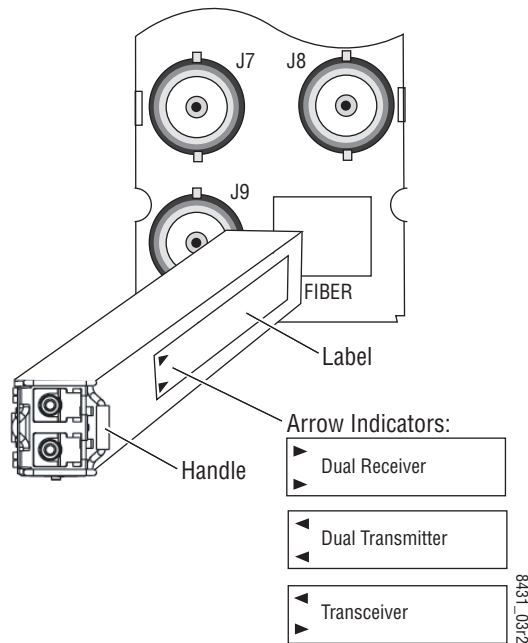
To extract the fiber optic SFP device follow the steps below:

1. Remove the fiber cable first.

2. Unlock the module by flipping the handle to the left.

3. Remove the fiber optic SFP device by using its handle.

Cabling

Cabling to the 8947RDA-D or 8947RDA-FR module is done on the BNCs and/or the fiber connector on the rear module (when an optional fiber optic SFP device is installed on the 8947RDA-FR) as described in these sections:

- *8947RDA-D Module Cabling* on page 22

- *8947RDA-FR Module Cabling* on page 23

Video Input(s)

The 8947RDA-D and 8947RDA-FR will accept any of the SD or HD SDI video standards listed in the input specifications in Table 7 on page 53.

For the 8947RDA-FR, the video input(s) to the module can be selected from one of the following sources, depending on the presence and type of optional fiber optic SFP device:

- Electrical BNC, J9 (always available),

- Fiber RX 1 with Dual Receiver fiber optic SFP device or Transceiver fiber optic SFP device installed (see Table 3 on page 18 for part number), or

- Fiber Input RX 2 with Dual Receiver fiber optic SFP device installed, (see Table 3 on page 18 for part number).

All input sources can be connected but only be one input can be active at any time. The active input is configured with local onboard controls (*Configuration Switches S1 and S2* on page 15) or using the Settings web page (page 33). The video input type (SD or HD) is selected in configuration when the reclocking mode is set to Bypass.

Video Outputs

The 8947RDA-D and 8947RDA-FR outputs conform to the video standards listed in the output specifications in Table 7 on page 53.

For the 8947RDA-FR, the video output(s) from the module can be selected from one of the following sources, depending on the presence and type of optional fiber optic SFP device installed:

•   Electrical BNC, J9 (always available),

•   Fiber Output TX 1 or TX 2 (with Dual Transmitter fiber optic SFP device installed).

•   Fiber Output TX 2 (with Transceiver fiber optic SFP device installed), or

Electrical outputs are always enabled. Fiber optic outputs on the 8947RDA-FR module must be enabled during configuration using the local onboard controls (*Configuration Switches S1 and S2* on page 15) or the 8947RDA-FR Settings web page (page 44).

8947RDA-D Module Cabling

The 8947RDA-D front module requires the 8900WE-R rear module. Refer to Table 4 and Figure 6 for 8900WE-R cabling information.

Table 4. Cabling Inputs and Outputs for 8900WE-R Module

Mode	SDI Inputs	Outputs
Dual	J9 BNC	J1, J3, J5, J7: 4 SD or HD-SDI electrical outputs
	J10 BNC	J2, J4, J6, J8: 4 SD or HD-SDI electrical outputs
Single	J9 BNC or J10 BNC	J1, J2, J3, J4, J5, J6, J7, J8 SD or HD electrical outputs

Figure 6. 8900WE-R Cabling
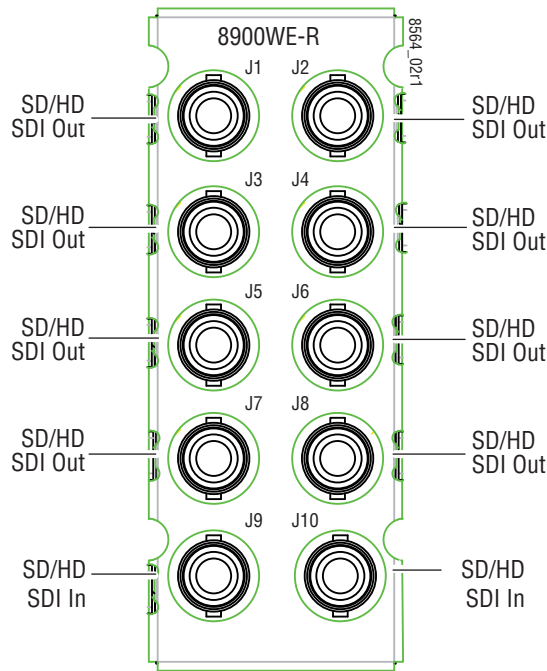
8947RDA-FR Module Cabling

The 8947RDA-FR requires the 8900WFR-R rear module. Refer to Table 5 and Figure 7 for 8900WFR-R cabling information.

Table 5. Cabling Inputs and Outputs for 8900WFR-R Rear

Fiber Optic SFP Device	SDI Inputs	Outputs
No Fiber optic SFP device	J9 BNC	J1, J2, J3, J4, J5, J6, J7, J8 SD or HD electrical outputs
Dual Receiver: SFP-13103G-M1DRX (1270 to 1610nm)	J9 BNC, Fiber RX1, or Fiber RX 2	J1, J2, J3, J4, J5, J6, J7, J8 SD or HD electrical outputs
Transceiver: SPF-13103G-M1TRX	J9 BNC or Fiber RX1	J1, J2, J3, J4, J5, J6, J7, J8 SD or HD electrical outputs Fiber TX2 output
Dual Transmitter: SFP-13103G-M2DTX	J9 BNC	J1, J2, J3, J4, J5, J6, J7, J8 SD or HD electrical output and Fiber 1 and Fiber 2 optical SDI outputs

Figure 7. 8900WFR-R Rear Module Cabling
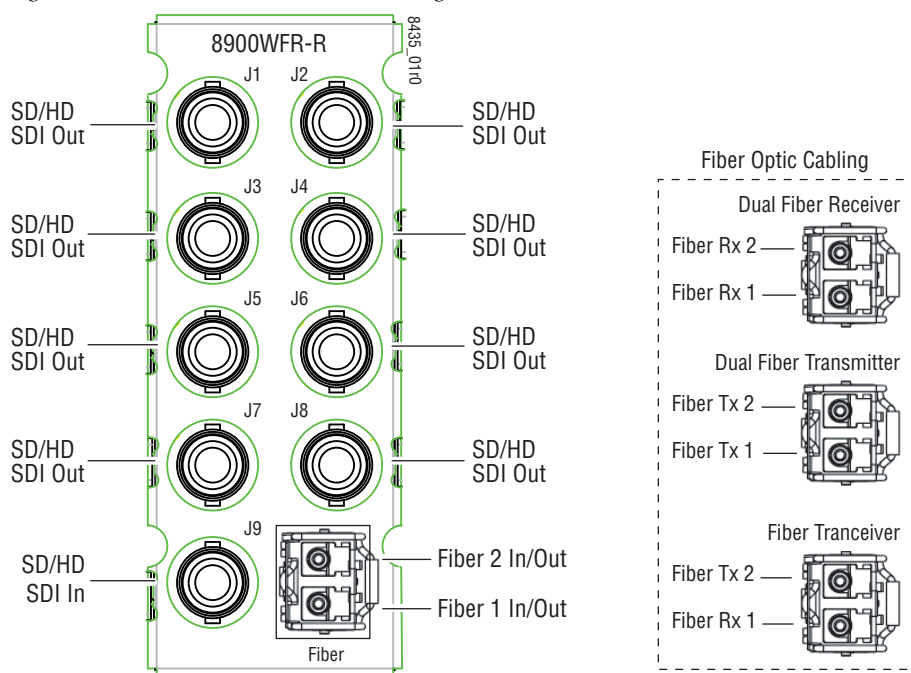
Power Up

The on-board LED indicators are illustrated in Figure 8. Upon power-up, the green PWR LED should light and the CONFIG, FAULT and COMM LEDs should illuminate during the module initialization.

Note   When a module is first plugged into a GeckoFlex frame, the 8900NET module (if present) may report a momentary fault. This will clear once the module has booted up.

Operation Indicator LEDs

With a valid input signal connected, the Channel 1 PRES SIG LED EQ (input to BNC J9), OPT 1, and/or OPT 2 (depends on presence and type of fiber optic SFP device) should be on. Refer to Table 6 on page 25 to see a complete list of possible operating conditions and the resulting indicator status.

Note   LEDs shown for color only, not status. Channel 2 Monitoring Mode LEDs are not used at this time.

Figure 8. Front Module Indicator LED
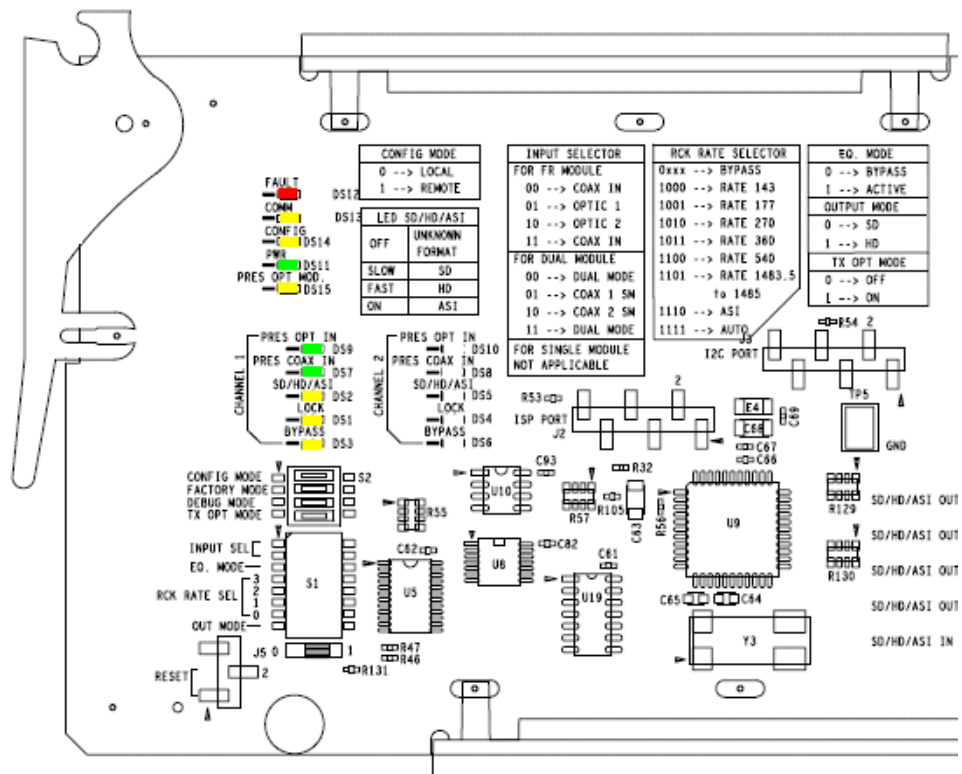
A red FAULT LED indicates an error situation and, when noted with the other indicator LEDs, can indicate a specific problem area. Table 6 describes signal output and LED indications for the various input/reference combinations.

Table 6. LED Indicators

LED	Indication	Condition
FAULT (red)	Off	Normal operation
	On continuously	Module has detected internal fault
COMM (yellow)	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
CONFIG (yellow)	Off	Module is in normal operating mode
	On continuously	Module is initializing, changing operating modes or updating firmware
PWR (green)	Off	No power to module or module's DC/DC converter failed
	On continuously	Normal operation, module is powered
OPT MODULE PRESENT (yellow)	Off	Fiber optic SFP device not installed
	On	Fiber optic SFP device installed
Channel 1 and 2 PRES OPT IN (green)	Off	Indicates no signal carrier present on the optical connector
	On	Indicates signal carrier present on the optical connector
Channel 1 and 2 PRES COAX IN (green)	Off	No presence of signal on BNC J9 (Channel 1) or J10 (Channel 2) connector
	On continuously	Presence of signal on NC J9 (Channel 1) or J10 (Channel 2) connector
Channel 1 and 2 SD/HD/ASI (yellow)	Slow Flashing	Indicates SD SDI signal present
	Fast Flashing	Indicates HD SDI signal present
	On continuously	Indicates ASI signal present
Channel 1 and 2 LOCK (yellow)	Off	Indicates reclocker is unlocked
	On continuously	Indicates reclocker is locked
Channel 1 and 2 BYPASS (yellow)	Off	Indicates reclocker is not bypassed
	On continuously	Indicates reclocker is bypassed

Remote Configuration

The 8947RDA-D and 8947RDA-FR configuration and monitoring can also be performed using a web browser GUI interface or a networked Newton Control Panel when the 8900NET Network Interface module is present in the GeckoFlex frame (8900FFN). Each of these interfaces is described below.

A summary table of all parameters and defaults for each type of control (onboard, web page, or Newton Control Panel is given in Table 12 on page 59.

8900NET Module Information

Refer to the *8900NET Network Interface Module Instruction Manual* available online in PDF format for information on the 8900NET Network Interface Module and setting up and operating the GeckoFlex 8900 frame network.

Note   Upgrade software and instructions for the 8900NET can be downloaded from the Grass Valley ftp site.

Newton Control Panel Configuration

A Newton Control Panel (hard and/or soft version) can be interfaced to the GeckoFlex frame over the local network. Refer to the documentation that accompanies the Newton Modular Control System for installation, configuration, and operation information.

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.

An example of the Newton Configurator is shown in Figure 9.

Figure 9. Newton Configurator Example

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:

- Web access will require some normal network time delays for processing of information.

- Configuration parameter changes may require pressing **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 web page shown in Figure 10 on page 28. The 8900 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 graphics on the web pages shown in this manual represent the use of a particular platform, browser and version of 8900NET module software. They are provided for reference only. Web pages will differ depending on the type of platform and browser you are using and the version of the 8900NET software installed in your system. This manual reflects an 8900NET module with software version 4.3.0, using Internet Explorer, the recommended web browser, and Windows XP operating system.

For information on status and fault monitoring and reporting shown on the module Status page, refer to *8947RDA-D Status Web Page* on page 31.

Note   Click on the **Refresh** button to update the web page after any changes.

Figure 10. Frame Status Web Page

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

8947RDA Links and Web Pages

The 8900 GUI provides the following links and web pages for the 8947RDA modules (Figure 11):

- Status – reports input and output signals and frame bus communication status and module information (page 31),

- Settings – allows the configuration of the inputs and outputs (page 33),

- Slot Config – provides Locate Module and Slot Memory functions along with links to the SNMP, LED Reporting, and Frame Alarm configuration web pages (page 35).

Figure 11. 8947RDA-D and -FR Web Page Links

Refer to the following pages for detailed web page descriptions for each of the different model types listed below:

- 8947RDA-D (page 30)
- 8947RDA-FR (page 38)

8947RDA-D Configuration

The 8947RDA-D can be configured using the front edge onboard controls or using the remote controls available with a web browser or a networked Newton Control Panel.

Local Configuration

For Local configuration, follow the summary of instructions given in *Local Configuration* on page 14 for using the front edge onboard switches for configuration.

Remote Configuration

The remote configuration is summarized in *Remote Configuration* on page 30.

Each of the available web pages for the 8947RDA-D are shown on the following pages:

Use
this —— 2 8947RDA-FR
link   Status
           Settings
           Slot Config

- Status (page 31)

- Settings (page 33)

- Slot Config (page 35)

8947RDA-D Status Web Page

Use this link

4 8947RDA-D
— Status
Settings
Slot Config

The Status web page (Figure 12 on page 32) shows the signal status of the input signal(s) and communication with the frame bus. Color coding of the display indicates the signal status. Refer to *Web Browser Interface* on page 27 for an explanation of the color coding.

- Under the **Status** title are given the model, the description and the frame location. The graphic shows the input and output signals and their status based on color. If the status of either input or output changes, it will be reflected in the color status of the arrow (linked to the **Input Reporting** parameter) and the status LED on the module web page.

- Information about the module, such as Part Number, Serial Number, Hardware Revision, Firmware Revision 1 (CPLD), Firmware Revision 2 (FPGA), Software Version, and Asset Tag number are given at the bottom of the Status Web Page.

- On the Status web page, any warnings or module errors will be displayed in the double bars area below the graphic.

Note   The color of the LED present on the top left of each web page is managed by the 8900NET accordingly to the alarms status.

Figure 12. Status Web Page for 8947RDA-D Module
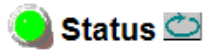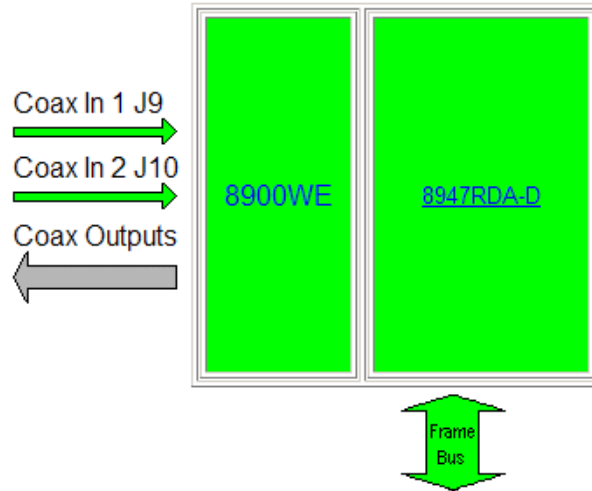
8947RDA-D Settings Web Page

4 8947RDA-D
Status
Settings
Slot Config

Use
this
link

The Settings web page for an 8947RDA-D (Figure 13 on page 34) provides controls for configuring and reporting status of DA signals.

The **Routing Mode** area allows selecting the outputs for DA1 and DA2.

- **Coax In 1** – Selection of J9 BNC coax input feeds outputs J1, J3, J5, J7.

- **Coax In 2** – Selection of J10 BNC coax input feeds outputs J2, J4, J6, J8.

Note   **Coax In 1** or **Coax In 2** can be configured to feed all eight outputs for using the module as a single DA.

Coax Signal Names – Signal names can be entered for Coax Input J9 and Coax Input J10. These names will be recognized for SNMP reporting.

Other Settings and Reporting

Input Reporting – Choose between **Enable** or **Disable**. The **Enable** parameter sends alarms to the 8900NET module on the input signals (presence of signal). The color of arrows on the module Status web page will be automatically changed.

The **Disable** parameter will change the color of arrows on the Status web page to gray to show they are not being monitored or reported to upper level control devices.

Equalizer Mode – Set the equalizer to **Active** or **Bypass**.

Reclock Mode – Set the reclock mode to **Auto** or to the specific data rate:

- Auto (disables **Signal Format** selection)
- 143Mb/s
- 177Mb/s
- 270Mb/s
- 360Mb/s
- 540Mb/s
- 1485Mb/s
- ASI

Signal Format – Select the signal format as **SD/ASI** or **HD**. This setting will be grayed out as **N/A** when **Auto** Reclock Mode is selected.

Carrier Detect – Reports if the module detects a valid carrier as **Present** or **Not Present**.

Locked Rate – Reports the data rate the module is locked to or if it is not locked reports **Not Locked** or **N/A**.

Figure 13. Settings Web Page for 8947RDA-D Module

Settings

Model: 8947RDA-D Description: HD Dual Reclock. DA
Frame Location: lab , Slot: 4

	DA 1	**DA 2**
Routing Mode	DA Outputs J1,J3,J5,J7	DA Outputs J2,J4,J6,J8
Coax In 1 J9	⊙	○
Coax In 2 J10	○	⊙

Coax In 1 J9 Signal Name	Coax In 1 J9
Coax In 1 J10 Signal Name	Coax In2 J10

	DA 1	DA 2
Input Reporting	Enable	Enable
Equalizer Mode	Active	Active
Reclock Mode	Auto	Auto
Signal Format	N/A	N/A
Carrier Detect	Not Present	Not Present
Locked Rate	Not Locked	Not Locked

Slot Config Web Page

Use
this
link

Use the Slot Config web page shown in Figure 14 to perform the following functions on the module:

- Locate Module

- Slot Identification

- Slot Memory

- Frame Health Reporting

- LED Reports

- SNMP Trap Reporting

Each of these functions is described in detail below.

Figure 14. Slot Config Web Page

Slot Config

Model: 8947RDA-D Description: HD Dual Reclock. DA
Frame Location: lab , Slot: 4

Locate Module

Off

Slot Identification

Name: 8947RDA-D Default

Asset Tag:

Slot Memory

☐ Restore upon Install

Learn Module Config

Frame Health Reports

LED Reports

SNMP Trap Reports
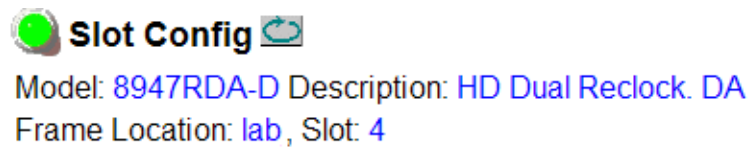
Locate Module

Selecting **Flash** from the **Locate Module** pulldown flashes the yellow COMM and CONF LEDs 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 8900NET module and travels with the 8900NET module if it is moved to another frame. Select **Default** to enter the factory default module name.

An asset identification 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 polled and refreshed periodically (about every 50 minutes) by the 8900NET module when the **Always Slot Refresh** checkbox on the 8900NET Configuration web page (with 4.3.0 software) and/or the **Restore upon Install** checkbox on any media module Slot Config web page is selected.

When the **Restore upon Install** checkbox on any media module Slot Config web page has been selected, the current configuration from that module is saved in slot memory on the 8900NET module. This allows the current module to be removed and when another module of the same part number, and software version is installed, the configuration saved to the 8900NET module will be downloaded to the installed module. The **Restore upon Install** checkbox must be selected before the current module with the saved configuration is removed.

Note   Make sure all modules of the same model type are running the same software version and have the same part number silk-screened on the printed circuit board. Downloading a configuration to a module with a different software version or part number can produce unexpected results.

If a different type of module is installed in this slot, a warning message will state that the original module type has been replaced with another module type. In this case, a **Clear** button will appear allowing you to clear the stored configuration from the previous module.

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 8900NET module. If the 8900NET module is removed or powered down, the stored configurations are not saved.

When no **Restore upon Install** checkboxes on any of the media module Slot Config web pages are selected and the **Always Slot Refresh** checkbox on the 8900NET Configuration web page is unchecked, the slot refresh polling function on the 8900NET module will be disabled. See the **Always Slot Refresh** checkbox description in the *8900NET (Net Card) Network Interface Module Instruction Manual* for more details.

Note   Uncheck the **Restore Upon Install** button before downloading new software.

Frame Health Reporting

This web page allows configuration of the alarms and warnings that are reported to the external Frame Health Alarm connector on the rear of the GeckoFlex frame. Refer to *8900NET Instruction Manual* for more details.

LED Reports Link

Select the LED Reports link to open the 8900NET LED Reporting web page. Normally, every module in the frame will report to the 8900NET module any Fault, Signal Loss, Reference Loss, or Config Error conditions. These conditions will be reflected by the status LEDs on the 8900NET module. Using this web page, any of these conditions can be disabled from being reported to the 8900NET module for each individual module and other components (power supplies, fans) in the frame

SNMP Trap Reports Link

Select the SNMP Trap Reports link to open the 8900NET SNMP Reporting web page. This link will only be present when SNMP Agent software has been installed on the 8900NET module. This web page allows configuration of which alarms and warnings that are reported to the SNMP management software.

Refer to the *8900NET Instruction Manual* for complete details on using the 8900NET web pages.

8947RDA-FR Configuration

The 8947RDA-FR can be configured using the front edge onboard controls or using the remote controls available with a web browser or a networked Newton Control Panel.

The module is fiber ready and can have one of three types of fiber optic SFP devices installed:

- Dual Receiver (RX1 and RX2 inputs): SFP-13103G-M1DRX

- Dual Transmitter (TX1 and TX2 outputs): SFP-13103G-M2DTX

- Transceiver (RX1 input, TX2 output): SFP-13103G-M1TRX

Local Configuration

For Local configuration, follow the summary of instructions given in *Local Configuration* on page 14 for using the front edge onboard switches for configuration.

Remote Configuration

The remote configuration is summarized in *Remote Configuration* on page 30.

Each of the available web pages for the 8947RDA-FR are shown on the following pages:

Use
this—— link

2 8947RDA-FR
  Status
  Settings
  Slot Config

- Status (page 39)

- Settings (page 44)

- Slot Config (page 49)

8947RDA-FR Status Web Page

Use this link

2 8947RDA-FR
Status
Settings
Slot Config

The Status web page shows the signal status of the input signal(s) and communication with the frame bus. Color coding of the display indicates the signal status. Refer to *Web Browser Interface* on page 27 for an explanation of the color coding.

- Under the **Status** title are given the model, the description and the frame location. The graphic shows the input and output signals and their status based on color. If the status of either input or output changes, it will be reflected in the color status of the arrow (linked to the **Input Reporting** parameter) and the status LED on the module web page.

- Information about the module, such as Part Number, Serial Number, Hardware Revision, Firmware Revision 1 (CPLD), Firmware Revision 2 (FPGA), Software Version, and Asset Tag number are given at the bottom of the Status Web Page.

- On the Status web page, any warnings or module errors will be displayed in the double bars area below the graphic.

Note   The color of the LED present on the top left of each web page is managed by the 8900NET accordingly to the alarms status.

The 8947RDA-FR Status pages with and without the optional fiber optic SFP devices are shown in the following figures:

- 8947RDA-FR without fiber optic SFP device (page 40)
- 8947RDA-FR with Dual Receiver fiber optic SFP device (page 41)
- 8947RDA-FR with Dual Transmitter fiber optic SFP device (page 42)
- 8947RDA-FR with Transceiver fiber optic SFP device (page 43)

Figure 15. 8947RDA-FR Status Web Page - No Fiber SFP Device

Figure 16. 8947RDA-FR Status Web Page - Dual Receiver Fiber SFP Device

Figure 17. 8947RDA-FR Status Web Page - Dual Transmitter Fiber SFP Device

Figure 18. 8947RDA-FR Status Web Page - Transceiver Fiber SFP Device

Status ↻

Model: 8947RDA-FR Description: HD ReclckDA FiberRdy
Frame Location: lab , Slot: 9
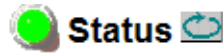
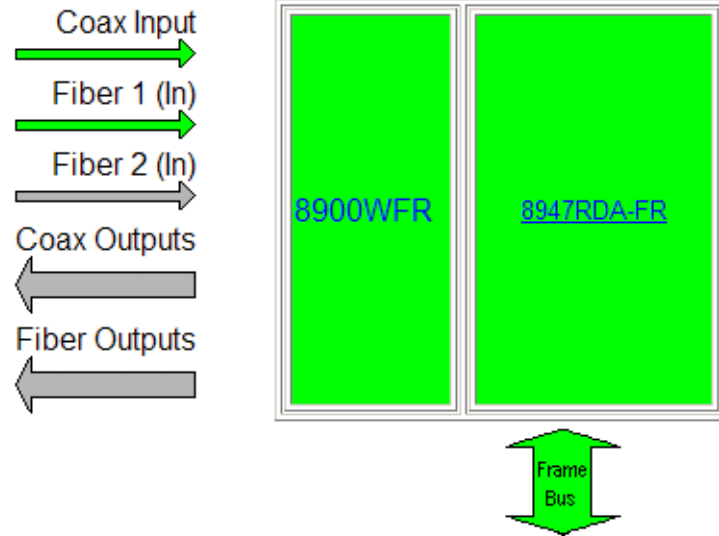**Gecko Flex Module Physical Structure**

Coax Input

Fiber 1 (In)

Fiber 2 (In)

8900WFR   8947RDA-FR

Coax Outputs

Fiber Outputs

Frame
Bus
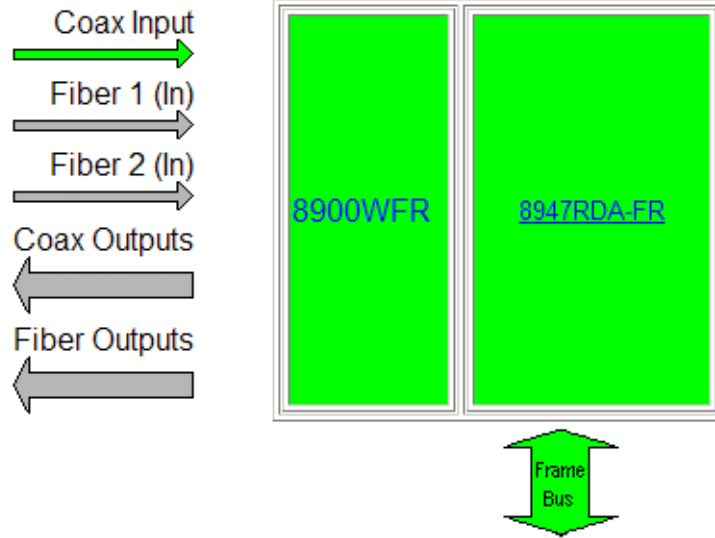
Fiber Module Type: TX-RX 1310nm TRL

Part Number:	671-6696-10
Serial Number:	RN05420111
Hardware Revision:	A
Software Version:	1.3.1
Asset Tag:	

8947RDA-FR Settings Web Page

The Settings web page for the 8947RDA-FR provides configuration of coax and optional fiber optic inputs and outputs and reporting of signal status.

The parameters for configuration of a 8947RDA-FR module are explained below:

Routing Mode

The **Routing Mode** configuration will be different depending on the presence and type of fiber optic SFP device options installed.

- **Coax and Fiber Optic Inputs** – The available inputs to the module depend on the presence and type of fiber optic SFP device. Choose one of the available inputs from the list below. Only one input can be selected at a time.

    - **Coax In 1** – J9 BNC coax input is always enabled and available (only choice when a fiber optic SFP device is not installed).

    - **Fiber Optic In RX1** or **RX2** – Two optical inputs are available when a Dual Receiver (SFP-13103G-M1DRX) fiber optic SFP device option is installed. These inputs are always active and available.

    - **Fiber Optic Input RX1** – One fiber optic in put is available and active at RX1 when a Transceiver fiber optic SFP device (SFP-13103G-M1TRX) is installed.

- **Fiber Optic Outputs TX1 and TX2** – Two fiber optic outputs are available when a Dual Transmitter (SFP-13103G-M2DTX) fiber optic SFP device option is installed. One fiber optic output is available at RX2 when a Transceiver fiber optic SFP device is installed.

    Fiber outputs must be enabled by selecting **Enable** or **Disable** in the Fiber Outputs control.

Note   Only an SFP-13103G-M2DTX model Dual Transmitter can be used on the 8947RDA-FR module.

Other Settings and Reporting

I**nput Reporting** – choose between **Enable** or **Disable**. The **Enable** parameter sends alarms to the 8900NET module on the input signals (presence of signal). The color of arrows on the module Status web page will be automatically changed.

The **Disable** parameter will change the color of arrows on the Status web page to gray to show they are not being monitored or reported to upper level control devices.

Equalizer Mode – Set the equalizer to **Active** or **Bypass**.

Reclock Mode – Set the reclock mode to **Auto** or to the specific data rate:

- Auto (disables **Signal Format** selection)

- 143Mb/s

- 177Mb/s

- 270Mb/s

- 360Mb/s

- 540Mb/s

- 1485Mb/s

- ASI

Signal Format – Select the signal format as **SD/ASI** or **HD**. This setting will be grayed out as **N/A** when **Auto** Reclock Mode is selected.

Carrier Detect – Reports if the module detects a valid carrier as **Present** or **Not Present**.

Locked Rate – Reports the data rate the module is locked to or if it is not locked reports **Not Locked** or **N/A**.

Each of the possible Settings web pages are shown in the following figures:

- 8947RDA-FR without fiber optic SFP device (page 46)

- 8947RDA-FR with Dual Receiver fiber optic SFP device (page 47)

- 8947RDA-FR with Dual Transmitter fiber optic SFP device (page 48)

- 8947RDA-FR with Transceiver fiber optic SFP device (page 49)

Figure 19. 8947RDA-FR Settings Page - No Fiber SFP device

Figure 20. 8947RDA-FR Settings Page - Dual Receiver SFP device

Settings

Model: 8947RDA-FR Description: HD ReclckDA FiberRdy
Frame Location: lab , Slot: 2

	DA
Routing Mode	DA Outputs J1,J3,J5,J7,J2,J4,J6,J8
Coax In 1 J9	○
Fiber 1 (In)	◉
Fiber 2 (In)	○

Fiber Outputs	N/A
Input Reporting	Enable ▼
Equalizer Mode	N/A
Reclock Mode	Bypass ▼
Signal Format	○ SD/ASI ◉ HD
Carrier Detect	Present
Locked Rate	N/A

Figure 21. 8947RDA-FR Settings Page - Dual Transmitter SFP device

Figure 22. 8947RDA-FR Settings Page - Transceiver SFP device

🟢 **Settings** ⟳

Model: 8947RDA-FR Description: HD ReclckDA FiberRdy
Frame Location: not assigned , Slot: 1

	DA
Routing Mode	DA Outputs J1,J3,J5,J7,J2,J4,J6,J8
Coax In 1 J9	○
Fiber 1 (In)	◉

Fiber Outputs	Enable ▾
Input Reporting	Enable ▾
Equalizer Mode	N/A
Reclock Mode	Auto ▾
Signal Format	N/A
Carrier Detect	Not Present
Locked Rate	Not Locked

Slot Config Web Page

2 8947RDA-FR
Status
Settings
Slot Config

Use this link

Use the Slot Config web page description for the 8947RDA-D as described in *Slot Config Web Page* on page 49.

Status Monitoring

There are a number of ways to monitor frame and module status. These methods are summarized here. For more detailed information, refer to the *8900NET (Net Card) Network Interface Module Instruction Manual* and the *8900 Gecko* or *8900 GeckoFlex Frame Instruction Manuals.*

All modular product documentation is available on-line in PDF format at this link*:*

http://www.grassvalley.com/docs/modular

The main status monitoring methods include the following:

- External frame alarm output on the rear of the 8900 frame with reporting from the Module Health Bus and other frame status alarm reports,

- LEDs on the Frame, 8900NET module, and individual frame media modules,

- Web browser status reporting for each frame component, and

- SNMP traps, captured by Grass Valley's NetCentral or another SNMP Manager Application.

Note   SNMP trap information is only available when an SNMP Agent has been installed and configured.

External Frame Alarm

An external Frame Alarm output is available on pins 8 and 9 of the RS-232 connector on the rear of the frame. The Frame Alarm outputs a voltage level indicating there is an alarm condition on the Module Health Bus or one of the other frame components reported to the Frame Monitor module in a Gecko 8900TF or GeckoFlex 8900FF frame or the 8900NET module in an 8900TFN and GeckoFlex 8900FFN frame.

- The Module Health bus is a separate line on the frame motherboard that provides a means for older or less capable modules (such as DAs with no microprocessor) that cannot communicate over the Frame (serial) bus to report warning and alarm conditions to the external Frame Alarm. All media modules in the frame report a voltage level to this line when a warning condition occurs on the module. The specific warning or module location is not reported, only an indication that an warning condition has occurred.

- Frame alarm reporting from other frame components can be enabled and disabled using DIP switches on the Frame Monitor and 8900NET module. For frames with an 8900NET module, the Frame Alarm Reporting web page allows configuration of the alarms and warnings that are reported to this external Frame Health Alarm.

LED Reporting

LEDs on the front of media modules, the Frame Monitor or 8900NET modules, and the front covers of the 8900TF/TFN and GeckoFlex FF/FFN frames indicate status of the frame and the installed power supplies, fans in the front covers, and module status. (The 8900TX-V/A and GeckoFlex 8900FX frames have no LED indicators on the front cover.)

- LED reporting from the modules in the frame to the 8900NET module is configurable using the 8900NET LED Reporting web page.

- The Status LEDs for this module are described in *Operation Indicator LEDs* on page 24. LEDs for the 8900NET module are described in the *8900NET (Net Card) Network Interface Instruction Manual*.

Web Browser Interface

The 8900NET module controls a web browser GUI that indicates frame and module status on the following web pages:

- Frame Status web page – reports overall frame and module status in colored graphical and text formats. Refer to Figure 10 on page 28 for an example.

- Module Status web page (Figure 12 on page 32) – shows specific input and reference signal configuration error status to the module along with module status and information (part number, serial number, hardware version, software/firmware/boot versions, and Asset number (as assigned on the Slot Config web page).

- A Status LED icon on each web page reflects the module status on the module Status web page where warnings and faults are displayed and is a link to the module Status web page.

SNMP Reporting

The GeckoFlex 8900 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 8900NET module, enabled status reports are sent to an SNMP Manager such as the Grass Valley's NetCentral application.

Status reporting for the frame is enabled or disabled with the configuration DIP switches on the 8900NET module. Most module status reporting items can be enabled or disabled on individual configuration web pages.

Software Updating

Software updating of the 8947RDA modules is done using the NetConfig Networking Application PC option available free of charge from Grass Valley.

The procedures for updating software are given in the 8947RDA Release Notes when software updates become available. Check the Grass Valley web site for update information. Refer to *Contacting Grass Valley on page 4* for more information.

All modular product documentation can be found in PDF format on the Grass Valley web site at this link:

www.grassvalley.com/docs/modular

Specifications

Specifications for the 8947RDA modules are given in Table 7. Refer to Table 8 on page 54 for Transmitter SFP device specifications and Table 9 on page 54 for Receiver SFP device specifications.

Table 7.   8947RDA Specifications

Parameter	Value
Coax Input	
Number and type of inputs	Up to 2 BNCs for 8947RDA-D, 1 BNC for 8947RDA-FR
Input impedance	75 Ohm
Input signal type	Serial digital component conforming to the following formats: • SMPTE 292M • SMPTE 259M (143 Mb/s, 177 Mb/s, 270 Mb/s), 360 Mb/s) • SMPTE 344M (540 Mb/s) • DVB-ASI
Input Signal Type (auto-equalizing only)	4 Mb/s to 1.5 Gb/s with PN20 pseudonoise sequence, maximum ratio of 19/1
Signal level	SDI 800 mV p-p ±10% max
Return loss	>10 dB (0.004 to 1.50 GHz)
Equalization	Auto equalizing: HD signals up to 125m of Belden 1694A SD signals up to 330m of Belden 1694A
Tolerated input jitter	Compliant with SMPTE 259M, SMPTE 292M, SMPTE 344M, and DVB-ASI standards
Coax Outputs	
Number and type of outputs	8 BNCs
Output impedance	75 Ohm
Signal type	Serial digital component conforming to the following formats: • SMPTE 292M • SMPTE 259M (143 Mb/s, 177 Mb/s, 270 Mb/s), 360 Mb/s) • SMPTE 344M (540 Mb/s) • DVB-ASI
Signal level	SDI 800 mV p-p ±10%
Return loss	>15 dB (0.004 to to 1.5 GHz)
Signal Polarity	Non-inverted
Tolerated Output jitter	For input with < 0.1 UI jitter, the output jitter complies with the SMPTE 292M, SMPTE 259M , SMPTE 344M, and ASI standards
Power	
Maximum Input power	4.1 W
Mechanical	
Frame type	GeckoFlex
Number of slots	Single slot
Rear module type	
8947RDA-D	8900WE-R
8947RDA-FR	8900WFR-R

Table 7. 8947RDA Specifications

Parameter	Value
Rear module retainer maximum screw torque	4-5 inch-lb./0.45-0.6Nm
Frame temperature range	Refer to GeckoFlex Frames 8900FX/FF/FFN Signal Processing Systems Instruction Manual at www.grassvalley.com/docs/modular
Operating humidity range	
Non–operating temperature	
UL and EU compliance	When installed in a GeckoFlex frame

Table 8. Receiver/Transceiver Fiber Optic SFP Device Specifications

Model Number	SFP-13103G-M1DRX	SFP-13103G-M1TRX
Low wavelength	1260nm	1260nm
High wavelength	1620nm	1620nm
Receiver channels	2	1
Connector type	LC	
Fiber support	Single mode	
Data rate	50Mb/s to 3Gb/s	
Maximum distance @ 3Gb/s	10km	
Minimum distance	30km	

Table 9. Transmitter/Transceiver Fiber Optic SFP Device Specifications

Model Number	SFP-13103G-M2DTX	SFP-13103G-M1TRX
Wavelength 1	1310 nm	1310 nm
Wavelength 2	1310 nm	N/A
Transmit channels	2	1
Connector type	LC	
Fiber support	Single-mode	
Data rate	143 Mb/s to 2.97 Gb/s	
Power output	-5 to 0 dBm (-2dBm typical)	
Maximum distance	10 km[1]	
Maximum distance	20 km	

[1] The 1310 nm Dual Transmitter (SFP-13103G-M1DTX) and Transceiver (SFP-13103G-M1TRX) require no attenuation between fiber transmitter and receiver connections at any length.

Service

The 8947RDA 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* on page 55).

Troubleshooting

Electronic Circuit Breaker

The electronic circuit breaker works during a fault condition or an overcurrent which stops the module.

Remove the module and replace it in the frame. If the problem persists, please refer to the Grass Valley Customer Service.

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 on page 4* at the front of this document for information on contacting Grass Valley Customer Service.

Alarm Summary Tables

Table 10 below describes the different type of alarms that can occur on the 8947RDA-D module.

*Table 10. List of Alarms for 8947RDA-D Module*

Alarm Type	Web Page Description	LED	Comments	Query status towards Net Card & SNMP
Warning	Signal not Present on BNC Input 1	PRES COAX IN (green)	Status web page: The electrical input arrow is yellow Settings web page: The carrier detect option is not present	Yes
Warning	Signal not Present on BNC Input 2	PRES COAX IN (green)	Status web page: The electrical input arrow is yellow Settings web page: The carrier detect option is not present	Yes
Warning	Reclocker not locked on DA 1	LOCK 1 (green)	Status web page: Reclocker not locked Settings web page: The Locked rate is displayed	
Warning	Reclocker not locked on DA 1	LOCK 2 (green)	Status web page: Reclocker not locked Settings web page: The Locked rate is displayed	
Warning	Wrong Rear Module	N/A	Status web page: The rear module is not compatible with the front module	

Table 11 below describes the different type of alarms that can occur on the 8947RDA-FR module and Fiber Optic SFP devices.

Table 11. List of Alarms for 8947RDA-FR Module and Fiber Optic SFP Device

| Alarm Type	Web Page Description	LED	Comments	Query status towards Net Card & SNMP
Warning	Optic device missing	PRES OPT MODE (green)	No optical module detected (missing or not plugged)	
Warning	Signal not Present on BNC Input	PRES COAX IN (green)	Status web page: The electrical input arrow is yellow Settings web page: The carrier detect option is not present	Yes
Warning	Reclocker not locked	LOCK 1 (green)	Status web page: Reclocker not locked Settings web page: The Locked rate is displayed	
Warning	Signal Not Present on Optic Input 1	PRES OPT IN 1 (yellow)	Status web page: The optic input arrow 1 is yellow	Yes
Warning	Signal Not Present on Optic Input 2	PRES OPT IN 2 (yellow)	Status web page: The optic input arrow 2 is yellow	No
Warning	Wrong Rear Module	N/A	Status web page: The rear module is not compatible with the front module	
Fiber Optic SFP device Fault Reporting Summary				
Fault	Optical 1 or 2 internal temperature exceed high alarm level			
Fault	Optical 1 or 2 internal temperature is below low alarm level			
Fault	Optical 1 or 2 internal supply voltage is below low alarm level			
Fault	Optical 1 or 2 internal TX Bias current exceeds high alarm level			
Fault	Optical 1 or 2 internal TX Bias level is below low alarm level			
Fault	Optical 1 or 2 internal TX output power level exceeds high alarm level			
Fault	Optical 1 or 2 internal TX output power level is below low alarm level			
Fault	Optical 1 or 2 internal RX output power exceeds high alarm level			
Fault	Optical 1 or 2 internal RX output power is below low alarm level			

Functional Description

A block diagram of the 8947RDA-D is shown in Figure 23.

Figure 23. 8947RDA-D Block Diagram
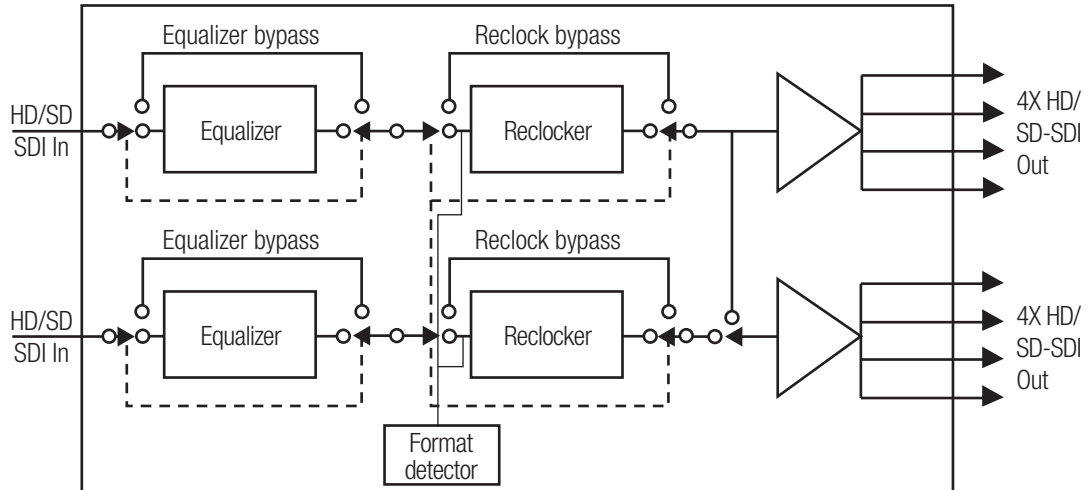
A block diagram of the 8947RDA-FR is shown in Figure 24.

Figure 24. 8947RDA-FR Block Diagram
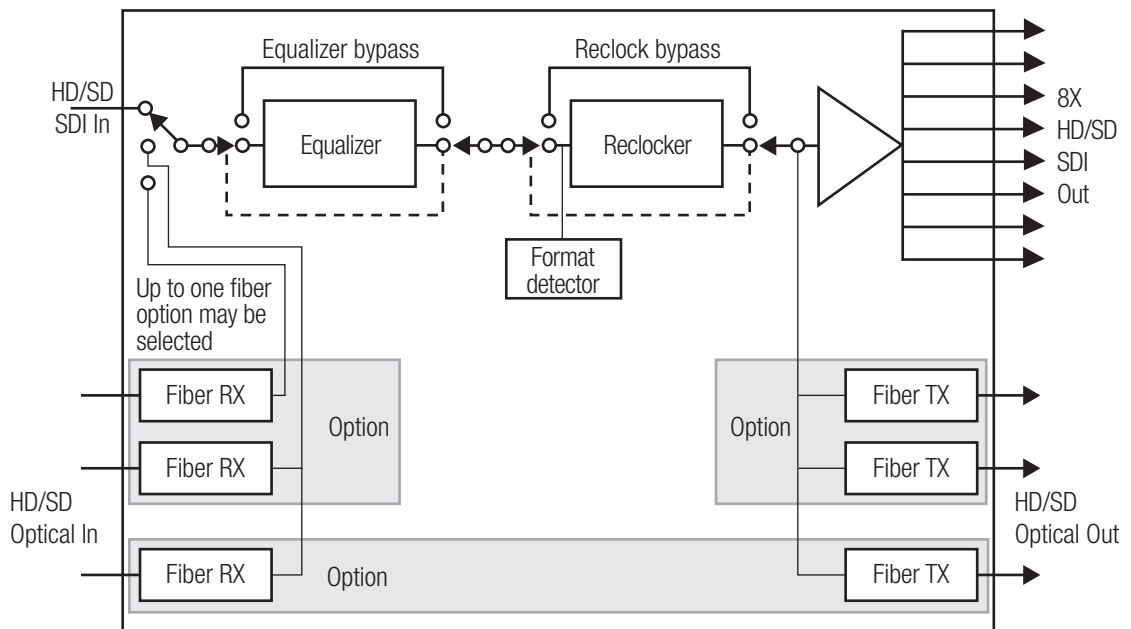
Configuration Parameter Summary

Table 12 provides a complete summary of the 8947RDA-D and 8947RDA-FR functions and a comparison of the functionality available with the web page and Newton control panel control type along with the ranges and default values for each parameter.

Table 12. Summary of 8985PRC Configuration Functions

Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Local Onboard Controls	Newton Control Panel
Config Mode: set module for Local (locks out Remote) or Local/Remote control.	LCL&REM	Local or LCL&REM	N/A	S2: Pin 1 Local = 0 LCL&REM =1	N/A
8947RDA-D Module: Routing Mode	Coax In 1 J9 and Coax In 2 J10	Coax In 1 J9 (J1, J3, J5, J7), Coax In 2 J10 (J2, J4, J6, J8), Coax In 1 J9 (feeds all outputs), Coax In 2 J10 (feeds all outputs)	Settings/ Routing Mode Coax In 1 J9 and Coax in 2 J10	See Table 1 on page 15	Rout Mode
8947RDA-D Module: Coax In 1 J9 Signal Name	Coax In 1 J9	Enter desired name	Settings/ Coax In 1 J9 Signal Name	N/A	N/A
8947RDA-D Module: Coax In 2 J10 Signal Name	Coax In 2 J10	Enter desired name	Settings/ Coax In 2 J10 Signal Name	N/A	N/A
8947RDA-FR: Routing Mode No fiber optic SFP device installed	Coax In 1 J9	Coax In 1 J9 (feeds all outputs),	Settings/ Coax in 1 J9	See Table 2 on page 16	N/A
8947RDA-FR: Routing Mode Dual Receiver (Fiber 1 and Fiber 2) fiber optic SFP device installed	Coax In 1 J9	Coax In 1 J9, Fiber 1 (In), or or Fiber 2 (In)	Settings/ Routing Mode Select input source		Rout Mode
8947RDA-FR: Routing Mode Dual Transmitter fiber optic SFP device installed	Coax In 1 J9	Coax In 1 J9 (feeds all outputs),	Settings/ Coax in 1 J9		N/A
8947RDA-FR: Routing Mode Transceiver (Fiber 1) fiber optic SFP device installed	Coax In 1 J9	Coax In 1 J9, or Fiber 1 (In)	Settings/ Routing Mode Select input source		Rout Mode
Fiber outputs enable: Dual Transmitter (TX1 and TX2) or Tranceiver (TX2) fiber optic SFP device installed	Enable	Enable or Disable	Settings/ Routing Mode Enable fiber outputs	S2: Pin 4 Outputs Off = 0 Outputs On = 1	Optic Out
Input Reporting	Enable	Enable or Disable	Settings/ Input Reporting Enable or Disable	N/A	In Report
Equalizer Mode: Not applicable for fiber optic inputs	Active	Active or Bypass	Settings/ Equalizer Mode Set for Active or Bypass	S1: Pin 3 Bypass = 0 Active = 1	Equal

Table 12. Summary of 8985PRC Configuration Functions

Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Local Onboard Controls	Newton Control Panel
Reclock Mode:	Auto	Bypass, Auto, 143 Mb/s, 177 Mb/s, 270 Mb/s, 360 Mb/s, 540 Mb/s, 1485 Mb/s, or ASI.	Settings/ Reclock Mode Set reclock mode from pulldown	See Table 3 on page 18	Reclock
Signal Output Format: Active only when Reclock Mode is set to Bypass	SD/ASI	SD/ASI or HD	Settings/ Signal Format Set SD/ASI or HD radio button	S1: Pin 8 SD = 0 HD = 1	SignFormat

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