grass valley

# SFP Optical Converters

## 1310NM-DRL, 1310NM-DTL, 1310NM-TRL OPTIONS

Installation Manual

071848900
DECEMBER 2006

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### Grass Valley Web Site

The www.thomsongrassvalley.com web site offers the following:

**Online User Documentation** — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

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

**Software Downloads** — Download software updates, drivers, and patches.

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## END-OF-LIFE PRODUCT RECYCLING NOTICE

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.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.

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 or 530-478-4148, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.thomsongrassvalley.com/environment

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# Contents

# *Preface*

This manual describes the features of a fiber optic submodule option in the Kameleon Media Processing System and the 8900 Series used in the GeckoFlex frame. Refer to the laser compliance information in the *GeckoFlex Frames Instuction Manual* for safety information

As part of this module family, it is also subject to Safety and Regulatory Compliance described in the 2000 Series and 8900 GeckoFlex frame and power supply documentation (see the *2000 Series Frames Instruction Manual* and the *GeckoFlex Instruction Manual*).

# *SFP Optical Converter Submodule Options*

## Introduction

This manual accompanies the optical/electrical converter submodule options for fiber ready modules in the Kameleon 2000 Series and the GeckoFlex 8900 Series. The low power, single mode SFP (Small-form Factor Pluggable)/LC 1310nm optical converters include the following models:

- 1310NM-DRL – Dual receiver (2 inputs),
- 1310NM-DTL – Dual transmitter (2 outputs), or
- 1310NM-TRL – Transceiver (1 input/1 output).

The fiber ready modules currently available in the Grass Valley Kameleon 2000 and GeckoFlex 8900 Series are listed below:

### Kameleon 2000 Fiber Ready Modules

- 2031RDA-SM SD Reclocking DA with Single-Mode Fiber I/F
- 2031RDA-MM SD Reclocking DA with Multimode Fiber I/F
- 2040RDA-FR Fiber Ready Wideband DA
- 2040RDA-16FR Fiber Ready Wideband DA (16 outputs)

### GeckoFlex 8900 Series Fiber Ready Modules

- 8947RDA-FR SD/HD Distribution Amplifier
- 8949MDA-CFR SD/HD Monitoring Distribution Amplifier
- 8949MDA-SFR SD/HD Monitoring Distribution Amplifier
- 8985FSP HD/SD Frame Sync, Proc Amp
- 8985FS SD/HD Frame Sync
- 8985PRC SD/HD Proc Amp
- 8995UPC SD to HD Upconverter
- 8995DNC HD to SD Downconverter

# Kameleon 2000 Fiber Ready Modules

This section describes the installation and cabling of the SFP fiber optic submodules for the fiber ready modules in the Kameleon 2000 Series.

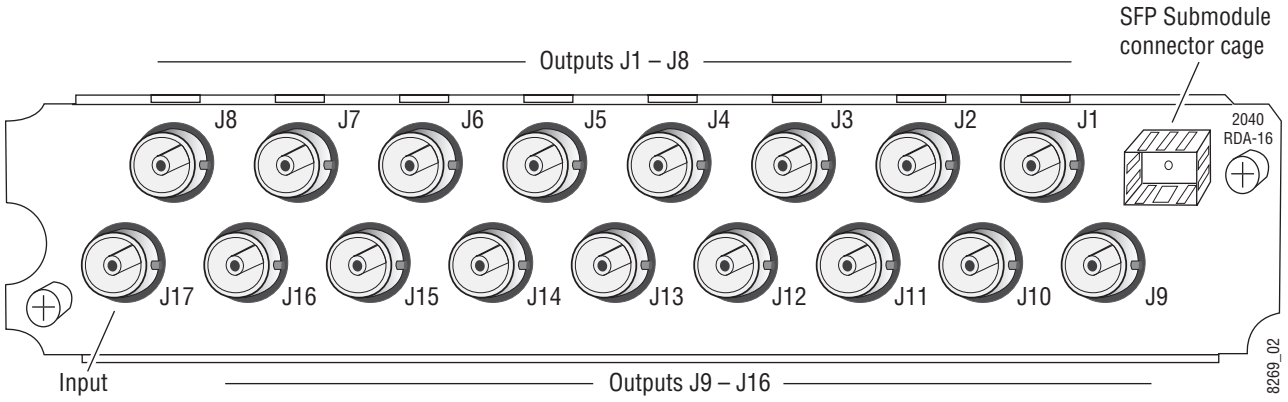
## Installation

**CAUTION** The Fiber Optic submodule is static sensitive. Use static handling precautions when installing or removing the submodule.

The SFP submodule installs in the connector cage on the rear module corresponding to the front module in the 2000 frame. Figure 1 illustrates a rear module using the 2040RDA-16FR as an example.

The submodule is hot-pluggable and may be installed or removed with power applied to the main module. The submodule type is identified by name on the label or can be identified by the direction of the two arrows on the label (Rx-Rx, Tx-Tx, or Tx-Rx).

*Figure 1. Rear Module Installation for 2040RDA-16FR*

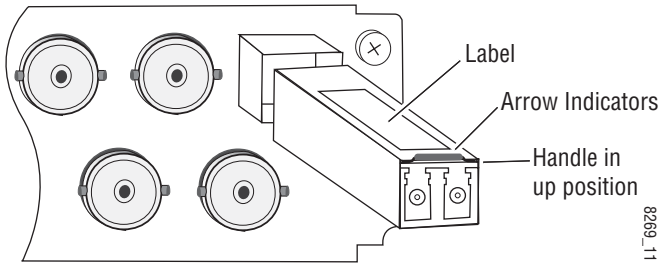



To install the optional SFP submodule, refer to Figure 2 on page 11.

1. Locate the cage connector on the top right of the rear module corresponding to the front module.
2. With the submodule handle in the up position, slide the metal casing, label side up, into the cage connector on the rear module.

**Note** When installed properly, the front end of the submodule will line up with the BNCs. Do not try to force it in further.

*Figure 2. Installing SFP Submodule*




# Cabling

All cabling to the 2040RDA module sets is done on the corresponding rear module at the back of the 2000 frame. Cabling to each of the submodule types is described below.

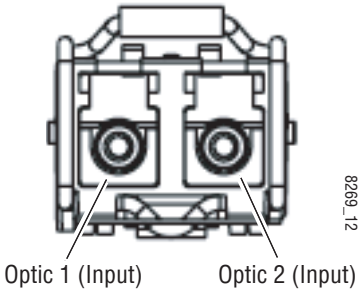
## Dual Optical Receiver

With a dual optical receiver (1310NM-DRL) submodule installed, one of the optical inputs can be configured as the module input (instead of the coax BNC).

With the submodule handle in the up position, connect an optical input to the left (Optic 1) or right (Optic 2) side of the optical connector as shown in Figure 3.

Use local or remote controls to configure one of the optical inputs as the module input as described in the instruction manual for the specific module.

*Figure 3. Dual Receiver Optical Inputs*



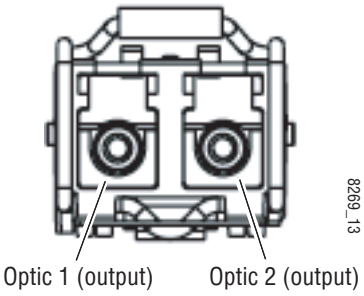
## Dual Optical Transmitter

With a dual optical transmitter (1310NM-DTL) submodule installed, the output signal can be accessed from both optical outputs, Optic 1 (left) and Optic 2 (right), in addition to the coax BNC outputs.

With the submodule handle in the up position, connect optical cables to one or both outputs as shown in Figure 4.

These outputs must then be enabled with either local or remote configuration controls.

*Figure 4. Dual Transmitter Optical Outputs*



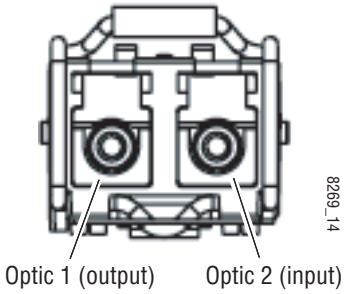

## Optical Transceiver

With the optical transceiver (1310NM-TRL) submodule installed, the Optic 2 input (right) can be configured as the module input (instead of the coax BNC input) and the Optic 1 output (left) can be enabled as a module output (in addition to the coax BNC outputs).

For an optical input to the module, place the submodule handle in the up position and connect the fiber cable to the Optic 2 input (right) as shown in Figure 5. Use local or remote controls to configure this as the module input.

The output signal can also be accessed from the Optic 1 (left) connector shown in Figure 5. Place the submodule handle in the up position and connect an optical cable to this output. This output must be enabled with local or remote configuration controls.

*Figure 5. Dual Transceiver Optical Input and Output*



# GeckoFlex Fiber Ready Modules

This section of the manual describes the installation and cabling of the SFP fiber optic submodule for the fiber ready modules in the GeckoFlex 8900 frame. The front and rear modules must be installed first according to the instructions in the specific GeckoFlex 8900 manual.

## Installation

**CAUTION** The Fiber Optic submodule is static sensitive. Use static handling precautions when installing or removing the submodule.

After the front and rear modules have been installed, install the SFP Fiber Optic submodule option into the rear module metal cage labeled FIBER (Figure 6 on page 14). The SFP submodule is hot-pluggable and may be installed or removed with power applied to the module.

**Note** The submodule type is identified by name on the label or can be identified by the direction of the two arrow indicators on the label.

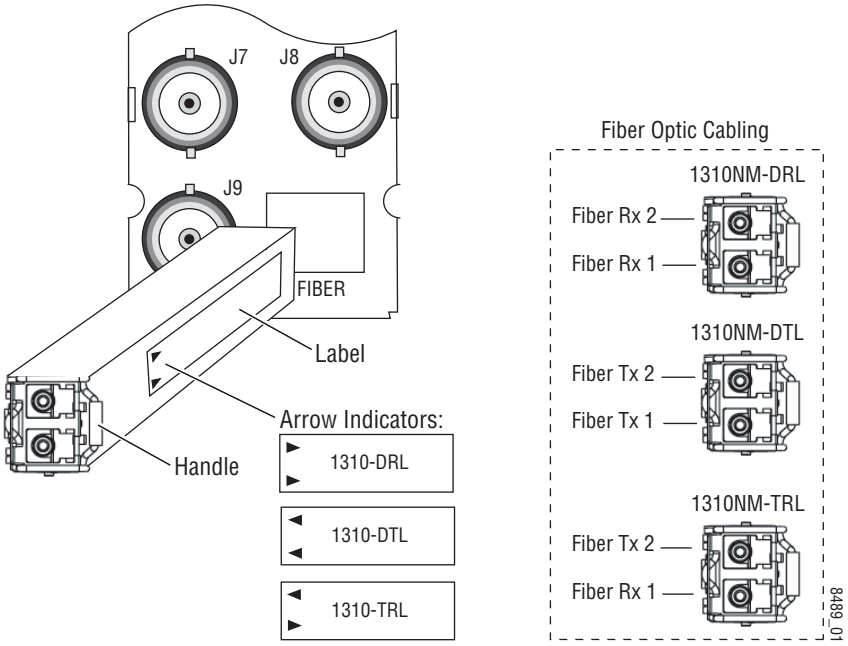
1. Slide the fiber optic device into the metal fiber cage with the label and handle to the right.
2. Push the device in as far as it will go without forcing it. It will not go completely into the cage.
3. Cable the fiber optic connectors according to the instructions given in *Cabling* on page 11.

## Cabling

Cabling to the fiber optic submodule is the same for all GeckoFlex modules as shown in Figure 6.

**Note** 8985FSP modules shipped before June/2006 have the fiber inputs and outputs reversed. Refer to the 8985FSP Instruction Manual for verion 1.0.0 software for cabling information.

*Figure 6. Installing Fiber Optics Submodule*



# Configuration

Once the submodules have been installed and cabled, refer to the specific 2000 and 8900 module instruction manuals for configuration and operation information. In most cases, the fiber inputs and outputs must be enabled using onboard local controls or through the web page GUI.

Manuals are available on-line at no cost at this link:

http://www.thomsongrassvalley.com/docs/

From this location, select **Broadcast Products**, then **Modular Products**.

# Specifications

*Table 1. Optical Submodule Specifications*

| Parameter | Value |
|---|---|
| **Fiber Inputs** | |
| Connector | Up to two LC |
| Fiber mode | Single mode, 1310 nm nominal |
| Minimum input power | -20 dBm |
| Input signal formats | Serial digital component video conforming to the following formats:<br>• SMPTE 292M (1.485 Gb/s and 1.485 Gb/s/1.oo1)<br>• SMPTE 259M (143 Mb/s, 177 Mb/s, 270 Mb/s, 360 Mb/s)<br>• SMPTE 310M (MPEG to 40 Mb/s)<br>• SMPTE 347M (540 Mb/s)<br>• 4 Mbps to 1.5 Gb/s<br>• DVB-ASI |
| **Fiber Outputs** | |
| Connector | Up to two LC |
| Fiber mode | Single mode, 1310 nm nominal |
| Output power | -12 to -7.5 dBm (average @ 1310 nm) |
| Signal type | Serial digital component video conforming to the following formats:<br>• SMPTE 292M (1.485 Gb/s and 1.485 Gb/s/1.oo1)<br>• SMPTE 259M (143 Mb/s, 177 Mb/s, 270 Mb/s, 360 Mb/s)<br>• SMPTE 310M (MPEG to 40 Mb/s)<br>• SMPTE 347M (540 Mb/s)<br>• 4 Mbps to 1.5 Gb/s<br>• DVB-ASI |

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