

9400 Series

SDI/Fiber Multi-Channel Transports with I/O Crosspoints

Product Manual



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openGear[®] is a registered trademark of Ross Video Limited. **DashBoard**[™] is a trademark of Ross Video Limited.

Congratulations on choosing the Cobalt[®] 9400-Series SDI/Fiber Multi-Channel Transports with I/O Crosspoints. The 9400-Series is part of a full line of modular processing and conversion gear for broadcast TV environments. The Cobalt Digital Inc. line includes video decoders and encoders, audio embedders and de-embedders, distribution amplifiers, format converters, remote control systems and much more. Should you have questions pertaining to the installation or operation of your 9400-series card, please contact us at the contact information on the front cover.

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Introduction

Overview

This manual provides installation and operating instructions for the 9400-series SDI/Fiber Multi-Channel Transports with I/O Crosspoint cards (also referred to herein as the 9400-series).

The 9400-series consist of the following BNC-to-Fiber (Tx) and Fiber-to-BNC (Rx) transport cards:

BNC-to-Fiber (Tx)		Fiber-to-BNC (Rx)	
9401	4 BNC In x 1 Fiber Out; 4x1 Crosspoint	9411	1 Fiber In x 4 BNC Out; 1x4 Crosspoint
9402	4 BNC In x 2 Fiber Out; 4x2 Crosspoint	9412	2 Fiber In x 4 BNC Out; 2x4 Crosspoint
9403	4 BNC In x 3 Fiber Out; 4x3 Crosspoint	9413	3 Fiber In x 4 BNC Out; 3x4 Crosspoint
9404	4 BNC In x 4 Fiber Out; 4x4 Crosspoint	9414	4 Fiber In x 4 BNC Out; 4x4 Crosspoint

Note: This manual covers the 9400-series, which consists of the cards listed above. These cards vary only in Tx or Rx designation and channel capacity; the differences are described in detail later in this section.

Where applicable, descriptions related exclusively to a particular card are denoted, for example as **(9401 only)**. In all other aspects, all cards in this series function identically as described in this manual.

This manual consists of the following chapters:

- **Chapter 1, “Introduction”** – Provides information about this manual and what is covered. Also provides general information regarding the 9400-series.
- **Chapter 2, “Installation and Setup”** – Provides instructions for installing the 9400-series in a frame, and optionally installing a 9400-series Rear I/O Module.
- **Chapter 3, “Operating Instructions”** – Provides overviews of operating controls and instructions for using the 9400-series.

This chapter contains the following information:

- **Manual Conventions (p. 1-3)**
- **Safety Summary (p. 1-5)**
- **9400-series Functional Description (p. 1-6)**
- **Technical Specifications (p. 1-10)**
- **Warranty and Service Information (p. 1-12)**
- **Contact Cobalt Digital Inc. (p. 1-13)**

9400-Series Card Firmware Versions and this Manual

When applicable, Cobalt Digital Inc. provides for continual product enhancements through software updates. As such, functions described in this manual may pertain specifically to cards loaded with a particular software build.

The Software Version of your card can be checked by viewing the **Card Info** menu in DashBoard™. You can then check our website for the latest software version currently released for the card as described below.

Check our website and proceed as follows if your card’s software does not match the latest version:

<p>Card Software earlier than latest version</p>	<p>Card is not loaded with the latest software. Not all functions and/or specified performance described in this manual may be available.</p> <p>You can update your card with the new Update software by going to the Support>Firmware link at www.cobaltdigital.com. Download “Firmware Update Guide”, which provides simple instructions for downloading the latest firmware for your card onto your computer, and then uploading it to your card through DashBoard™.</p> <p>Software updates are field-installed without any need to remove the card from its frame.</p>
<p>Card Software newer than version in manual</p>	<p>A new manual is expediently released whenever a card’s software is updated and specifications and/or functionality have changed as compared to an earlier version (a new manual is not necessarily released if specifications and/or functionality have not changed). A manual earlier than a card’s software version may not completely or accurately describe all functions available for your card.</p> <p>If your card shows features not described in this manual, you can check for the latest manual (if applicable) and download it by going to the Support>Documents>Product Information and Manuals link at www.cobaltdigital.com.</p>

Cobalt Reference Guides

From the Cobalt® web home page, go to **Support>Documents>Reference Guides** for easy to use guides covering network remote control, card firmware updates, application notes and other topics.

Manual Conventions

In this manual, the terms below are applicable as follows:

- **9400-series** refers to the 9400-series SDI/Fiber Multi-Channel Transports with I/O Crosspoint cards.
- **Frame** refers to the 8321 (or similar) frame that houses the Cobalt® COMPASS™ cards.
- **Device** and/or **Card** refers to a COMPASS™ card.
- **System** and/or **Video System** refers to the mix of interconnected production and terminal equipment in which the 9400-series and other COMPASS™ cards operate.

Warnings, Cautions, and Notes

Certain items in this manual are highlighted by special messages. The definitions are provided below.

Warnings

Warning messages indicate a possible hazard which, if not avoided, could result in personal injury or death.



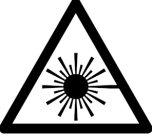

Cautions

Caution messages indicate a problem or incorrect practice which, if not avoided, could result in improper operation or damage to the product.

Notes

Notes provide supplemental information to the accompanying text. Notes typically precede the text to which they apply.

Labeling Symbol Definitions

	Attention, consult accompanying documents.
	<p>Electronic device or assembly is susceptible to damage from an ESD event. Handle only using appropriate ESD prevention practices.</p> <p>If ESD wrist strap is not available, handle card only by edges and avoid contact with any connectors or components.</p>
	<p>CLASS 1 LASER PRODUCT IEC 60825-1:2007</p> <p>Caution - INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM.</p>
	<p>Symbol (WEEE 2002/96/EC)</p> <p>For product disposal, ensure the following:</p> <ul style="list-style-type: none"> • Do not dispose of this product as unsorted municipal waste. • Collect this product separately. • Use collection and return systems available to you.

Safety Summary

Warnings

! WARNING !

To reduce risk of electric shock do not remove line voltage service barrier cover on frame equipment containing an AC power supply. **NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

! WARNING !

- Do not stare at, or into, broken, or damaged, fibers.
- Do not stare at, or into, optical connectors.
- Only properly trained and authorized personnel should be permitted to perform laser/ fiber optic operations.
- Ensure that appropriate labels are displayed in plain view and in close proximity to the optical port on the protective housing/access panel of the terminal equipment.

Cautions

CAUTION

This device is intended for environmentally controlled use only in appropriate video terminal equipment operating environments.

CAUTION

This product is intended to be a component product of an openGear® frame. Refer to the openGear® frame Owner's Manual for important safety instructions regarding the proper installation and safe operation of the frame as well as its component products.

CAUTION

Heat and power distribution requirements within a frame may dictate specific slot placement of cards. Cards with many heat-producing components should be arranged to avoid areas of excess heat build-up, particularly in frames using only convection cooling.

CAUTION

If required, make certain Rear I/O Module(s) is installed before installing the card into the frame slot. Damage to card and/or Rear I/O Module can occur if module installation is attempted with card already installed in slot.

CAUTION

If card resists fully engaging in rear I/O module mating connector, check for alignment and proper insertion in slot tracks. Damage to card and/or rear I/O module may occur if improper card insertion is attempted.

9400-series Functional Description

Figure 1-1 shows a functional block diagram of the 9400-series transmit cards 9401 thru 9404 which are 4x1 thru 4x4 75Ω BNC-to-fiber transports with I/O crosspoints. Figure 1-2 shows a functional block diagram of the 9400-series transmit cards 9411 thru 9414 which are 1x4 thru 4x4 fiber-to-75Ω BNC transports with I/O crosspoints.

Transmitter (Tx) and receiver (Rx) card groups are individually described below. Except for channel capacity, all respective Tx cards and Rx cards function identically.

Non-SMPTE Signal Handling

All 9400 cards (whether Tx or Rx) are equipped with EQ/reclocking and automute tailored for SMPTE signals. Typically, automute is invoked for signals outside of a range from 19 Mbps to 3 Gbps. These functions help reject noise in the transport and help recover received signals that may be degraded due to long cable runs. EQ/reclocking is applied before the automute function, allowing the automute to blank signal transfer when a signal is not reliably locked by reclocking. When handling non-SMPTE signals (specifically signals slower than 19 Mbps), the card's reclocking and automute functions can be set to bypass so that non-SMPTE signals are not rejected by these functions.

Tx Card Description

Four 75Ω BNC ports are routed to individual EQ/reclocking which provide on-off selectable EQ/reclock/automute. Via card hardware switches or remote control, EQ/reclocking and automute can be disabled (on an individual channel-by-channel basis) to allow signals lower than 19 Mbps from being rejected as noise. The reclocker and automute can manually be set to bypass operation to reliably pass non-SMPTE signals (see Non-SMPTE Signal Handling above).

The crosspoint allows the four BNC inputs to be routed to up to four fiber outputs (via individual fiber optic modules) per card as specified in Overview (p. 1-1). The crosspoint can also allow multiple outputs to serve as a DA with the same input BNC source being applied to multiple fiber outputs. Electrical-to-fiber conversion is via discrete Tx fiber optic modules which can be fitted with various connector types as ordered.

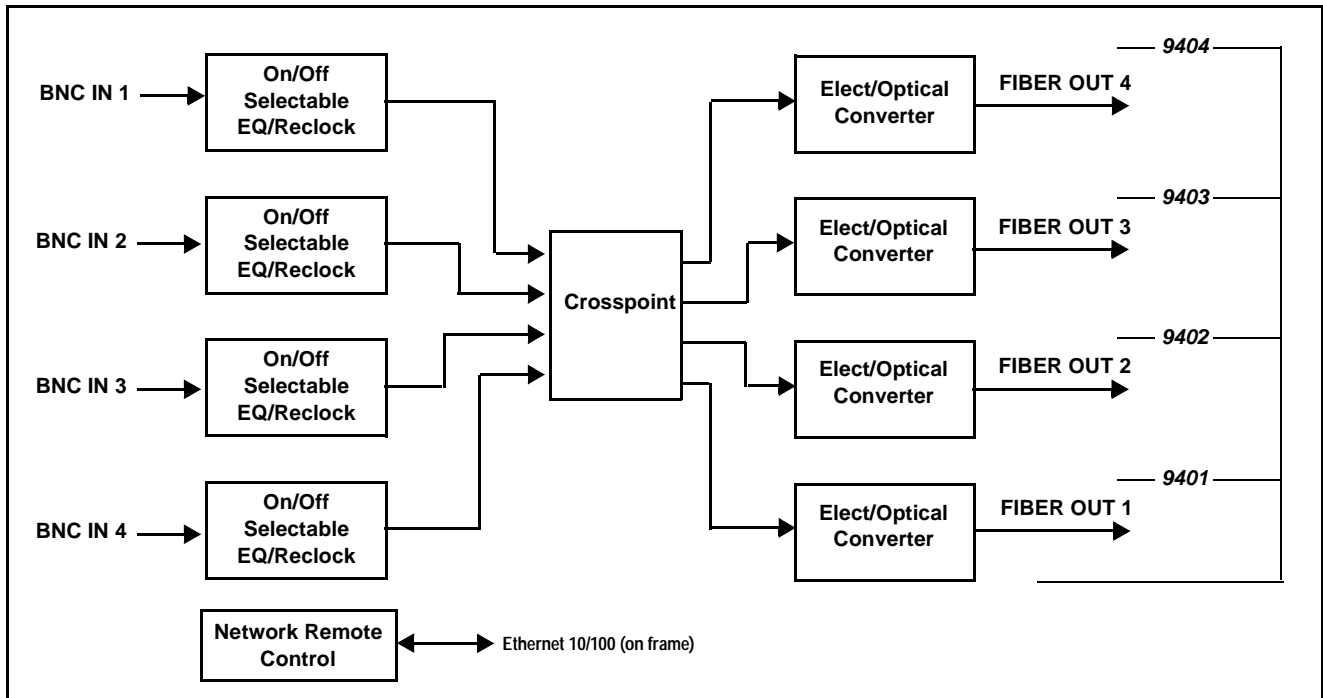


Figure 1-1 9401 thru 9404 Tx Card Functional Block Diagram

Rx Card Description

Up to four fiber inputs are received using discrete Rx fiber optic module subassemblies which can be fitted with various connector types as ordered. The received inputs are routed to the crosspoint.

The crosspoint allows the up to four fiber inputs to be routed to four 75Ω BNC output ports fiber outputs per card module as specified in Overview (p. 1-1). The crosspoint can allow multiple outputs to serve as a DA with the same input fiber source being applied to multiple BNC outputs.

Via card hardware switches or remote control, reclocking and automute can be disabled (on an individual channel-by-channel basis) to allow signals lower than 19 Mbps from being rejected as noise. The reclocker can manually be set to bypass operation to reliably pass non-SMPTE signals (see Non-SMPTE Signal Handling above).

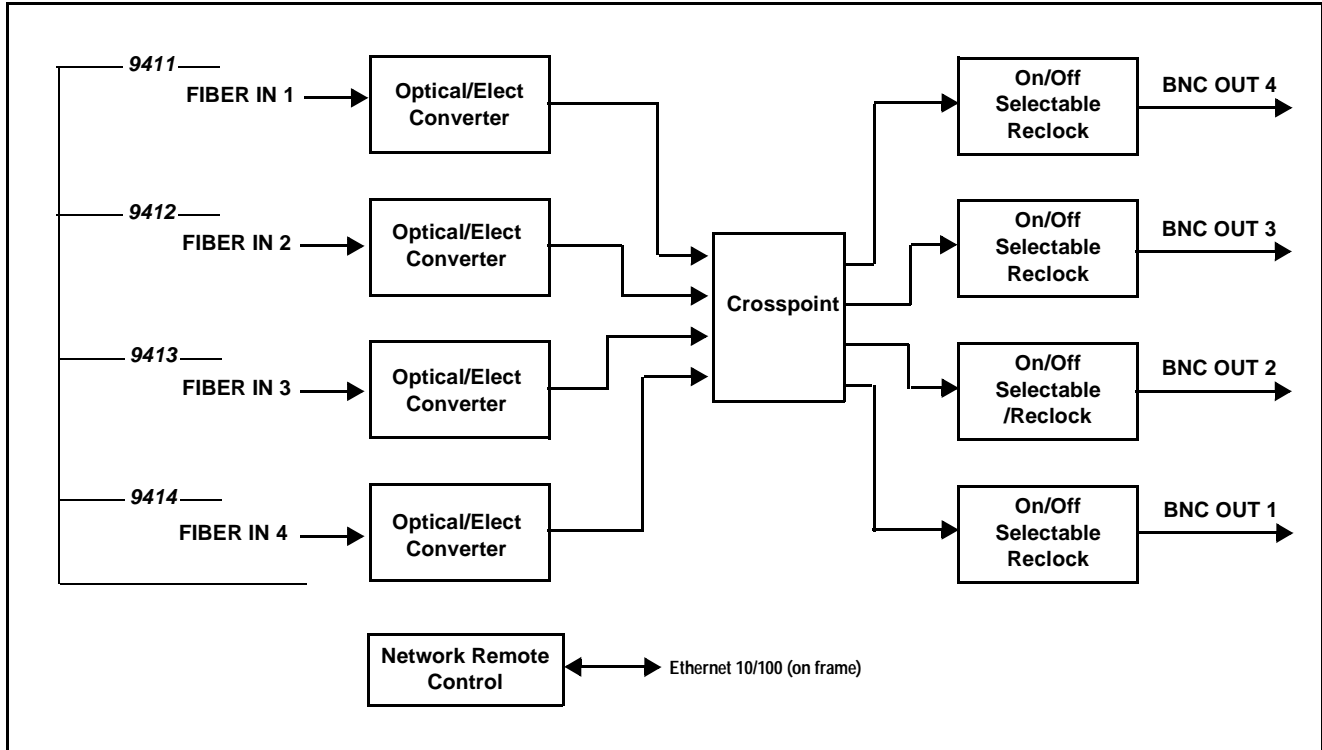


Figure 1-2 9411 thru 9414 Rx Card Functional Block Diagram

User Control Interface

The 9400-series uses DashBoard™ as the normal graphical user interface for the card, similar to other Cobalt® COMPASS™ cards.

Using DashBoard™, the 9400-series and other cards installed in openGear® frames such as the Cobalt® 8321-C Frame can be controlled from a computer and monitor¹. DashBoard™ allows users to view all frames on a network with control and monitoring for all populated slots inside a frame. This simplifies the setup and use of numerous modules in a large installation and offers the ability to centralize monitoring. Cards define their controllable parameters to DashBoard™, so the control interface is always up to date.

The DashBoard™ software can be downloaded from the Cobalt Digital Inc. website: www.cobaltdigital.com (enter “DashBoard” in the search window). The DashBoard™ user interface is described in Chapter 3, “Operating Instructions”.

1. openGear® is a registered trademark of Ross Video Limited. DashBoard™ is a trademark of Ross Video Limited.

Note: If network remote control is to be used for the frame and the frame has not yet been set up for remote control, Cobalt® reference guide **Remote Control User Guide (PN 9000RCS-RM)** provides thorough information and step-by-step instructions for setting up network remote control of COMPASS™ cards using DashBoard™. (Cobalt® OGCP-9000 and OGCP-9000/CC Remote Control Panel product manuals have complete instructions for setting up remote control using a Remote Control Panel.)

Download a copy of this guide by clicking on the **Support>Documents>Reference Guides** link at www.cobaltdigital.com and then select DashBoard Remote Control Setup Guide as a download, or contact Cobalt® as listed in Contact Cobalt Digital Inc. (p. 1-13).

9400-series Rear I/O Modules

The 9400-series physically interfaces to system video connections at the rear of its frame using a Rear I/O Module.

All inputs and outputs shown in the 9400-series Functional Block Diagram (Figures 1-1 and 1-2) enter and exit the card via the card edge backplane connector. The Rear I/O Module breaks out the 9400-series card edge connections and exposes the fiber transceiver subassemblies to connectors that interface with other components and systems in the signal chain. Various Rear I/O Modules are available for various fiber connection formats. See “Installation”, Chapter 2 for Rear I/O Module connections.

Technical Specifications

Table 1-1 lists the technical specifications for the 9400-series SDI/Fiber Multi-Channel Transports with I/O Crosspoint cards.

Table 1-1 Technical Specifications

Item	Characteristic
Part number, nomenclature	BNC-to-Fiber Cards (Tx): <ul style="list-style-type: none"> • 9401 (4 In / 1 Out BNC-to-Fiber Transmitter / Crosspoint Card) • 9402 (4 In / 2 Out BNC-to-Fiber Transmitter / Crosspoint Card) • 9403 (4 In / 3 Out BNC-to-Fiber Transmitter / Crosspoint Card) • 9404 (4 In / 4 Out BNC-to-Fiber Transmitter / Crosspoint Card) BNC-to-Fiber Cards (Rx): <ul style="list-style-type: none"> • 9411 (1 In / 4 Out Fiber-to-BNC Receiver / Crosspoint Card) • 9412 (2 In / 4 Out Fiber-to-BNC Receiver / Crosspoint Card) • 9413 (3 In / 4 Out Fiber-to-BNC Receiver / Crosspoint Card) • 9414 (4 In / 4 Out Fiber-to-BNC Receiver / Crosspoint Card)
Installation/usage environment	Intended for installation and usage in frame meeting openGear [®] modular system definition.
Power consumption	< 10 Watts maximum
Environmental: Operating temperature: Relative humidity (operating or storage):	32° – 104° F (0° – 40° C) < 95%, non-condensing
Frame communication	10/100 Mbps Ethernet with Auto-MDIX.
Tx/Rx Fiber Range	40 km (24.8 mi) max Single-Mode optics; rates thru HD: 24 km (14.9 mi) max
Fiber Connector:	LC, ST, SC, or FC Note: Connector type must be specified as part of card rear I/O module part number. Connector types cannot be mixed on a single rear I/O module. See Installation and Setup, Chapter 2 for more information.
Standards Supported:	SMPTE 259M-C, SMPTE 292M, SMPTE 425M, SMPTE 297M, DVB/ASI, SMPTE 259M with EDH

Table 1-1 Technical Specifications — continued

Item	Characteristic
<p>9401 thru 9404 (Tx Card) I/O Specifications:</p>	<p>Input Type: BNC, 75Ω</p> <p>Input/Output Loop Return Loss: >15 dB up to 1.5 GHz >10 dB up to 3 GHz</p> <p>Transmitter Wavelength: 1310 nm Single Mode</p> <p>Optical Power: -5 dBm to 0 dBm</p> <p>Laser Power Range: Laser Class 1</p> <p>Added Jitter: <0.03 UI under 1 MHz</p> <p>Output Type: Fiber LC, ST, SC, or FC</p>
<p>9401 thru 9404 (Rx Card) I/O Specifications:</p>	<p>Input Type: Fiber LC, ST, SC, or FC</p> <p>Wavelength: 1100 to 1600nm</p> <p>Optical Sensitivity Pathological 3Gbps: -18 dBm Pathological HD-SDI: -20 dBm</p> <p>Output Type: BNC, 75</p> <p>Output Return Loss: >15 dB up to 1.5 GHz >10 dB up to 3 GHz</p> <p>Added Jitter: <0.03 UI under 1 MHz</p> <p>Output Type: BNC, 75Ω</p>

Warranty and Service Information

Cobalt Digital Inc. Limited Warranty

This product is warranted to be free from defects in material and workmanship for a period of five (5) years from the date of shipment to the original purchaser, except that 4000, 5000, 6000, 8000 series power supplies, and Dolby® modules (where applicable) are warranted to be free from defects in material and workmanship for a period of one (1) year.

Cobalt Digital Inc.'s ("Cobalt") sole obligation under this warranty shall be limited to, at its option, (i) the repair or (ii) replacement of the product, and the determination of whether a defect is covered under this limited warranty shall be made at the sole discretion of Cobalt.

This limited warranty applies only to the original end-purchaser of the product, and is not assignable or transferrable therefrom. This warranty is limited to defects in material and workmanship, and shall not apply to acts of God, accidents, or negligence on behalf of the purchaser, and shall be voided upon the misuse, abuse, alteration, or modification of the product. Only Cobalt authorized factory representatives are authorized to make repairs to the product, and any unauthorized attempt to repair this product shall immediately void the warranty. Please contact Cobalt Technical Support for more information.

To facilitate the resolution of warranty related issues, Cobalt recommends registering the product by completing and returning a product registration form. In the event of a warrantable defect, the purchaser shall notify Cobalt with a description of the problem, and Cobalt shall provide the purchaser with a Return Material Authorization ("RMA"). For return, defective products should be double boxed, and sufficiently protected, in the original packaging, or equivalent, and shipped to the Cobalt Factory Service Center, postage prepaid and insured for the purchase price. The purchaser should include the RMA number, description of the problem encountered, date purchased, name of dealer purchased from, and serial number with the shipment.

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Contact Cobalt Digital Inc.

Feel free to contact our thorough and professional support representatives for any of the following:

- Name and address of your local dealer
- Product information and pricing
- Technical support
- Upcoming trade show information

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Installation and Setup

Overview

This chapter contains the following information:

- Setting Card Switches (p. 2-1)
- Installing the 9400-Series Card Into a Frame Slot (p. 2-5)
- Installing a Rear I/O Module (p. 2-3)
- Setting Up 9400-Series Network Remote Control (p. 2-7)

Setting Card Switches

- Note:**
- If using DashBoard™ or other network remote control, disregard this section. Default switch positions allow remote control operation of all functions.
 - If card-edge controls described here are set to card-edge (instead of DashBoard™), DashBoard™ or other network remote control will be locked out. Default positions allow DashBoard™ remote control. Do not change settings here unless card-edge control of these functions is desired.

(See Figure 2-1.) For each channel, card-edge switches allow setting channel Auto Mute and Reclocker Bypass either on or off manually (instead of via DashBoard™ remote control). The default switch positions allow remote control.

If the card is intended to handle signals that are not recognized SMPTE signals and rates, it is recommended that auto-mute and reclock be bypassed to prevent the signals from inadvertently being rejected as noise.

These functions can be enabled or disabled using DashBoard™ or the card-edge switches described here.

- If DashBoard™ remote control of auto-mute/reclock enable/bypass **is** to be used, leave the switches in the default settings and skip to Installing a Rear I/O Module (p. 2-3). Then use DashBoard™ to configure the Auto Mute and Reclocker settings as described in Chapter 3, Operating Instructions.
- If DashBoard™ remote control of auto-mute/reclock enable/bypass **is not** to be used and manual local control is desired, set each of the switches as described below before installing the card.

Figure 2-1 shows and describes the 9400-series card-edge controls that allow card-edge control of Reclocker and Auto Mute enable/disable.

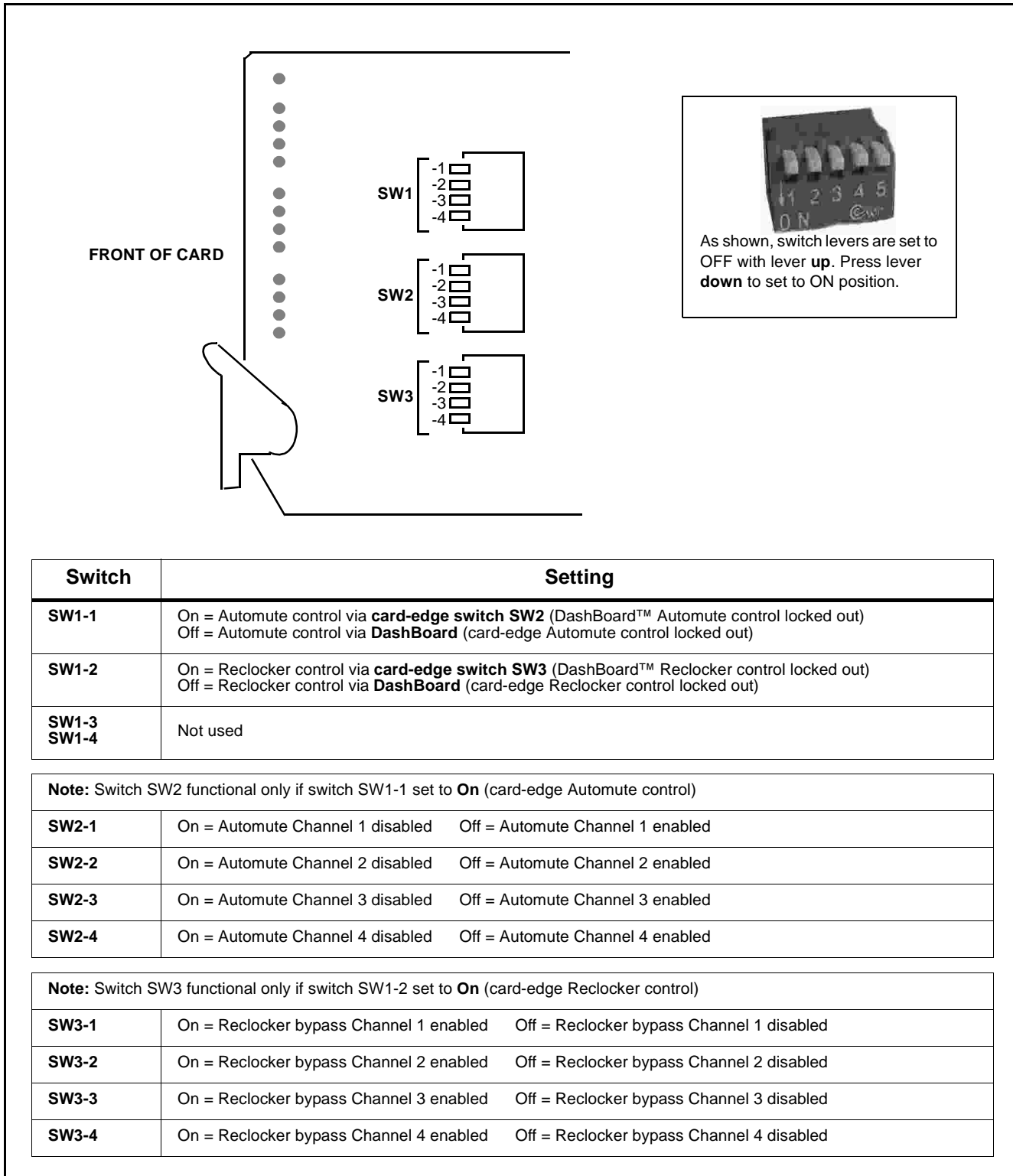


Figure 2-1 9400-Series Card Edge Controls

Installing a Rear I/O Module

9400-Series Rear I/O Modules

Table 2-1 shows and describes the full assortment of Rear I/O Modules specifically for use with the 9400-Series.

Table 2-1 9400-Series Rear I/O Modules


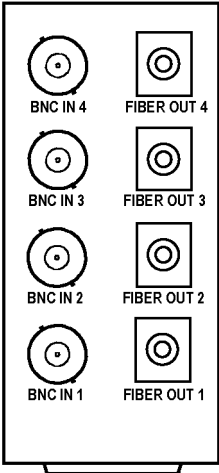
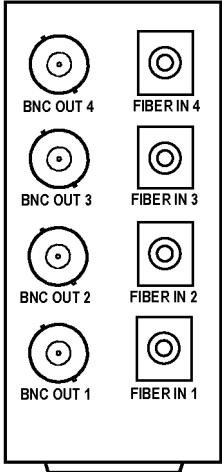
9400-Series Rear I/O Module	Description
 <p>CLASS 1 LASER PRODUCT - IEC 60825-1:2007. Never look into fiber connector or cable end of device transmitting an optical signal. The transmitted light is not visible and can cause permanent eye damage. Do not perform connection/disconnection with sending or receiving device powered.</p>	
<p>Note: Rear I/O Modules should be ordered corresponding to the card model and format of fiber connection desired. All 9400-series rear modules are standard-width (occupies 2 card slots) and are available only for 20-slot frames (e.g., 8321 frame). See below.</p> <p>RM20-9404-B 20-Slot Frame Rear I/O Module (Standard Width) 4 BNC In, 4 Fiber Out RM20-9403-B 20-Slot Frame Rear I/O Module (Standard Width) 4 BNC In, 3 Fiber Out RM20-9402-B 20-Slot Frame Rear I/O Module (Standard Width) 4 BNC In, 2 Fiber Out RM20-9401-B 20-Slot Frame Rear I/O Module (Standard Width) 4 BNC In, 1 Fiber Out</p> <hr/> <p>RM20-9414-B 20-Slot Frame Rear I/O Module (Standard Width) 4 Fiber In, 4 BNC Out RM20-9413-B 20-Slot Frame Rear I/O Module (Standard Width) 3 Fiber In, 4 BNC Out RM20-9412-B 20-Slot Frame Rear I/O Module (Standard Width) 2 Fiber In, 4 BNC Out RM20-9411-B 20-Slot Frame Rear I/O Module (Standard Width) 1 Fiber In, 4 BNC Out</p> <p>Note: Add fiber connector suffix to part numbers above to specify fiber connection type (-LC, -ST, -SC, -FC). (For example, RM20-9404-B fitted with LC connectors is ordered as "RM20-9404-B-LC".)</p>	
<p>RM20-9401-B thru RM20-9404-B</p>  <p>Note: FIBER OUT 4, 3, and 2 positions progressively depopulated on models 9403, 9402, and 9401, respectively.</p>	<p>Provides the following connections for Tx cards 9401 thru 9404:</p> <ul style="list-style-type: none"> • Four BNC coaxial inputs (BNC IN 1 thru BNC IN 4) • Up to four Fiber outputs (FIBER OUT 1 thru FIBER OUT 4)

Table 2-1 9400-Series Rear I/O Modules — continued

9400-Series Rear I/O Module	Description
<p data-bbox="191 300 591 327">RM20-9411-B thru RM20-9414-B</p>  <p data-bbox="318 835 586 884">Note: FIBER IN 4, 3, and 2 positions progressively depopulated on models 9413, 9412, and 9411, respectively.</p>	<p data-bbox="808 300 1430 359">Provides the following connections for Rx cards 9411 thru 9414:</p> <ul data-bbox="824 373 1360 499" style="list-style-type: none"> • Up to four Fiber inputs (FIBER IN 1 thru FIBER IN 4) • Four BNC coaxial outputs (BNC OUT 1 thru BNC OUT 4)

Rear I/O Module Installation

Install a Rear I/O Module as follows:

1. On the frame, determine the slot in which the 9400-series card is to be installed.
2. In the mounting area corresponding to the slot location, install Rear I/O Module as shown in Figure 2-2.

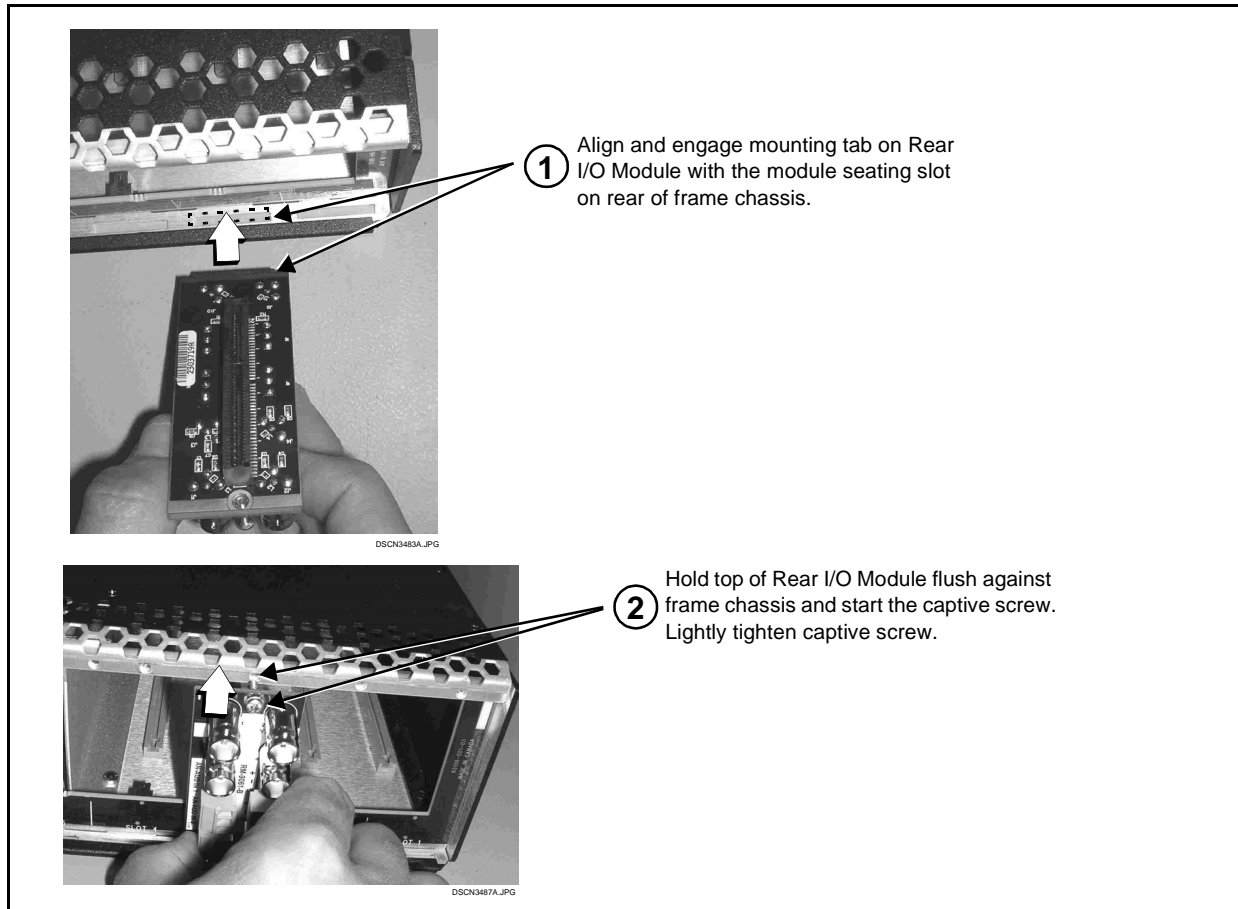


Figure 2-2 Rear I/O Module Installation

Installing the 9400-Series Card Into a Frame Slot

CAUTION

Heat and power distribution requirements within a frame may dictate specific slot placement of cards. Cards with many heat-producing components should be arranged to avoid areas of excess heat build-up, particularly in frames using only convection cooling.

CAUTION



This device contains semiconductor devices which are susceptible to serious damage from Electrostatic Discharge (ESD). ESD damage may not be immediately apparent and can affect the long-term reliability of the device.

Avoid handling circuit boards in high static environments such as carpeted areas, and when wearing synthetic fiber clothing. Always use proper ESD handling precautions and equipment when working on circuit boards and related equipment.

Note: A Rear I/O Module is required before cabling can be connected. Refer to Installing a Rear I/O Module (p. 2-3) for rear I/O module installation procedure.

CAUTION

If required, make certain Rear I/O Module(s) is installed before installing the card into the frame slot. Damage to card and/or Rear I/O Module can occur if module installation is attempted with card already installed in slot.

Note: Check the packaging in which the card was shipped for any extra items such as a Rear I/O Module connection label. In some cases, this label is shipped with the card and to be installed on the Rear I/O connector bank corresponding to the slot location of the card.

Install the card into a frame slot as follows:

1. Determine the slot in which the card is to be installed.
2. Open the frame front access panel.
3. Remove an protective caps on card fiber optic module(s).
4. While holding the card by the card edges, align the card such that the plastic ejector tab is on the bottom.
5. Align the card with the top and bottom guides of the slot in which the card is being installed.
6. Gradually slide the card into the slot. When resistance is noticed, gently continue pushing the card until its rear printed circuit edge terminals engage fully into the rear I/O module mating connector.

An audible “click” is heard when the card fiber optic module(s) mates with the blindmate adapter on the rear module.

CAUTION

If card resists fully engaging in rear I/O module mating connector, check for alignment and proper insertion in slot tracks. Damage to card and/or rear I/O module may occur if improper card insertion is attempted.

7. Verify that the card is fully engaged in rear I/O module mating connector.
8. Close the frame front access panel.
9. Connect BNC cables in accordance with the rear I/O module installed.
10. Connect fiber connections in accordance with the rear I/O module installed. Remove the dust cap from the fiber ports on the rear I/O module and insert cable into transceiver module.
11. Repeat steps 1 through 10 for other 9400-series cards.

Note: To remove a card, press down on the ejector tab to unseat the card from the rear I/O module mating connector. Evenly draw the card from its slot.

12. If network remote control is to be used for the frame and the frame has not yet been set up for remote control, perform setup in accordance with Setting Up 9400-Series Network Remote Control (p. 2-7).

Note: If installing a card in a frame already equipped for, and connected to DashBoard™, no network setup is required for the card. The card will be discovered by DashBoard™ and be ready for use.

Setting Up 9400-Series Network Remote Control

Perform remote control setup in accordance with Cobalt® reference guide “Remote Control User Guide” (PN 9000RCS-RM).

- Note:**
- If network remote control is to be used for the frame and the frame has not yet been set up for remote control, Cobalt® reference guide **Remote Control User Guide (PN 9000RCS-RM)** provides thorough information and step-by-step instructions for setting up network remote control of COMPASS™ cards using DashBoard™. (Cobalt® OGCP-9000 and OGCP-9000/CC Remote Control Panel product manuals have complete instructions for setting up remote control using a Remote Control Panel.)
Download a copy of this guide by clicking on the **Support>Documents>Reference Guides** link at www.cobaltdigital.com and then select DashBoard Remote Control Setup Guide as a download, or contact Cobalt® as listed in Contact Cobalt Digital Inc. (p. 1-13).
 - If installing a card in a frame already equipped for, and connected to DashBoard™, no network setup is required for the card. The card will be discovered by DashBoard™ and be ready for use.

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Operating Instructions

Overview

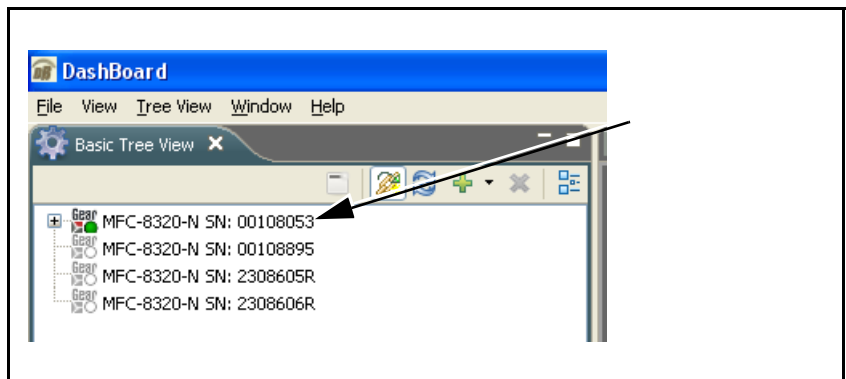
If you are already familiar with using DashBoard or a Cobalt Remote Control Panel to control Cobalt cards, please skip to 9400-Series Function Submenu List and Descriptions (p. 3-4).

This chapter contains the following information:

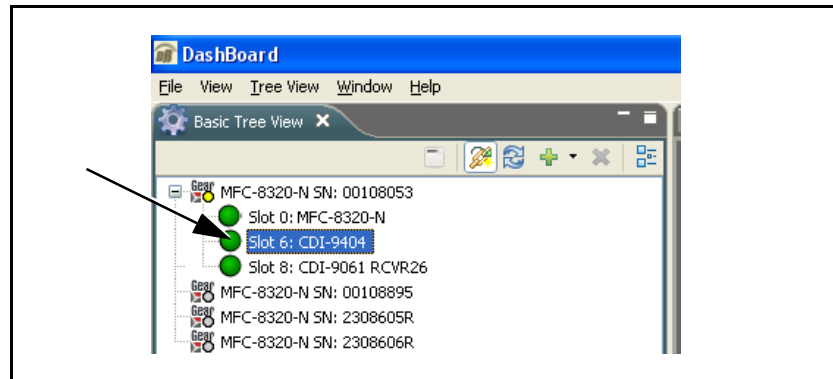
- Accessing the 9400-Series Card Using DashBoard™ Remote Control (p. 3-1)
- 9400-Series Function Submenu List and Descriptions (p. 3-4)
- Card-Edge Control (p. 3-10)
- Troubleshooting (p. 3-11)

Accessing the 9400-Series Card Using DashBoard™ Remote Control

1. On the computer connected to the frame LAN, open DashBoard™.
2. As shown below, in the left side Basic View Tree locate the Network Controller Card associated with the frame containing the 9400-series card to be accessed (in this example, “MFC-8320-N SN: 00108053”).



- As shown below, expand the tree to access the cards within the frame. Click on the card to be accessed (in this example, “Slot 6: CDI-9404”).



When the card is accessed in DashBoard™ its function submenu screen showing tabs for each function is displayed.

Checking Card Status

The operating status and software version the 9400-series card can be checked using DashBoard™. Figure 3-1 shows and describes checking overall status using the card information screen on DashBoard™ and the card edge control user interface.

- Note:** Proper operating status in DashBoard™ is denoted by green icons for the status indicators shown in Figure 3-1. Yellow or red icons respectively indicate an alert or failure condition. Refer to Troubleshooting (p. 3-11) for corrective action.
- Note:** Figure 3-1 shows 9404 Tx and 9414 Rx card typical card edge display. Other card models with less fiber channels may not be populated in the CHN 2 thru CHN 4 positions shown.

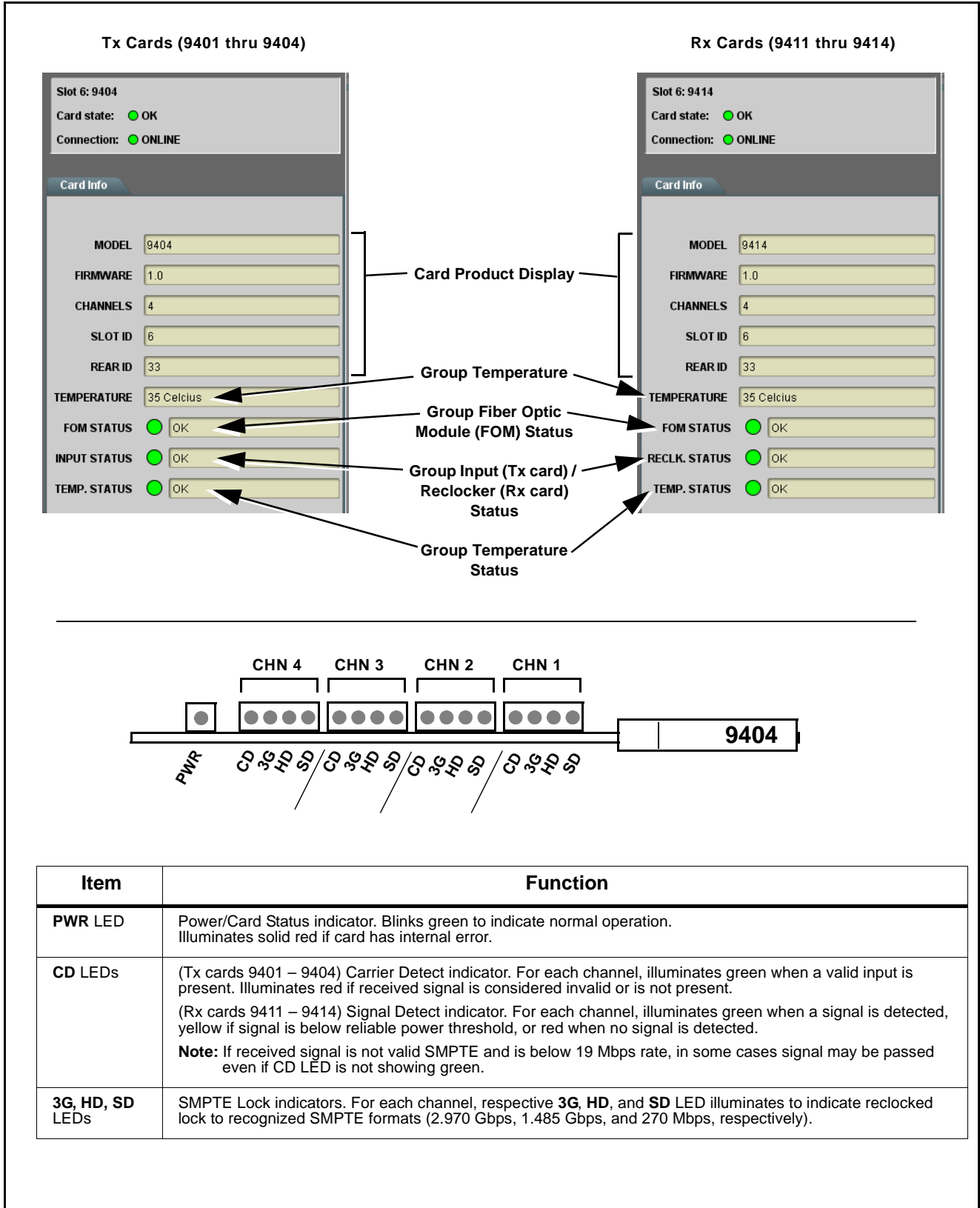


Figure 3-1 Typical Card Status Displays

9400-Series Function Submenu List and Descriptions

Tables 3-1 and 3-2 individually list and describe card function submenu and its related list selections, controls, and parameters for 9401 thru 9404 Tx cards and 9411 thru 9414 Rx cards, respectively. Where helpful, examples showing usage of a function are also provided. Tables 3-1 and 3-2 are primarily based upon using DashBoard™ to access each function and its corresponding submenus and parameters.

Note: If DashBoard™ is not used, the card edge controls can be used to access many of the controls described here. Refer to Card-Edge Control (p. 3-10) for using card edge controls.

9401 thru 9404 (Tx) Card Function Submenu List

Table 3-1 lists and describes the function submenus for 9401 thru 9404 Tx cards.

Table 3-1 9401-9404 (Tx) Card Function Submenu List


	<p>Provides controls for selecting SDI input-to-fiber output crosspoint sources for the card fiber output channels, and reclocker/automute disable. Also provides signal status displays for the up to four signal channels.</p>																				
<p>• Input Channel Status Display</p> <table border="1" data-bbox="241 1089 1084 1341"> <thead> <tr> <th></th> <th>STATUS</th> <th>INPUT RATE</th> <th>RECLOCKER</th> </tr> </thead> <tbody> <tr> <td>INPUT 1</td> <td>ACTIVE</td> <td>3G</td> <td>LOCKED</td> </tr> <tr> <td>INPUT 2</td> <td>ACTIVE</td> <td>VALID</td> <td>LOS</td> </tr> <tr> <td>INPUT 3</td> <td>INACTIVE</td> <td>INVALID</td> <td>LOS</td> </tr> <tr> <td>INPUT 4</td> <td>INACTIVE</td> <td>INVALID</td> <td>LOS</td> </tr> </tbody> </table>			STATUS	INPUT RATE	RECLOCKER	INPUT 1	ACTIVE	3G	LOCKED	INPUT 2	ACTIVE	VALID	LOS	INPUT 3	INACTIVE	INVALID	LOS	INPUT 4	INACTIVE	INVALID	LOS
	STATUS	INPUT RATE	RECLOCKER																		
INPUT 1	ACTIVE	3G	LOCKED																		
INPUT 2	ACTIVE	VALID	LOS																		
INPUT 3	INACTIVE	INVALID	LOS																		
INPUT 4	INACTIVE	INVALID	LOS																		
<p>Example here shows:</p> <ul style="list-style-type: none"> • Input 1 receiving and locking to 3G (SMPTE 425) signal • Input 2 receiving a non-SMPTE signal • Input 3 and Input 4 showing no signal present. 																					
<p>Displays the current SDI input status and signal format of the four card SDI inputs as follows:</p> <ul style="list-style-type: none"> • Status: If any valid signal is received (regardless of whether signal is SMPTE valid or not) Active is displayed. Inactive is displayed if signal is not received, or does not conform to appropriate logic levels for the coaxial physical medium. • Input Rate: If a recognized SMPTE rate is detected on an input, the SMPTE video format is correspondingly displayed (e.g., 3G, HD, SD). If the received signal is usable by the card but is not recognized as a SMPTE rate, Valid is displayed. • Reclocker: If a recognized SMPTE rate is detected on an input, Locked is displayed. If the received signal is usable by the card but is not recognized as a SMPTE rate, LOS is displayed. This can indicate a signal, in which to be reliably processed by the card channel, should be set to bypass reclocking (see Reclocker/EQ Automute Bypass below). <p>EQ/reclocking is tailored for signal ranging from 19 Mbps to 3 Gbps. These functions help reject noise in the transport and help recover received signals that may be degraded due to long cable runs. EQ/reclocking is applied before the automute function, allowing the automute to blank signal transfer when a signal is not reliably locked by reclocking. When handling non-SMPTE signals (specifically signals slower than 19 Mbps), the card's reclocking and automute functions can be bypassed so that non-SMPTE signals are not rejected by these functions.</p>																					

Table 3-1 9401-9404 (Tx) Card Function Submenu List — continued

<div style="background-color: #333; color: white; padding: 5px; text-align: center; font-weight: bold;">Control & Status</div>	(continued)															
<p>• Reclocker/EQ Automute Bypass Select</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 35%; background-color: #ccc;">RECLOCKER BYPASS</th> <th style="width: 35%; background-color: #ccc;">EQ AUTOMUTE</th> </tr> </thead> <tbody> <tr> <td>INPUT 1</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>INPUT 2</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td>INPUT 3</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>INPUT 4</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>		RECLOCKER BYPASS	EQ AUTOMUTE	INPUT 1	<input type="checkbox"/>	<input type="checkbox"/>	INPUT 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INPUT 3	<input type="checkbox"/>	<input type="checkbox"/>	INPUT 4	<input type="checkbox"/>	<input type="checkbox"/>	<p>(continued)</p> <p>Provides enable/disable controls for each of the four SDI input channels that allow Reclocker and EQ Automute functions to be disabled.</p> <p>Default setting are:</p> <ul style="list-style-type: none"> • Reclocker Bypass set to disabled (box unchecked) • EQ Automute set to enabled (box checked). <p>Reclocker bypass enabled and EQ Automute disabled is recommended when an input channel is to carry a non-SMPTE format signal. Using these settings for a non-SMPTE signal prevents EQ/Automute function from rejecting the signal as noise, and prevents nuisance Invalid alarm from propagating to card status display.</p>
	RECLOCKER BYPASS	EQ AUTOMUTE														
INPUT 1	<input type="checkbox"/>	<input type="checkbox"/>														
INPUT 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
INPUT 3	<input type="checkbox"/>	<input type="checkbox"/>														
INPUT 4	<input type="checkbox"/>	<input type="checkbox"/>														
<p>• Output Channel Crosspoint (Input Select) Controls</p> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <div style="background-color: #333; color: white; padding: 2px; text-align: center; font-weight: bold;">CROSSPOINT</div> <p>OUTPUT 1 FROM INPUT 1 ▼</p> <div style="border: 1px solid #ccc; padding: 2px; margin-left: 20px;"> FROM INPUT 1 FROM INPUT 2 FROM INPUT 3 FROM INPUT 4 </div> </div> <p>In the example selections shown below left, flexible crosspoint routing provides the fiber 1x2 DA and crosspoint routing shown below right.</p> <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <div style="background-color: #333; color: white; padding: 2px; text-align: center; font-weight: bold;">CROSSPOINT</div> <p>OUTPUT 1 FROM INPUT 1 ▼</p> <p>OUTPUT 2 FROM INPUT 1 ▼</p> <p>OUTPUT 3 FROM INPUT 2 ▼</p> <p>OUTPUT 4 FROM INPUT 3 ▼</p> </div> </div> <div style="flex: 1; text-align: center;"> </div> </div>	<p>From Input 1 thru From Input 4 range in source selection drop-down lists selects SDI input for each of the up to four fiber output channels.</p> <p>Fiber output channels can select from any four SDI input, with same SDI inputs on multiple fiber outputs, thereby providing an SDI-to-fiber DA function, if desired.</p> <p>Note: Output 1 thru Output 4 drop-down lists only on 9404 (4x4 Tx) card. 9403 thru 9401 cards have correspondingly fewer drop-down selection lists.</p>															
<p>• Output Module Disable Select</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 35%; background-color: #ccc;">SFP TX DISABLE</th> </tr> </thead> <tbody> <tr> <td>OUTPUT 1</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>OUTPUT 2</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>OUTPUT 3</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td>OUTPUT 4</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>		SFP TX DISABLE	OUTPUT 1	<input type="checkbox"/>	OUTPUT 2	<input type="checkbox"/>	OUTPUT 3	<input checked="" type="checkbox"/>	OUTPUT 4	<input type="checkbox"/>	<p>When checked, turns off the selected laser SFP driver module. Disabling unused driver modules reduces card power consumption and circumvents nuisance alarm propagation for unused output channels.</p> <p>Note: Output 1 thru Output 4 checklists only on 9404 (4x4 Tx) card. 9403 thru 9401 cards have correspondingly fewer checklists.</p>					
	SFP TX DISABLE															
OUTPUT 1	<input type="checkbox"/>															
OUTPUT 2	<input type="checkbox"/>															
OUTPUT 3	<input checked="" type="checkbox"/>															
OUTPUT 4	<input type="checkbox"/>															

Table 3-1 9401-9404 (Tx) Card Function Submenu List — continued


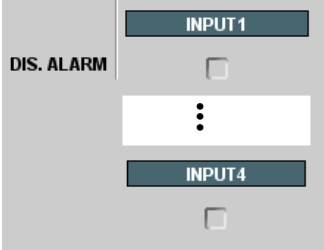
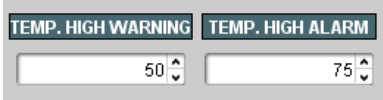
	(continued)
<p>• Channel Disable Alarm Select</p> 	<p>When checked, disables any alarms for the selected output channel. Disabling unused channels circumvents nuisance alarm propagation for unused output channels.</p> <p>Note: On cards with less than four fiber output channels, DashBoard may still have DIS. ALARM controls for the unpopulated channels. Make certain these are set to disabled (checked) to prevent nuisance alarms for unpopulated channels.</p>
<p>• Driver Module Temperature Alarm Threshold Select</p> 	<p>Allows custom settings of global temperature alarm (caution state: yellow alert propagated) or warning (warning state: red alert propagated).</p> <p>CAUTION</p> <p>Alarm thresholds should not be set at values that exceed pre-defined threshold for FOM (fiber optic module) fitted to the card. This information can be found using the Fiber Optics Module information/status tab. Refer to Fiber Optics Module tab on next page for more information.</p>

Table 3-1 9401-9404 (Tx) Card Function Submenu List — continued

Fiber Optic Modules

Provides operating status and info display selectable for each of the card's up to four Tx card Fiber Optic Module drivers.

Selects the Fiber Optic Module to be displayed in this pane (**FOM1** thru **FOM4** correlate to output channels 1 thru 4).

Note: Output 1 thru Output 4 drop-down lists only on 9404 (4x4 Tx) card. 9403 thru 9401 cards have correspondingly fewer drop-down selection lists.

Fiber Optic Modules

FOM FOM1

	TX POWER	BIAS CURRENT	VCC	TEMPERATURE
STATUS	OK	OK	OK	OK
CURRENT	0.7261mW	2.99mA	3.2526V	33.394C
	TX POWER	BIAS CURRENT	VCC	TEMPERATURE
HI Alarm Th.	1.2589mW	59.44mA	3.6000V	110.0C
LOW Alarm Th.	0.2512mW	0.20mA	3.0000V	-40.0C
HI Warning Th.	1.0000mW	6.00mA	3.5000V	105.0C
LOW Warning Th.	0.3162mW	0.30mA	3.1000V	-35.0C

VENDOR NAME Cobalt Digital Inc.

VENDOR PART SFP1310-SM-3G-T1

WAVE LENGTH 1310

VENDOR REV 1.0

VENDOR SERIAL SB1J180009

DATE CODE 110122

TYPE Vendor specific

MAX BIT RATE 3000 Mbits/sec

Provides general operating parametric status for the selected Fiber Output Module

Provides detailed alarm parametric thresholds for the selected Fiber Output Module. (These values may vary depending on vendor-specific module fitted for the output channel.)

Provides general information and specifications for the selected Fiber Output Module. (This information may vary depending on vendor-specific module fitted for the output channel.)

9411 thru 9414 (Rx) Card Function Submenu List

Table 3-2 lists and describes the function submenus for 9411 thru 9414 Rx cards.

Table 3-2 9411-9414 (Rx) Card Function Submenu List

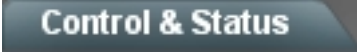
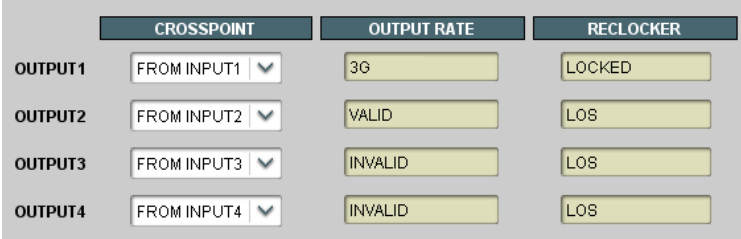
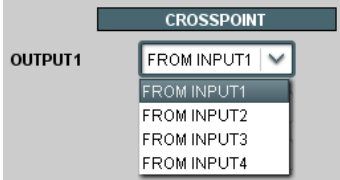
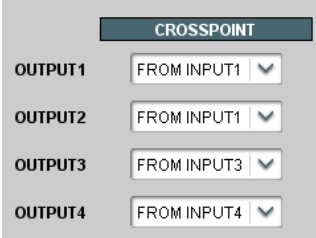
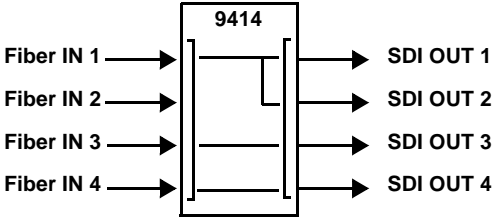
	<p>Provides controls for selecting fiber input-to-SDI output crosspoint sources for the card fiber input channels, and reclocker/automute disable. Also provides signal status displays for the up to four signal channels.</p>
<p>• Output Channel Crosspoint / Status Display</p> 	
<p>• Crosspoint (Input Select) Controls</p> 	<p>From Input 1 thru From Input 4 range in source selection drop-down lists selects fiber input for each of the four SDI output channels.</p> <p>SDI output channels can select from any of up to four fiber inputs, with same fiber input on multiple SDI outputs, thereby providing a fiber-to-SDI DA function, if desired.</p> <p>Note: From Input 1 thru From Input 4 full choice available only on 9414 (4x4 Rx) card. 9413 thru 9411 cards have correspondingly fewer drop-down fiber source choices.</p>
<p>Output Rate and Reclocker status displays show the current SDI output status and signal format of the four card SDI outputs as follows:</p> <ul style="list-style-type: none"> • Output Rate: If a recognized SMPTE rate is detected on an output, the SMPTE video format is correspondingly displayed (e.g., 3G, HD, SD). If the received signal is usable by the card but is not recognized as a SMPTE rate, Valid is displayed. • Reclocker: If a recognized SMPTE rate is detected on an output, Locked is displayed. If the outputted signal is passed by the card but is not recognized as a SMPTE rate, LOS is displayed. This can indicate a signal, in which to be reliably processed by the card channel, should be set to bypass reclocking (see Reclocker/EQ Automute Bypass below). <p>The example above shows Input 1 receiving and locking a 3G (SMPTE 425) signal, Input 2 receiving a non-SMPTE signal, and Input 3 and Input 4 showing no signal present.</p> <p>EQ/reclocking is tailored for signal ranging from 19 Mbps to 3 Gbps. EQ/reclocking is applied before the automute function, allowing the automute to blank signal transfer when a signal is not reliably locked by reclocking. When handling non-SMPTE signals (specifically signals slower than 19 Mbps), the card's reclocking and automute functions can be bypassed so that non-SMPTE signals are not rejected by these functions.</p>	
<p>In the example selections shown below left, flexible crosspoint routing provides the fiber 1x2 DA and crosspoint routing shown below right.</p>  	

Table 3-2 9411-9414 (Rx) Card Function Submenu List — continued


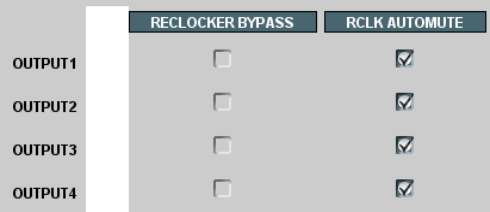
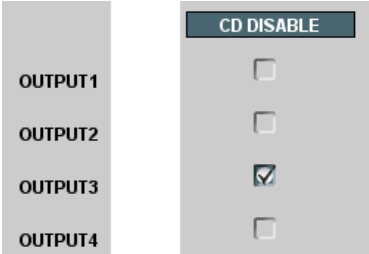
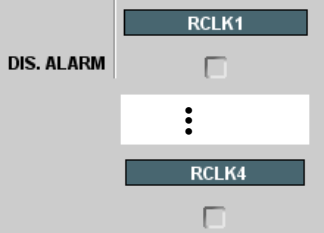
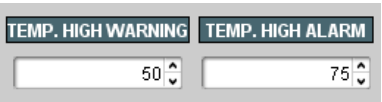
	(continued)
<p>• Reclocker/EQ Automute Bypass Select</p> 	<p>Provides enable/disable controls for each of the four SDI output channels that allow Reclocker and EQ Automute functions to be disabled.</p> <p>Default setting are:</p> <ul style="list-style-type: none"> • Reclocker Bypass set to disabled (box unchecked) • EQ Automute set to enabled (box checked). <p>Reclocker bypass enabled and EQ Automute disabled is recommended when an input channel is to carry a non-SMPTE format signal. Using these settings for a non-SMPTE signal prevents EQ/Automute function from rejecting the signal as noise, and prevents nuisance Invalid alarm from propagating to card status display.</p>
<p>• Output Driver Disable Select</p> 	<p>When checked, turns off the selected SDI cable driver module. Disabling unused driver modules circumvents nuisance alarm propagation for unused output channels.</p>
<p>• Channel Disable Reclock Alarm Select</p> 	<p>When checked, disables any non-reclock alarms for the selected output channel. Disabling unused channels circumvents nuisance alarm propagation for unused output channels, or channels carrying non-SMPTE signals.</p> <p>Note: On cards with less than four fiber output channels, DashBoard may still have DIS. ALARM controls for the unpopulated channels. Make certain these are set to disabled (checked) to prevent nuisance alarms for unpopulated channels.</p>
<p>• Driver Module Temperature Alarm Threshold Select</p> 	<p>Allows custom settings of global temperature alarm (caution state: yellow alert propagated) or warning (warning state: red alert propagated).</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">CAUTION</p> </div> <p>Alarm thresholds should not be set at values that exceed pre-defined threshold for FOM (fiber optic module) fitted to the card. This information can be found using the Fiber Optics Module information/status tab. Refer to Fiber Optics Module tab on next page for more information.</p>

Table 3-2 9411-9414 (Rx) Card Function Submenu List — continued

Fiber Optic Modules	Provides operating status and info display selectable for each of the card's up to four Fiber Optic Module receivers.
---------------------	-----------------------------------------------------------------------------------------------------------------------

Selects the Fiber Optic Module to be displayed in this pane (**FOM1** thru **FOM4** correlate to output channels 1 thru 4).
Note: Output 1 thru Output 4 drop-down lists only on 9414 (4x4 Rx) card. 9413 thru 9411 cards have correspondingly fewer drop-down selection lists.

Master alarm disable for the selected Fiber Output Module

Provides general operating parametric status for the selected Fiber Output Module

Provides detailed alarm parametric thresholds for the selected Fiber Output Module. (These values may vary depending on vendor-specific module fitted for the output channel.)

Provides general information and specifications for the selected Fiber Output Module. (This information may vary depending on vendor-specific module fitted for the output channel.)

Fiber Optic Modules

FOM FOM1

DIS. ALARM

	RX POWER	VCC	TEMPERATURE
STATUS	LOW ALARM	OK	OK
CURRENT	0.0001mW	3.2333V	27.546C

	RX POWER	VCC	TEMPERATURE
HI Alarm Th.	0.6310mW	3.6000V	110.0C
LOW Alarm Th.	0.0079mW	3.0000V	-40.0C
HI Warning Th.	0.5012mW	3.5000V	105.0C
LOW Warning Th.	0.0100mW	3.1000V	-35.0C

VENDOR NAME Cobalt Digital Inc.

VENDOR PART SFP1310-SM-3G-1R

WAVE LENGTH 0

VENDOR REV 1.0

VENDOR SERIAL SB63550051

DATE CODE 110613

TYPE Vendor specific

MAX BIT RATE 3000 MBits/sec

Card-Edge Control

Refer to Setting Card Switches (p. 2-1) in Chapter 2, Installation and Setup if card-edge control is desired.

Note: Card-edge controls and DashBoard™ control cannot be used concurrently. Either set the card for card-edge control as described in Chapter 2, or use default settings and use DashBoard™ control as described in this chapter.

Troubleshooting

This section provides general troubleshooting information and specific symptom/corrective action for the 9400-series card and its remote control interface. The 9400-series card requires no periodic maintenance in its normal operation; if any error indication (as described in this section) occurs, use this section to correct the condition.

Basic Troubleshooting Checks

Failures of a general nature (affecting many cards and/or functions simultaneously), or gross inoperability errors are best addressed first by performing basic checks before proceeding further. Table 3-3 provides basic system checks that typically locate the source of most general problems.

Table 3-3 Basic Troubleshooting Checks

Item	Checks
Verify power presence and characteristics	On both the frame Network Controller Card and the card, in all cases when power is being properly supplied there is always at least one indicator illuminated. Any card showing no illuminated indicators should be cause for concern.
Check Cable connection secureness and connecting points	Make certain all cable connections are fully secure (including coaxial cable attachment to cable ferrules on BNC connectors). Also, make certain all connecting points are as intended. Make certain the selected connecting points correlate to the intended card inputs and/or outputs. Cabling mistakes are especially easy to make when working with large I/O modules.
Card seating within slots	Make certain all cards are properly seated within its frame slot. (It is best to assure proper seating by ejecting the card and reseating it again.)
Check status indicators and displays	On DashBoard™, red indications typically signify an error condition. If a status indicator signifies an error, proceed to the following tables in this section for further action.
Troubleshoot by substitution	All cards within the frame can be hot-swapped, replacing a suspect card or module with a known-good item.

9400 Signal Processing Error Troubleshooting

Table 3-4 provides 9400-series processing troubleshooting information. If the 9400-series card exhibits any of the symptoms listed in Table 3-4, follow the troubleshooting instructions provided.

In the majority of cases, most errors are caused by simple errors where the 9400-series is not appropriately set for the type of signal being received by the card.

Table 3-4 Troubleshooting Processing Errors by Symptom

Symptom	Error/Condition	Corrective Action
Card does not respond to changes made in DashBoard™ or other network remote control.	Card-edge switch(es) set for remote control override	Make certain card-edge switches SW1-1 and SW1-2 are both set to Off . If switches are inadvertently set to On, card-edge enable overrides ability to use remote control. See Setting Card Switches (p. 2-1) in Chapter 2, Installation and Setup.
Channel will not output received signal. DashBoard™ shows Reclocker > LOS for channel.	Channel not set to received a non-SMPTE signal	If channel is to pass a non-SMPTE signal, make certain: <ul style="list-style-type: none"> • EQ/Automute is set to Off (unchecked box in DashBoard) • Reclocker Bypass is set to On (checked box in DashBoard). Reclock and Automute are specifically intended to optimize transport of valid SMPTE SDI signals. Disable these functions as described in the operating instructions if transport of non-SMPTE signals is desired.
Card status displays nuisance alarm for channels not being used.	Unused channel not set to disable alert/alarms	If channel is not to be used (including channels not populated on cards having less than four fiber channels), disable alert/alarm propagation by making certain the Dis. Alarm (disable alarm) checkbox corresponding to the channel is checked.
(9411 thru 9414 Rx cards only) Card-edge ST LED illuminated yellow.	Fiber input power level below reliable threshold	Check fiber media for damage or dirty/improper connection between media and fiber optic module.

Troubleshooting Network/Remote Control Errors

Refer to Cobalt® reference guide “Remote Control User Guide” (PN 9000RCS-RM) for network/remote control troubleshooting information.

In Case of Problems

Should any problem arise with this product that was not solved by the information in this section, please contact the Cobalt Digital Inc. Technical Support Department. If required, a Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions. If required, a temporary replacement item will be made available at a nominal charge. Any shipping costs incurred are the customer’s responsibility. All products shipped to you from Cobalt Digital Inc. will be shipped collect.

The Cobalt Digital Inc. Technical Support Department will continue to provide advice on any product manufactured by Cobalt Digital Inc., beyond the warranty period without charge, for the life of the product.

See Contact Cobalt Digital Inc. (p. 1-13) in Chapter 1, “Introduction“ for contact information.



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