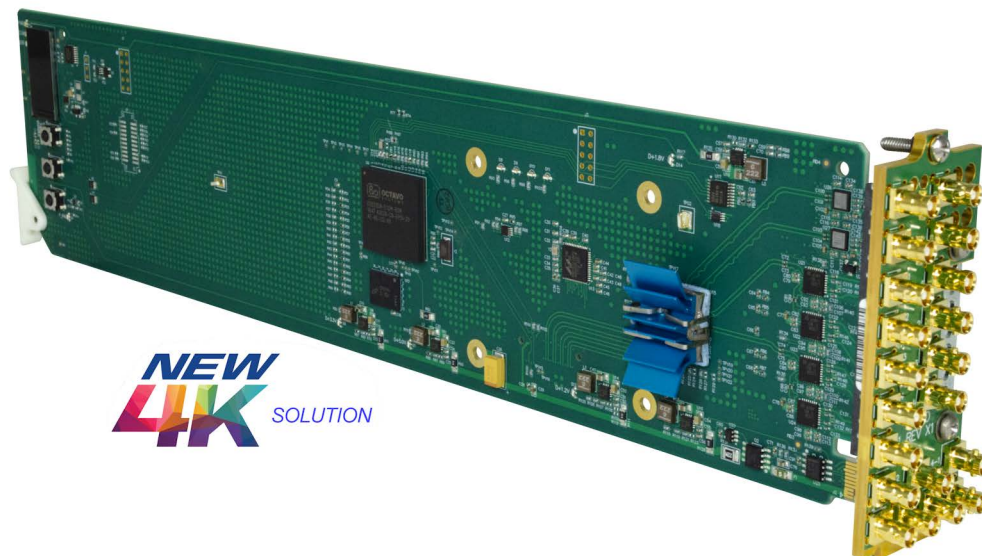

COBALT

9915DA



12G/6G/3G/HD/SD-SDI Reclocking Distribution Amplifiers

- 9915DA-1x16-12G Reclocking Distribution Amplifier
- 9915DA-2x16-XPT-12G Dual-Channel Multi-Rate Reclocking DA with x4 Output Crosspoint
- 9915DA-4x16-XPT-12G Quad-Channel Multi-Rate Reclocking DA with x4 Output Crosspoint

Product Manual

COBALT

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embrionix is a tradename of Embrionix.

Congratulations on choosing the Cobalt[®] **9915DA** 12G/6G/3G/HD/SD-SDI Reclocking Distribution Amplifiers. The 9915DA models are part of a full line of modular processing and conversion gear for live production and 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 9915DA, please contact us at the contact information on the front cover.

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Table of Contents

Chapter 1	Introduction	1-1
	Overview	1-1
	9915DA Card Software Versions and this Manual	1-2
	Cobalt Reference Guides	1-3
	Manual Conventions.....	1-3
	Warnings, Cautions, and Notes	1-4
	Labeling Symbol Definitions.....	1-4
	Safety Summary	1-5
	Warnings.....	1-5
	Cautions	1-5
	9915DA Functional Description.....	1-5
	DashBoard™ User Control Interface	1-8
	9915DA Rear I/O Modules.....	1-9
	Technical Specifications.....	1-9
	Warranty and Service Information	1-11
	Cobalt Digital Inc. Limited Warranty.....	1-11
	Contact Cobalt Digital Inc.....	1-12
Chapter 2	Installation and Setup	2-1
	Overview	2-1
	Installing the 9915DA Into a Frame Slot.....	2-1
	Installing a Rear I/O Module	2-3
	9915DA Rear I/O Modules.....	2-3
	Setting Up 9915DA Network Remote Control.....	2-6
Chapter 3	Operating Instructions.	3-1
	Overview	3-1
	Control and Display Descriptions.....	3-1
	Function Submenu/Parameter Submenu Overview.....	3-2
	Accessing the 9915DA Card via DashBoard™.....	3-3
	Checking 9915DA Card Information	3-4

9915DA Function Submenu List and Descriptions	3-6
Input Status	3-7
Crosspoint Controls	3-8
Input/Output Labels	3-13
SFP Parameters Display	3-15
Presets	3-16
Network Settings	3-17
Admin	3-17
Troubleshooting	3-18
Error and Failure Indicator Overview	3-18
Basic Troubleshooting Checks.....	3-19
9915DA Processing Error Troubleshooting.....	3-21
Troubleshooting Network/Remote Control Errors.....	3-22
In Case of Problems	3-22

Introduction

Overview

Note: This manual covers the 9915DA-series, which consists of the:

- **9915DA-1x16-12G** 12G/6G/3G/HD/SD-SDI 1x16 Reclocking Distribution Amplifier
- **9915DA-2x16-XPT-12G** 12G/6G/3G/HD/SD-SDI Dual-Channel Multi-Rate Reclocking DA with x4 Output Crosspoint
- **9915DA-4x16-XPT-12G** 12G/6G/3G/HD/SD-SDI Quad-Channel Multi-Rate Reclocking DA with x4 Output Crosspoint

These cards vary primarily as having (or not having) a multi-input crosspoint, and the I/O size of the crosspoint. Where differences exist, the differences are described for each individual model.

This manual provides installation and operating instructions for the 9915DA 12G/6G/3G/HD/SD-SDI Reclocking Distribution Amplifiers for openGear Systems card (also referred to herein as the 9915DA).

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 9915DA.
- **Chapter 2, “Installation and Setup”** – Provides instructions for installing the 9915DA in a frame, and optionally installing 9915DA Rear I/O Modules.
- **Chapter 3, “Operating Instructions”** – Provides overviews of operating controls and instructions for using the 9915DA.

This chapter contains the following information:

- **9915DA Card Software Versions and this Manual (p. 1-2)**
- **Cobalt Reference Guides (p. 1-3)**
- **Manual Conventions (p. 1-3)**
- **Safety Summary (p. 1-5)**

- **9915DA Functional Description (p. 1-5)**
- **Technical Specifications (p. 1-9)**
- **Warranty and Service Information (p. 1-11)**
- **Contact Cobalt Digital Inc. (p. 1-12)**

9915DA Card Software 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™. See Checking 9915DA Card Information (p. 3-4) in Chapter 3, “Operating Instructions” for more information. 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 new Update software by going to the Support>Firmware Downloads 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>Reference Documents** for easy to use guides covering network remote control, card firmware updates, example card processing UI setups and other topics.

Manual Conventions

In this manual, display messages and connectors are shown using the exact name shown on the 9915DA itself. Examples are provided below.

- On-card display messages are shown like this:

Input A 3G Input B 12G Input C Unlocked Input D HD

- Connector and control names are shown like this: **SDI IN A**

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

- **9915DA** refers to the 12G/6G/3G/HD/SD-SDI Reclocking Distribution Amplifiers for openGear Systems card.
- **Frame** refers to the HPF-9000, oGx, OG3-FR, or similar 20-slot frame that houses Cobalt® or other cards.
- **Device** and/or **Card** refers to a Cobalt® or other card.
- **System** and/or **Video System** refers to the mix of interconnected production and terminal equipment in which the 9915DA and other cards operate.
- Functions and/or features that are available only as an option are denoted in this manual like this:

Option ➔

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.




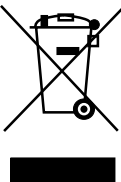
Cautions

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

	<p>Important note regarding product usage. Failure to observe may result in unexpected or incorrect operation.</p>
	<p>CLASS 1 LASER PRODUCT IEC 60825-1:2007 Caution - INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM.</p>
	<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>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

If required, make certain Rear I/O Module(s) is installed before installing the 9915DA 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.

9915DA Functional Description

Figure 1-1 shows functional block diagrams of the various 9915DA models. All 9915DA models are based around four DA circuits, with each circuit providing a 1x4 distribution of the input. All outputs are non-inverting. All inputs are equipped with cable equalizers.

Option 

When licensed with hardware option **-DA-SFP**, two factory-installed dual-slot SFP cages are present (**SFP Cage 1** and **SFP Cage 2**). These cages support various EO (Tx) and/or OE (Rx) SFP types which allow the 9915DA to accept or provide optical-base fiber SDI signals in addition to the standard coaxial I/O signals handled by the card.

- Note:**
- Depending on card model, SFP cages may be restricted to being fitted with only Rx (OE) or Tx (EO) SFP types. See Table 1-1 and Figure 1-1 for details.
 - Option **-DA-SFP** provides only the SFP cages. SFP cages can be user-fitted with desired and compatible SFP types (ordered as separate items).

Standard coaxial I/O for the various models is listed in Table 1-1. A failover function (where available) allows going to secondary backup inputs should the primary input lose lock.

User status (including input signal lock) is displayed in DashBoard™ remote control. An on-card also display shows unlocked or lock for the various inputs, as well as SDI signal format (SD, HD, 3G, 6G, 12G).

Table 1-1 9915DA Model I/O - Crosspoint Descriptions

Card Model	I/O Matrix (Standard)	Failover Provisions
9915DA-1x16-12G	(1) coaxial input routed to (16) coaxial outputs. No standard crosspoint (SDI IN A coaxial input routed always to all 16 DA outputs). (If option -DA-SFP is included, a second input (fiber OE) is in turn added to the card. As such, this exposes a full 2x16 crosspoint that allows both the coax and fiber inputs to be independently and simultaneously routed to various card outputs.	None for standard coaxial 1x16. With option -DA-SFP , a failover select matrix is provided for failover between the coaxial input SDI IN A and fiber input SFP-1-A .
9915DA-2x16-XPT-12G	(2) coaxial inputs, crosspoint routed to desired (16) coaxial outputs in 4 groups: • 1-1 thru 1-4 • 2-1 thru 2-4 • 3-1 thru 3-4 • 4-1 thru 4-4 as shown in Figure 1-1.	Failover between SDI IN A and SDI IN B for standard coaxial. With option -DA-SFP , failover select matrix also provides for failover between coaxial inputs and fiber inputs.
9915DA-4x16-XPT-12G	(4) coaxial inputs, crosspoint routed to desired (16) coaxial outputs in 4 groups: • 1-1 thru 1-4 • 2-1 thru 2-4 • 3-1 thru 3-4 • 4-1 thru 4-4 as shown in Figure 1-1.	Failover between SDI IN A thru SDI IN D for standard coaxial. With option -DA-SFP , failover select matrix also provides for failover between coaxial inputs and fiber inputs.
Option -DA-SFP Usage Available		
Card Model	SFP Cage Usage	SFP Types Accepted
9915DA-1x16-12G	SFP Cage 1: Single Rx Only SFP Cage 2: Single or dual TX	OE EO, 2EO
9915DA-2x16-XPT-12G	SFP Cage 1: Single or dual Rx SFP Cage 2: Single or dual TX	OE, 2OE EO, 2EO
9915DA-4x16-XPT-12G	SFP Cage 1: Single or dual Rx/Tx SFP Cage 2: Single or dual Rx/Tx	OE, 2OE, EO, 2EO, EOOE OE, 2OE, EO, 2EO, EOOE

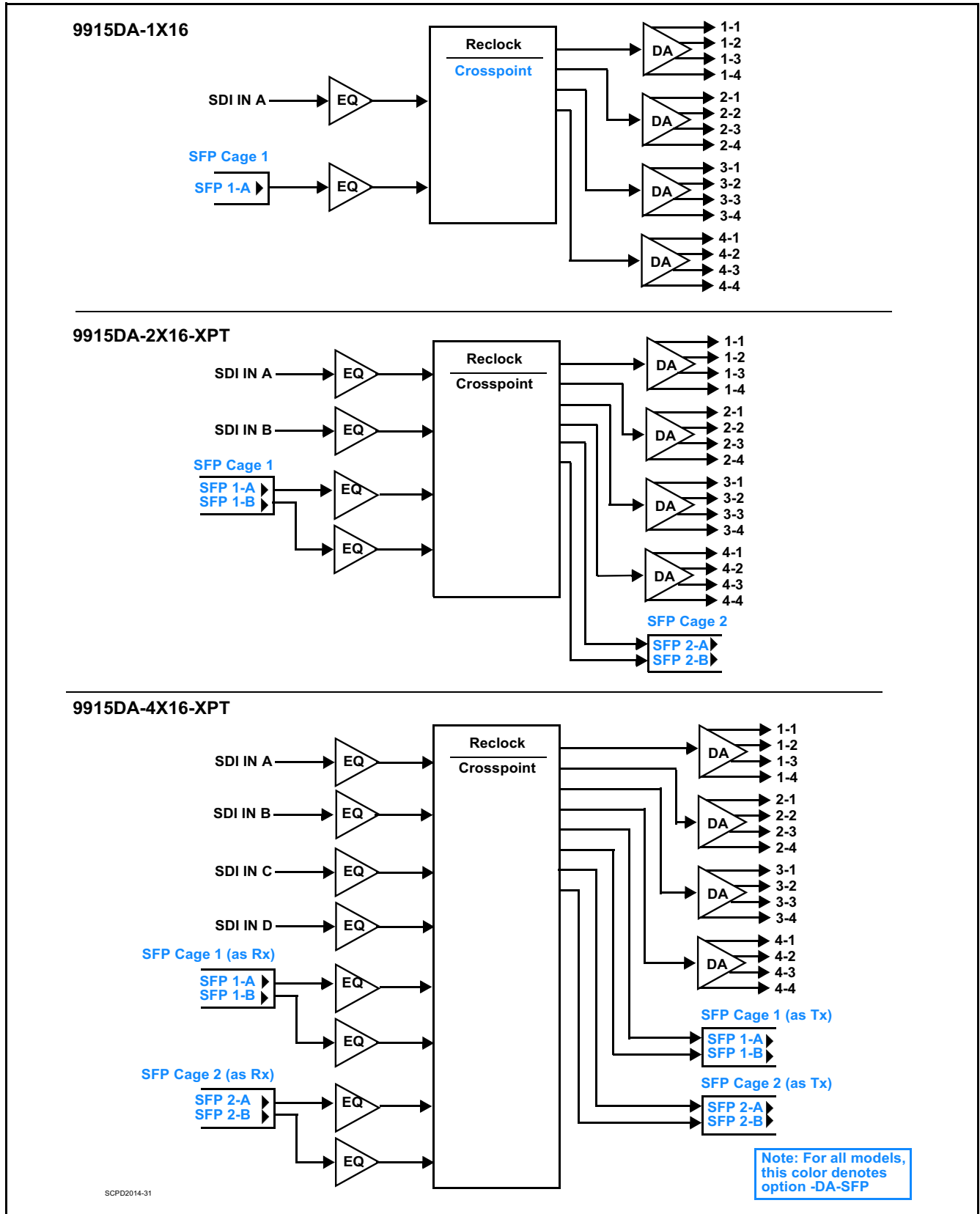


Figure 1-1 9915DA Functional Block Diagrams

DashBoard™ User Control Interface

Figure 1-2 shows the DashBoard™ user control interface for the 9915DA.

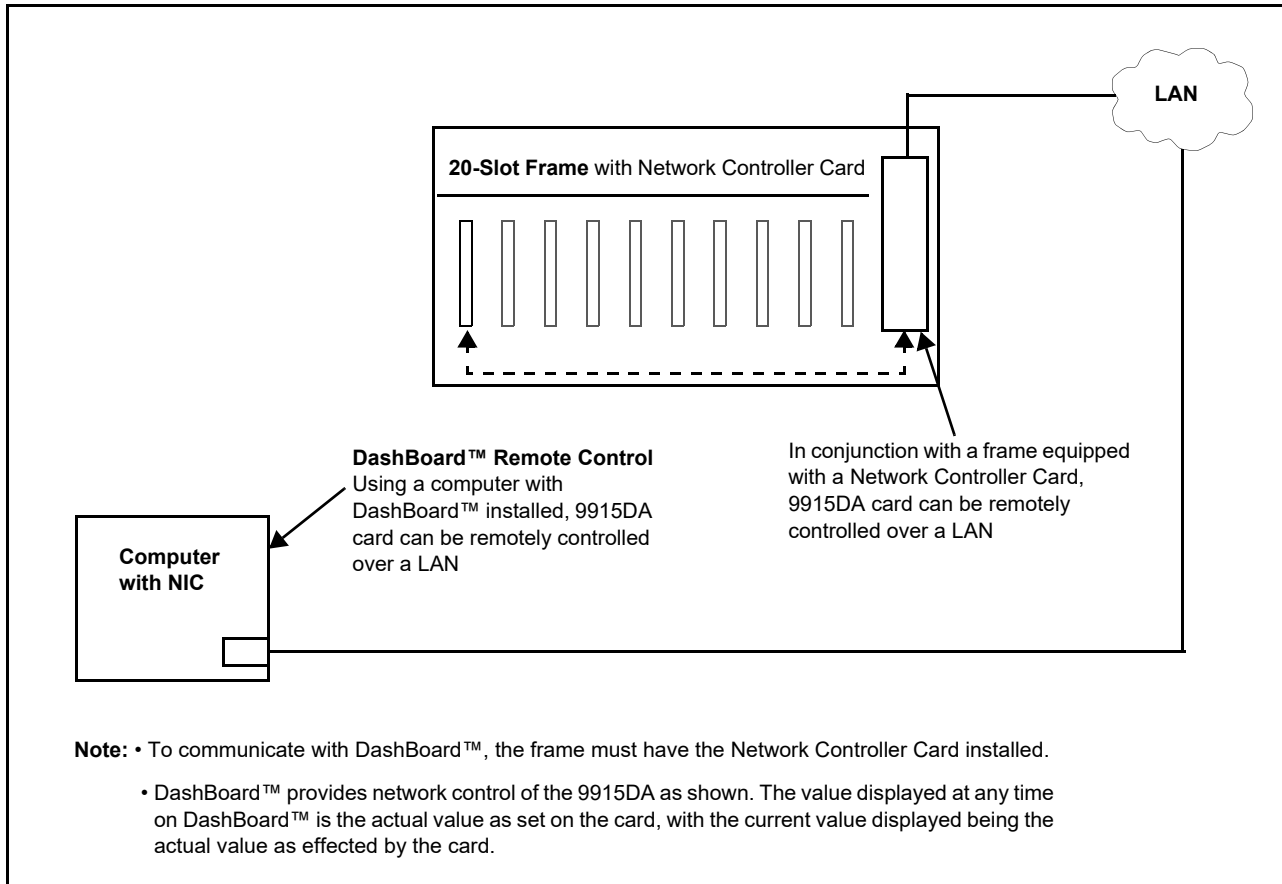


Figure 1-2 9915DA User Control Interface

Using DashBoard™, the 9915DA and other cards installed in openGear®¹ compatible frames such as the Cobalt® HPF-9000, oGx, OG3-FR, or other openGear® 20-slot frame can be controlled from a computer and monitor.

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 900RCS-RM)** provides thorough information and step-by-step instructions for setting up network remote control of COMPASS® cards using DashBoard™.

Download a copy of this guide by clicking on the **Support>Reference Documents** 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. 1-12).

9915DA Rear I/O Modules

The 9915DA physically interfaces to system video connections at the rear of its frame using a Rear I/O Module.

All signal inputs and outputs shown in the 9915DA Functional Block Diagrams (Figure 1-1) enter and exit the card via the card edge backplane connector. The Rear I/O Module breaks out the card edge connections to coaxial and other connectors that interface with other components and systems in the signal chain.

Technical Specifications

Table 1-2 lists the technical specifications for the 9915DA 12G/6G/3G/HD/SD-SDI Reclocking Distribution Amplifiers for openGear Systems card.

Table 1-2 *Technical Specifications*

Item	Characteristic
<p>Note: All specifications are preliminary and subject to change. Inputs/outputs are a function of rear I/O module used. Fiber specifications are typical, and only applicable for card fitted with optional Tx or Rx (as applicable) fiber SFP module.</p>	
Part number, nomenclature	9915DA 12G/6G/3G/HD/SD-SDI Reclocking Distribution Amplifiers for openGear Systems <ul style="list-style-type: none"> • 9915DA-1x16-12G 12G/6G/3G/HD/SD-SDI 1x16 Reclocking Distribution Amplifier • 9915DA-2x16-XPT-12G 12G/6G/3G/HD/SD Dual-Channel Multi-Rate Reclocking DA with x4 Output Crosspoint • 9915DA-4x16-XPT-12G 12G/6G/3G/HD/SD Quad-Channel Multi-Rate Reclocking DA with x4 Output Crosspoint
Installation/usage environment	Intended for installation and usage in frame meeting openGear modular system definition
Power consumption	< 10 Watts maximum

Table 1-2 Technical Specifications — continued

Item	Characteristic
Environmental: Operating temperature: Relative humidity (operating or storage):	32° – 104° F (0° – 40° C) < 95%, non-condensing
Frame communication	10/100/1000 Mbps Ethernet with Auto-MDIX
12G / 6G / 3G / 1.5G / 270M Serial Digital Interface Input/Output	1, 2, or 4 (1x16, 2x16, 4x16 models respectively) 75Ω HDBNC Connectors Input (max). (16) 75Ω HDBNC Connectors Output (max). SDI Formats Supported: SMPTE ST2082-1,10, 424M, 292M, SMPTE 259M-C. All inputs/outputs 12G compliant and SDQS/2SI quad 3G compliant.
Coaxial Receive Performance (Cable Length; Belden 4694)	50m/70m/150m/180m (12G/6G/3G/HD)
Fiber Transmit Output (typ. with optional fiber Tx SFP)	LC connector Fiber Wavelength, Tx: 1310 nm Tx Power: -5.0 dBm (min)
Fiber Receive Input (typ. with optional fiber Rx SFP)	LC connector Receive Sensitivity: -23 dBm; 1260 to 1620 nm Receive Sensitivity: (-12G SFP models; 12G/6G/3G/HD/SD): -9/-10/-10/-10/-10 dBm

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

Phone:	(217) 344-1243
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Technical Support:	support@cobaltdigital.com

Installation and Setup

Overview

This chapter contains the following information:

- Installing the 9915DA Into a Frame Slot (p. 2-1)
- Installing a Rear I/O Module (p. 2-3)
- Setting Up 9915DA Network Remote Control (p. 2-6)

Installing the 9915DA Into a Frame Slot

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.

CAUTION

If required, make certain Rear I/O Module(s) is installed before installing the 9915DA 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 9915DA 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 9915DA into a frame slot as follows:

1. Determine the slot in which the 9915DA is to be installed.
2. Open the frame front access panel.
3. While holding the card by the card edges, align the card such that the plastic ejector tab is on the bottom.
4. Align the card with the top and bottom guides of the slot in which the card is being installed.
5. 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.

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.

6. Verify that the card is fully engaged in rear I/O module mating connector.
7. Close the frame front access panel.
8. Connect the input and output cables as shown in 9915DA Rear I/O Modules (p. 2-3).
9. Repeat steps 1 through 8 for other 9915DA cards.

- Note:**
- The 9915DA BNC inputs are internally 75-ohm terminated. It is not necessary to terminate unused BNC inputs or outputs.
 - 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.

10. 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 9915DA Network Remote Control (p. 2-6).

- 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.

Installing a Rear I/O Module

Note: This procedure is applicable **only if a Rear I/O Module is not currently installed** in the slot where the 9915DA is to be installed.

Install a Rear I/O Module as follows:

1. On the frame, determine the slot in which the 9915DA is to be installed.
2. In the mounting area corresponding to the slot location, install Rear I/O Module as shown in Figure 2-1.

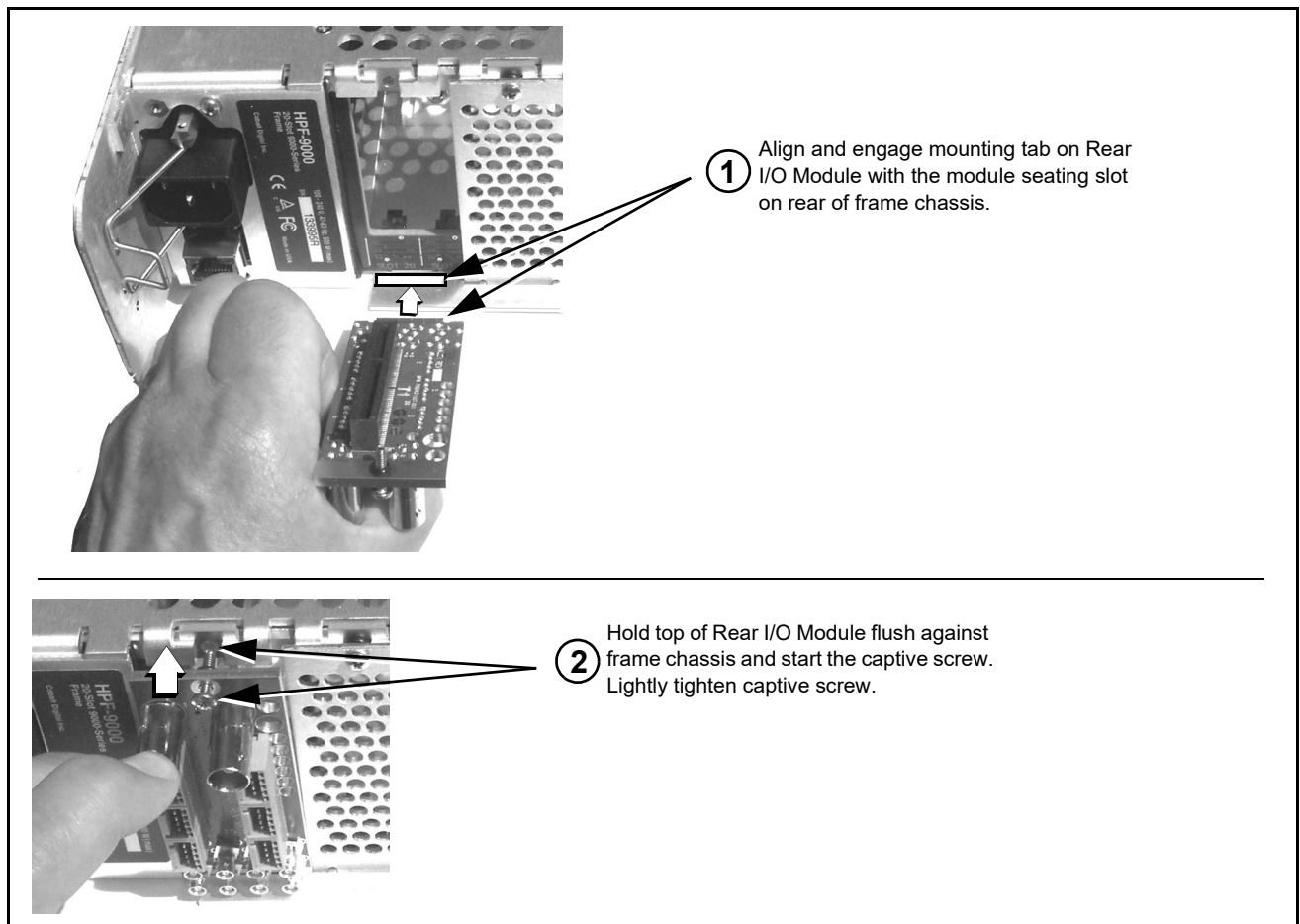


Figure 2-1 Rear I/O Module Installation

9915DA Rear I/O Modules

Table 2-1 shows and describes the Rear I/O Module specifically for use with the 9915DA. **RM20-9915-A** rear module is used for all 9915DA models, On models 2x16 and 1x16, certain coaxial inputs are **NC**. The **NC** inputs are shown grayed-out in the corresponding illustrations below.

Table 2-1 9915DA Rear I/O Modules



























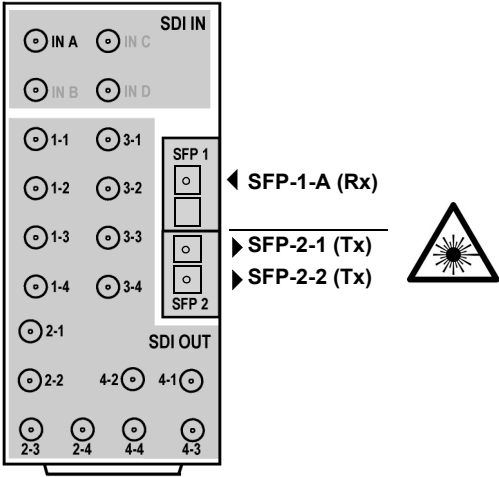

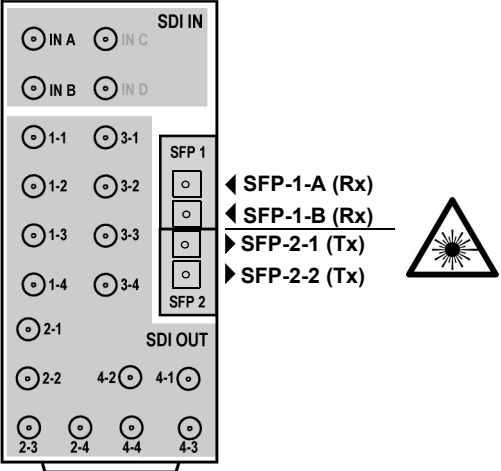
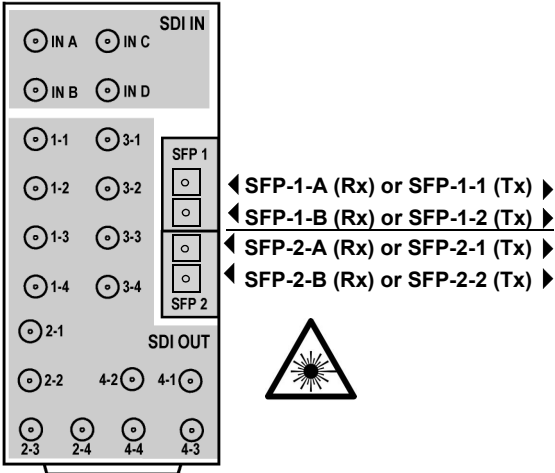
9915DA Rear I/O Module	Description						
<p>Note: • Option  Each 9915DA model has specific SFP port functionality when option -DA-SFP is included. Table 2-1 shows which SFP ports are available (and also Rx/Tx usage) on SFP ports for specific card models.</p> <ul style="list-style-type: none"> • Rear module has factory-installed SFP module receptacles on rear module. Plug-in SFP functionality is available with option -DA-SFP (SFP support daughtercard) and individual, user-installed -SFP plug-in module options. • SFP modules, when inserted into rear module SFP receptacles, can dimensionally extend past the right “boundary” of the rear module. In rare cases, this can present interference issues if a rear module to the right of SFP rear module also has adjacent large-footprint connectors that can extend across the rear module boundary. Plan frame buildout accordingly in these cases. • SFP fiber port correlations/designations matching the card user interface (UI) are shown below. <div data-bbox="285 720 802 999" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 50%; border-right: 1px solid black; padding: 5px;"> Rx (-OE) SFP Port Designations </td> <td style="text-align: center; width: 50%; padding: 5px;"> Tx (-EO) SFP Port Designations </td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">  SFP-1-A ◀  SFP-1-B ◀ </td> <td style="padding: 5px;">  SFP-1-1 ▶  SFP-1-2 ▶ </td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">  SFP-2-A ◀  SFP-2-B ◀ </td> <td style="padding: 5px;">  SFP-2-1 ▶  SFP-2-2 ▶ </td> </tr> </table> </div>		Rx (-OE) SFP Port Designations	Tx (-EO) SFP Port Designations	 SFP-1-A ◀  SFP-1-B ◀	 SFP-1-1 ▶  SFP-1-2 ▶	 SFP-2-A ◀  SFP-2-B ◀	 SFP-2-1 ▶  SFP-2-2 ▶
Rx (-OE) SFP Port Designations	Tx (-EO) SFP Port Designations						
 SFP-1-A ◀  SFP-1-B ◀	 SFP-1-1 ▶  SFP-1-2 ▶						
 SFP-2-A ◀  SFP-2-B ◀	 SFP-2-1 ▶  SFP-2-2 ▶						
 <p>CLASS 1 LASER PRODUCT - IEC 60825-1:2007. When fitted with fiber SFP modules(s), 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>RM20-9915-A-HDBNC (Model 9915DA-1x16-12G)</p> 	<p>Provides of the following connections:</p> <ul style="list-style-type: none"> • (1) SDI In (SDI IN A) • (16) SDI Out 1-1 thru 1-4 2-1 thru 2-4 3-1 thru 3-4 4-1 thru 4-4 (All coaxial connectors HD-BNC.) <p>Option </p> <ul style="list-style-type: none"> • SFP-1-A accepts -OE (Rx) SFP • SFP-2-1 and SFP-2-2 accepts -EO (Tx) SFPs (-EO for SFP-2-1 or -2EO for SFP-2-1 and -2-2) 						

Table 2-1 9915DA Rear I/O Modules — continued

9915DA Rear I/O Module	Description
<p>RM20-9915-A-HDBNC (Model 9915DA-2x16-XPT-12G)</p> 	<p>Provides of the following connections:</p> <ul style="list-style-type: none"> • (2) SDI In (SDI IN A and SDI IN B) • (16) SDI Out <ul style="list-style-type: none"> 1-1 thru 1-4 2-1 thru 2-4 3-1 thru 3-4 4-1 thru 4-4 (All coaxial connectors HD-BNC.) <p>Option ➤</p> <ul style="list-style-type: none"> • SFP-1-A and SFP-1-B accepts -OE (Rx) SFPs (-OE for SFP-1-A or -2OE for SFP-1-A and SFP-1-B) • SFP-2-1 and SFP-2-2 accepts -EO (Tx) SFPs (-EO for SFP-2-1 or -2EO for SFP-2-1 and SFP-2-2)
<p>RM20-9915-A-HDBNC (Model 9915DA-4x16-XPT-12G)</p> 	<p>Provides of the following connections:</p> <ul style="list-style-type: none"> • (4) SDI In (SDI IN A thru SDI IN D) • (16) SDI Out <ul style="list-style-type: none"> 1-1 thru 1-4 2-1 thru 2-4 3-1 thru 3-4 4-1 thru 4-4 (All coaxial connectors HD-BNC.) <p>Option ➤</p> <ul style="list-style-type: none"> • SFP 1 and SFP 2 accept -OE, -2OE, -EO, -2EO, or -EOOE types without restriction

Setting Up 9915DA 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™.

Download a copy of this guide by clicking on the **Support>Reference Documents** 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. 1-12).

- 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.
- The card models covered in this manual require DashBoard™ version 6.0 or greater. This is due to the added user interface controls which can only be accommodated with DashBoard version 6.0 or greater. While these cards will appear in the frame Basic Tree View in earlier DashBoard versions, the card controls will not be accessible. For a free download of the latest DashBoard version, please go to www.cobaltdigital.com, and select **Products > Software Control > DashBoard™**, and then select the version applicable to your computer.

Operating Instructions

Overview

If you are already familiar with using DashBoard or a Cobalt Remote Control Panel to control Cobalt cards, please skip to 9915DA Function Menu List and Descriptions (p. 3-6).

This chapter contains the following information:

- Control and Display Descriptions (p. 3-1)
- Accessing the 9915DA Card via DashBoard™ (p. 3-3)
- Checking 9915DA Card Information (p. 3-4)
- 9915DA Function Menu List and Descriptions (p. 3-6)
- Troubleshooting (p. 3-18)

Control and Display Descriptions

This section describes the user interface controls and indicators, and displays (both on-card and remote controls) for using the 9915DA card.

Note: When a setting is changed, settings displayed on DashBoard™ are the settings as effected by the card itself and reported back to the remote control; the value displayed at any time is the actual value as set on the card.

Function Menu/Parameter Submenu Overview

The functions and related parameters available on the card are organized into function **menus**, which consist of parameter groups as shown below.

Figure 3-1 shows how the card and its menus are organized, and also provides an overview of how navigation is performed between cards, function menus, and parameters.

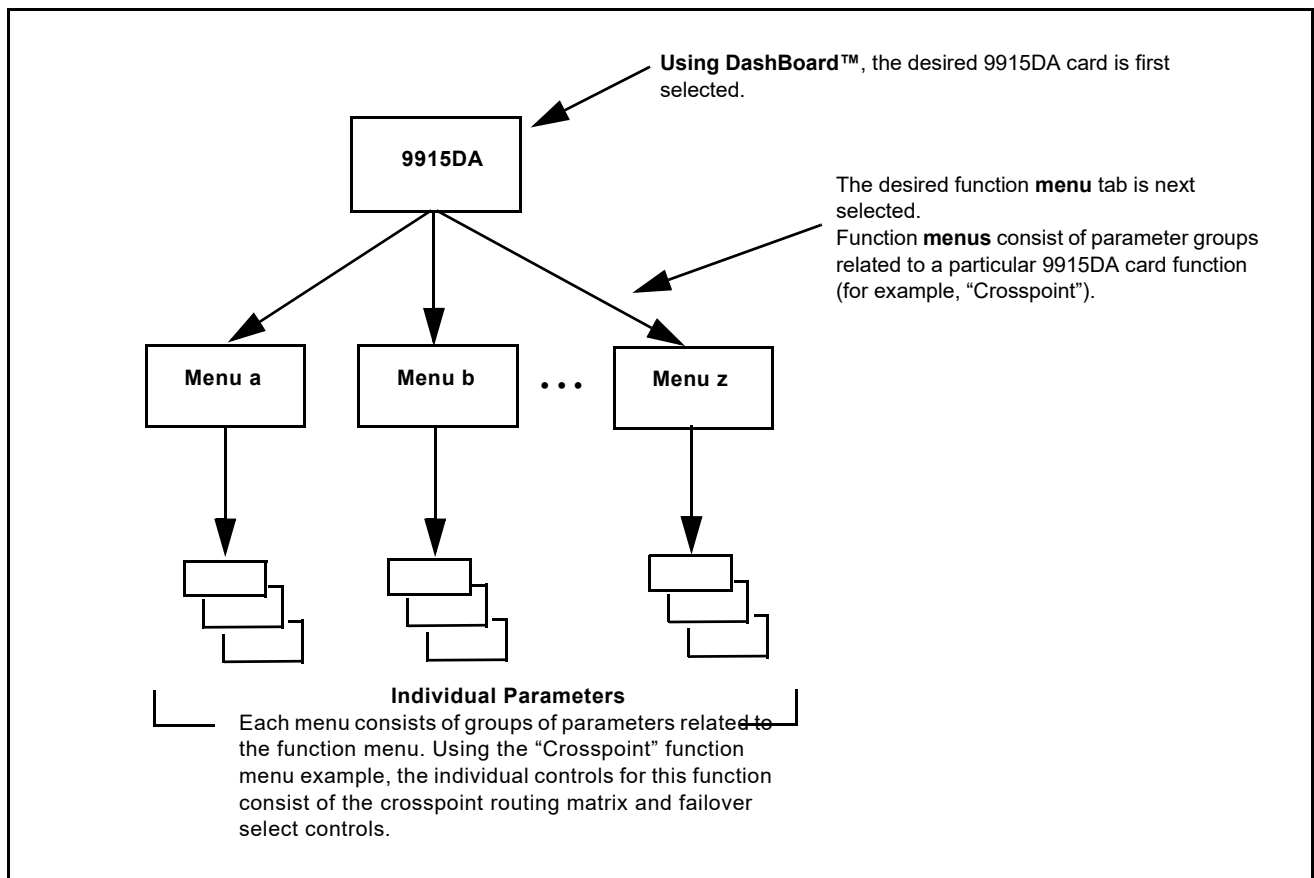
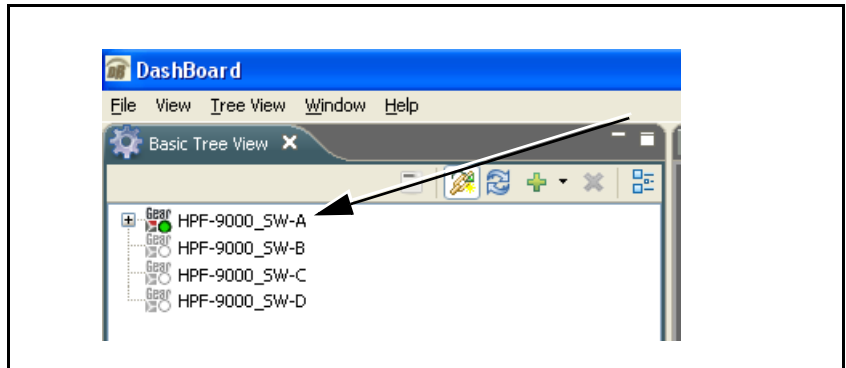


Figure 3-1 Function Menu/Parameter Submenu Overview

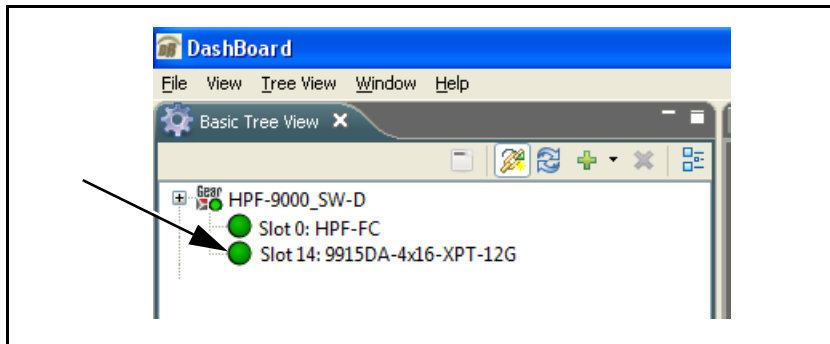
Accessing the 9915DA Card via DashBoard™

Access the card using DashBoard™ as described below.

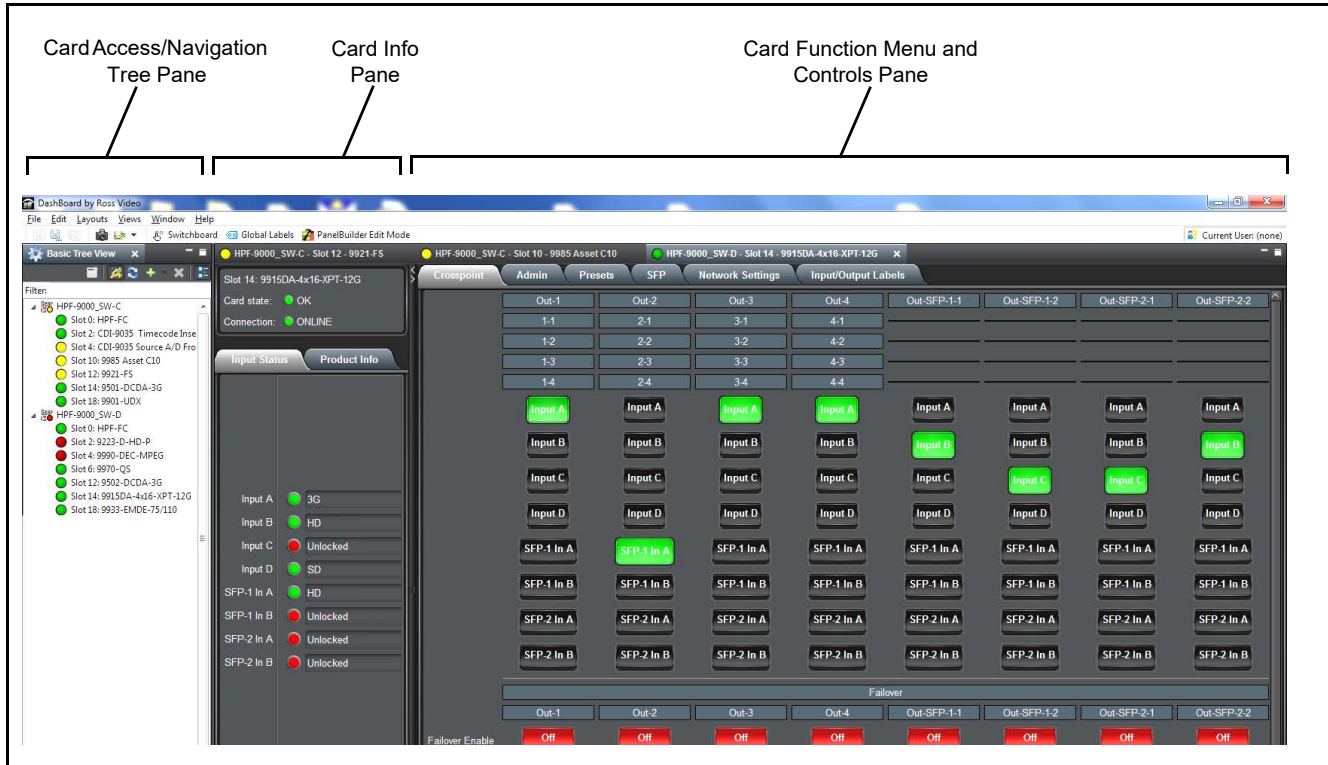
1. On the computer connected to the frame LAN, open DashBoard™.
2. As shown below (in the left side Basic View Tree) locate the Network Controller Card associated with the frame containing the 9915DA card to be accessed (in this example, “HPF-9000_SW-A”).



3. As shown below, expand the tree to access the cards within the frame. Click on the card to be accessed (in this example, “Slot 14: 9915DA-4x16-XPT-12G”).



As shown on the next page, when the card is accessed in DashBoard™ its function menu screen showing tabs for each function is displayed. (The particular menu screen displayed is the previously displayed screen from the last time the card was accessed by DashBoard™).



Checking 9915DA Card Information

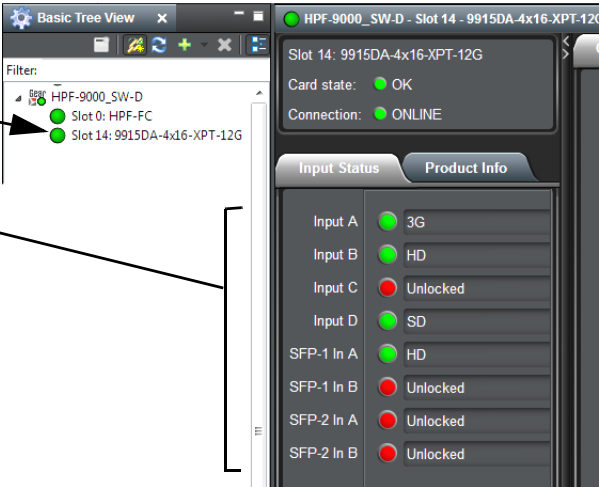
The operating status and software version the 9915DA card can be checked using DashBoard™. Figure 3-2 shows and describes the 9915DA card information screen using DashBoard™ and accessing card information using the on-card display.

Note: Proper operating status in DashBoard™ is denoted by green icons for the status indicators shown in Figure 3-2. Yellow or red icons respectively indicate an alert or failure condition. Refer to Troubleshooting (p. 3-18) for corrective action.

The **Tree View** shows the cards seen by DashBoard™. In this example, Network Controller Card is hosting a 9915DA card in slot 14.

Status Display
This displays shows the status of the signals being received by the 9915DA.

Product Info Display
This displays (alternately selected in the Card Info pane) shows the the card hardware and software version info (as well as card operating parameters).

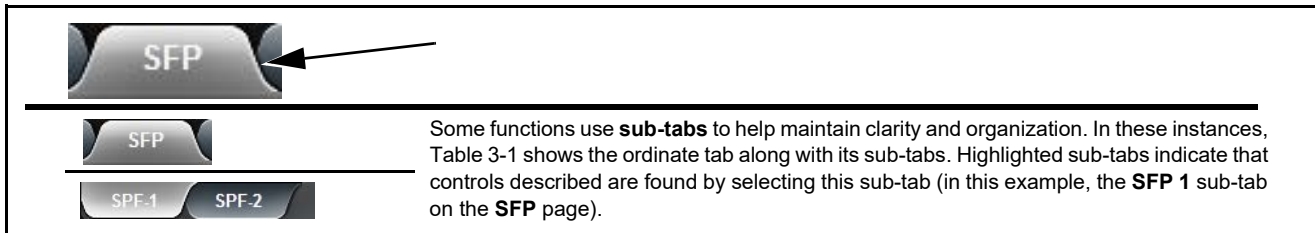


The screenshot shows a 'Basic Tree View' window on the left with a filter set to 'HPF-9000_SW-D'. It lists three items: 'Slot 0: HPF-FC', 'Slot 14: 9915DA-4x16-XPT-12G', and 'Slot 14: 9915DA-4x16-XPT-12G'. An arrow points from the text above to the 'Slot 14: 9915DA-4x16-XPT-12G' entry. To the right, a larger window displays the card's status and product information. The status section shows 'Slot 14: 9915DA-4x16-XPT-12G', 'Card state: OK', and 'Connection: ONLINE'. Below this are two tabs: 'Input Status' and 'Product Info'. The 'Input Status' tab is active, showing a list of inputs with their respective statuses: Input A (3G), Input B (HD), Input C (Unlocked), Input D (SD), SFP-1 In A (HD), SFP-1 In B (Unlocked), SFP-2 In A (Unlocked), and SFP-2 In B (Unlocked). An arrow points from the text above to this section. Below the main screenshot, a separate window shows the 'Product Info' tab selected, displaying fields for Product (9915DA-4x16-XPT-12G), Manufacturer (Cobalt Digital Inc.), Options (-DA-SFP), Software Revision (2.0-release-14e02451), Serial Number (456628), Ambient Temp Deg C (49), Power (W) (2.38), and 2.5V Status (2.49). An arrow points from the text above to this section.

Figure 3-2 9915DA Card Info/Status Utility


9915DA Function Menu List and Descriptions

Table 3-1 individually lists and describes each card function menu (“tab”) and its related list selections, controls, and parameters. Where helpful, examples showing usage of a function are also provided. On DashBoard™ itself and in Table 3-1, the function menu items are organized using tabs as shown below.



The table below provides a quick-reference to the page numbers where each function menu item can be found.

Function Menu Item	Page	Function Menu Item	Page
Input Status	3-7	Presets	3-16
Crosspoint Controls	3-8	Network Settings	3-17
Input/Output Labels	3-13	Admin	3-17
SFP Parameters Display	3-15		

Note: **Option**  Various UI details shown in the following sections may show SFP-related items. These controls and displays appear **only** on cards factory-equipped with hardware option **-DA-SFP**. An example is shown below.

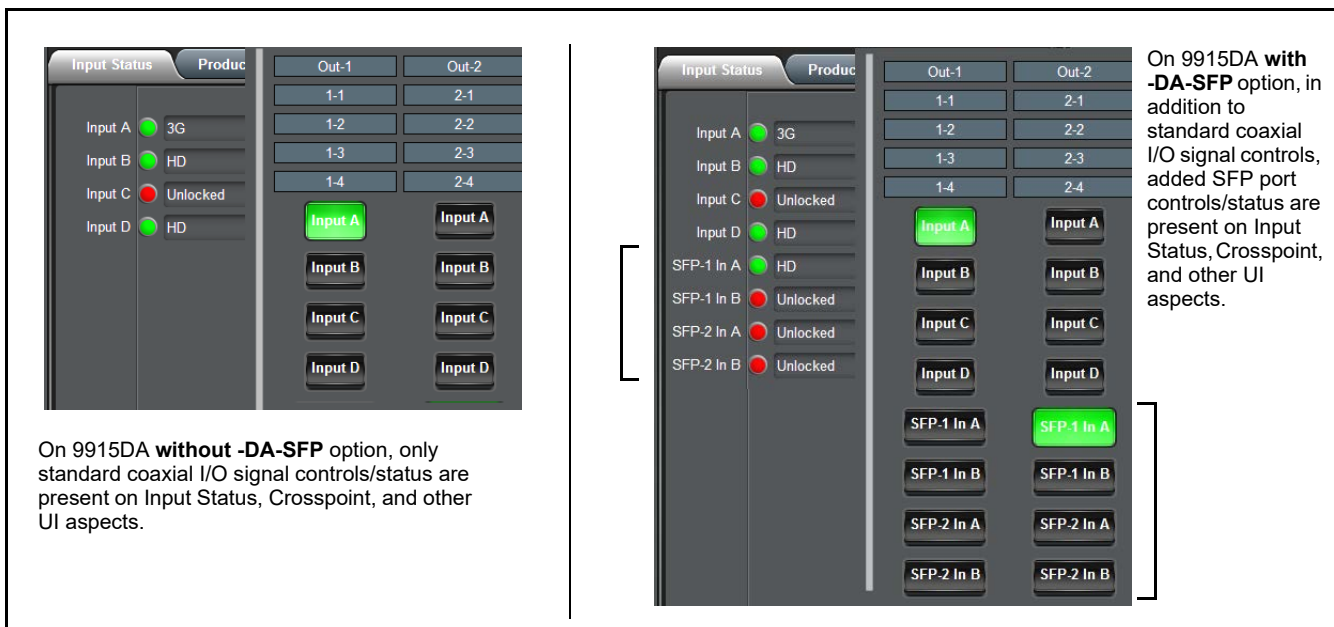


Table 3-1 9915DA Function Menu List



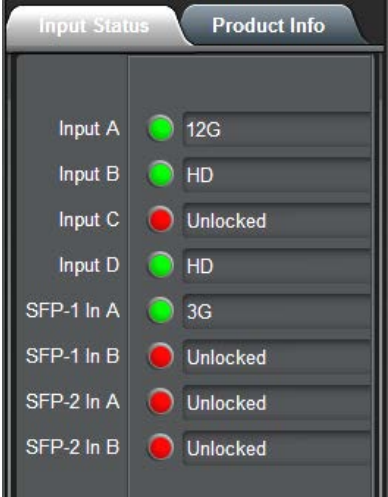
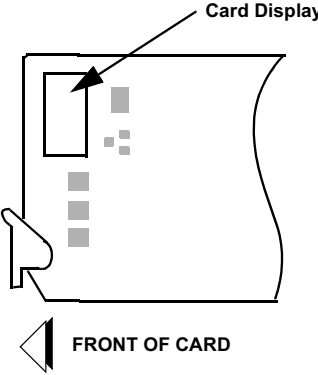
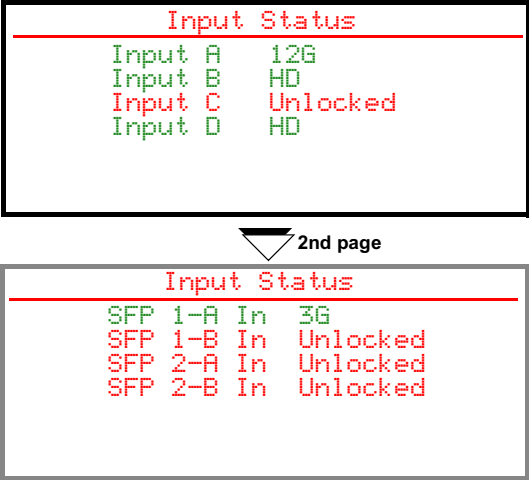
	<p>Displays input signal status (format and presence) for each of the card's SDI coaxial (and optionally fiber) inputs. This status is displayed both in DashBoard and via an on-card alphanumeric display.</p>
<p>Note: • Coaxial input complement (Input A thru Input D) shown in GUI depends on model. 2x16 and 1x16 have models have correspondingly fewer inputs than shown here.</p> <ul style="list-style-type: none"> • Option  SFP Input status displays applicable to card only with option -DA-SFP. 	
<p>In the example here, coaxial and SFP fiber inputs show lock as shown. Unlocked inputs display Unlocked.</p>	
<p>The same information shown in DashBoard Input Status is shown on a card display (located near the front of the card). The card display allows checking status on-site with no remote control/monitoring required. Where equipped with optional SFP inputs, the display cycles thru 2 pages, first showing coaxial input status, and then showing SFP input status.</p>	
 <p>Card Display</p> <p>FRONT OF CARD</p>	

Table 3-1 9915DA Function Menu List — continued





	<p>Provides input-to-output crosspoint routing matrix controls and input failover selection via DashBoard.</p>
<p>Note:</p> <ul style="list-style-type: none"> • Coaxial input complement (Input A thru Input D) shown in GUI depends on model. 2x16 and 1x16 have models have correspondingly fewer inputs than shown here. Base 9915DA-1x16 does not have the Crosspoint tab/page. • Convention used for all inputs (whether coax or fiber) is letters (A or -A, etc.). Convention for all outputs (whether coax or fiber) is numbers (1 or -1, etc.). • Option  SFP input select columns and SFP selections as output source applicable to card only with option -DA-SFP. 	
<p>Shown below is an overview of the Crosspoint matrix. Detailed examples of control functions and examples are shown on the next pages.</p>	
<p>Destination output columns </p> <p>Each column corresponds to card coax group-of-four DA outputs Out 1 (outputs 1-1 thru 1-4) thru Out 4 (outputs 4-1 thru 4-4), and optionally SFP outputs Out-SFP-1-1 thru Out-SFP-2-2.</p>	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Input source select rows</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Each input supported by the card is available as a source input for each coaxial output group (and optionally each SFP EO-type device input). The selected button selection is similar to Primary input selection.</p>	 <p>The image shows two screenshots of the Crosspoint matrix GUI. The top screenshot displays a grid of input source select buttons for each output column. The bottom screenshot shows failover controls for each output column, including 'Failover Enable', 'Return on good', and 'Failover Status' buttons, along with the input source select buttons.</p>

Table 3-1 9915DA Function Menu List — continued

Crosspoint

(continued)

Crosspoint Routing Examples

In this example, coax **SDI IN A** thru **SDI IN D**, set up for four, 1x4 DA fan-outs.

Out-1	Out-2	Out-3	Out-4
1-1	2-1	3-1	4-1
1-2	2-2	3-2	4-2
1-3	2-3	3-3	4-3
1-4	2-4	3-4	4-4
Input A	Input A	Input A	Input A
Input B	Input B	Input B	Input B
Input C	Input C	Input C	Input C
Input D	Input D	Input D	Input D
SFP 1 In A	SFP 1 In A	SFP 1 In A	SFP 1 In A

Out-1	Out-2	Out-3	Out-4	Out-SFP-1-1	Out-SFP-1-2
1-1	2-1	3-1	4-1		
1-2	2-2	3-2	4-2		
1-3	2-3	3-3	4-3		
1-4	2-4	3-4	4-4		
Input A	Input A	Input A	Input A	Input A	Input A
Input B	Input B	Input B	Input B	Input B	Input B
Input C	Input C	Input C	Input C	Input C	Input C
Input D	Input D	Input D	Input D	Input D	Input D

In this example, coax **SDI IN A** thru **SDI IN D**, set up for four, 1x4 DA fan-outs (as above), but also with optional SFP Cage 1 (fitted with a 2EO) set up to route **SDI IN A** and **SDI IN B** respectively to SFP fiber outputs **SFP 1-1** and **SFP 1-2**.

9915DA-OM (V1.3)

9915DA PRODUCT MANUAL

3-9

Table 3-1 9915DA Function Menu List — continued

Crosspoint

(continued)

Crosspoint Routing Examples (Cont.)

Out-1	Out-2	Out-3	Out-4	Out-SFP-1-1	Out-SFP-1-2
1-1	2-1	3-1	4-1		
1-2	2-2	3-2	4-2		
1-3	2-3	3-3	4-3		
1-4	2-4	3-4	4-4		

Input A	Input A	Input A	Input A	Input A	Input A
Input B	Input B	Input B	Input B	Input B	Input B
Input C	Input C	Input C	Input C	Input C	Input C
Input D	Input D	Input D	Input D	Input D	Input D
SFP-1 In A	SFP-1 In A	SFP-1 In A	SFP-1 In A	SFP-1 In A	SFP-1 In A
SFP-1 In B	SFP-1 In B	SFP-1 In B	SFP-1 In B	SFP-1 In B	SFP-1 In B
SFP-2 In A	SFP-2 In A	SFP-2 In A	SFP-2 In A	SFP-2 In A	SFP-2 In A
SFP-2 In B	SFP-2 In B	SFP-2 In B	SFP-2 In B	SFP-2 In B	SFP-2 In B

Input A	Input B	Input C	Input D	Input A	Input B
Input B	Input C	Input D	Input A	Input B	Input C
Input C	Input D	Input A	Input B	Input C	Input D
Input D	Input A	Input B	Input C	Input D	Input A
SFP-1 In A	SFP-1 In A	SFP-1 In A	SFP-1 In A	SFP-1 In A	SFP-1 In A
SFP-1 In B	SFP-1 In B	SFP-1 In B	SFP-1 In B	SFP-1 In B	SFP-1 In B
SFP-2 In A	SFP-2 In A	SFP-2 In A	SFP-2 In A	SFP-2 In A	SFP-2 In A
SFP-2 In B	SFP-2 In B	SFP-2 In B	SFP-2 In B	SFP-2 In B	SFP-2 In B

In this example, SFP Cage 2 (fitted with a 2OE) with **SFP-2 In A** and **SFP-2 In B** as receive fiber inputs. These fiber inputs are respectively routed to serve **Out-3** and **Out-4** x4 coax DA outputs. (As shown in previous example, coax inputs **SDI IN A** and **SDI IN B** are respectively routed to SFP fiber outputs **Out SFP 1-1** and **Out SFP 1-2**.)

The diagram illustrates the routing of signals through a crosspoint switch (XPT). On the left, there are four SDI inputs (SDI IN A, SDI IN B, SDI IN C, SDI IN D) and two SFP inputs (SFP 2-A, SFP 2-B). On the right, there are eight coax outputs (1-1, 1-4, 2-1, 2-4, 3-1, 3-4, 4-1, 4-4) and two SFP outputs (SFP 1-1, SFP 1-2). The routing is as follows: SDI IN A and SDI IN B are routed to SFP 1-1 and SFP 1-2 respectively. SDI IN C and SDI IN D are routed to outputs 1-1, 1-4, 2-1, and 2-4. SFP 2-A and SFP 2-B are routed to outputs 3-1, 3-4, 4-1, and 4-4.

3-10

9915DA PRODUCT MANUAL

9915DA-OM (V1.3)

Table 3-1 9915DA Function Menu List — continued

Crosspoint

(continued)

Crosspoint Routing Examples (Cont.)

Out-1	Out-2	Out-3	Out-4	Out-SFP-1-1	Out-SFP-1-2
1-1	2-1	3-1	4-1		
1-2	2-2	3-2	4-2		
1-3	2-3	3-3	4-3		
1-4	2-4	3-4	4-4		

Input A

Input B

Input C

Input D

SFP-1 In A

SFP-1 In B

SFP-2 In A

SFP-2 In B

Input A

Input B

Input C

Input D

SFP-1 In A

SFP-1 In B

SFP-2 In A

SFP-2 In B

Input A

Input B

Input C

Input D

SFP-1 In A

SFP-1 In B

SFP-2 In A

SFP-2 In B

Input A

Input B

Input C

Input D

SFP-1 In A

SFP-1 In B

SFP-2 In A

SFP-2 In B

Input A

Input B

Input C

Input D

SFP-1 In A

SFP-1 In B

SFP-2 In A

SFP-2 In B

Input A

Input B

Input C

Input D

SFP-1 In A

SFP-1 In B

SFP-2 In A

SFP-2 In B

In this example, a dual OEO repeater/regen is facilitated with SFP Cage 2 (fitted with a 2OE) with **SFP-2 In A** and **SFP-2 In B** as receive fiber inputs. In turn, SFP Cage 1 (fitted with a 2EO) provides two fiber outputs. With the crosspoint selections shown, **SFP-2 In A** and **SFP-2 In B** Rx fiber inputs the respective sources for **Out SFP 1-1** and **Out SFP 1-2**, and as such provide OEO functions for the two fiber inputs. (In this setup, coax outputs of the two fiber inputs are also available on coax **Out 3** and **Out 4**.)

9915DA-OM (V1.3)

9915DA PRODUCT MANUAL

3-11

Table 3-1 9915DA Function Menu List — continued

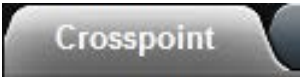
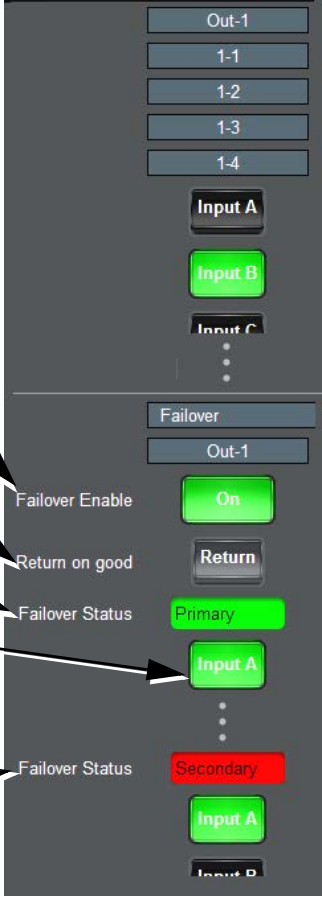
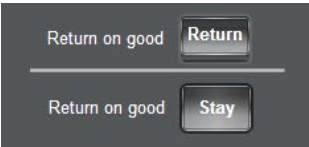
	<p>(continued)</p>
<p>Failover Function/Controls</p>	
<p>Each Output column has independent Failover Select controls that can be set to provide a failover (Secondary) if the current intended input (Primary) should lose lock. Additional controls provide various actions upon failover engagement.</p>	
<p>Failover Enable sets LOS failover engagement for selected output to On or Off.</p>	
<p>Return on good sets rules for Primary/Secondary resumption if Primary signal again becomes present (see below).</p>	
<p>Failover Status shows whether Primary (no failover) or Secondary (failover engaged) is in effect.</p>	
<p>Failover input select controls mirror whatever input choices are present for the associated Output column (in this example, Input B has been selected as the Primary input, and Input A has been selected as the failover Secondary input.)</p>	
<p>If LOS occurs for the Primary input driving the associated output, Failover Status indicates Secondary (indicating the selected Secondary failover input is now being used for the output).</p>	
<p>Return on good selects the action taken for the associated output should the selected Primary input again show lock:</p>	
<ul style="list-style-type: none"> • Return setting forces the locked Primary input to be unconditionally used again following a failover. • Stay setting forces the Secondary input to be retained as the input even if the Primary input again appears. (This is useful if it's assumed that the Primary input can no longer be "trusted" and it is desired to avoid using the Primary input until further investigated and remedied.) 	
<p>Note: If Stay is selected, it will be necessary to perform the following to again allow the Primary input to be used.</p> <ul style="list-style-type: none"> - Set Return on good to Return. - Toggle Failover Enable to Off, then On again. 	

Table 3-1 9915DA Function Menu List — continued


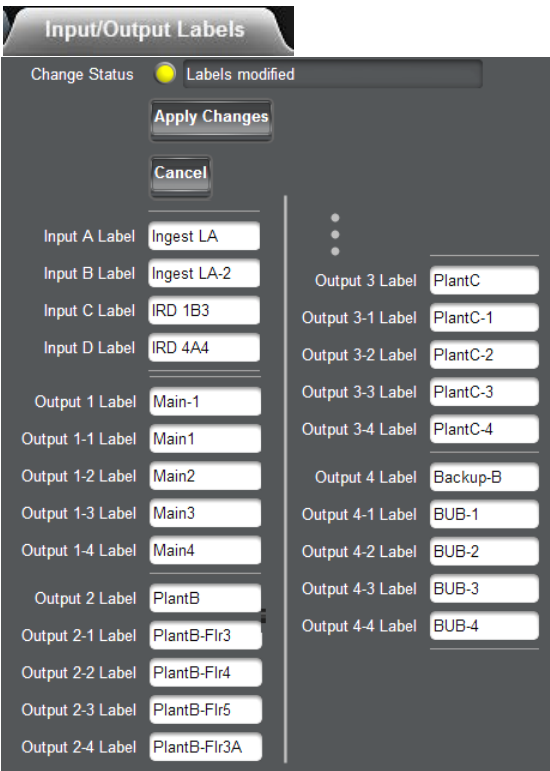

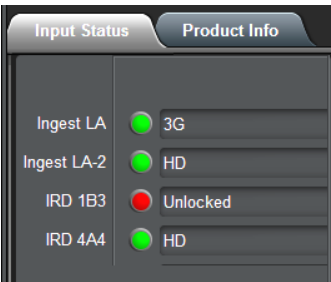
	<p>Provides a table for entering and applying custom user names for all input and outputs ID mnemonics shown in DashBoard UI (thereby replacing default “factory” names with desired custom names).</p>
<p>Note:</p> <ul style="list-style-type: none"> Although the string length of custom names is not specifically restricted (and the GUI button and/or heading backgrounds will automatically resize to accommodate custom names), excessively long strings should be avoided because certain GUI aspects may be less readable in accommodating the long custom names. Custom names are saved with power down and subsequent power-up. Custom names can be nested within a user-defined Preset. If an alternate Preset is saved, the alternate preset can nest within it any unique name changes (as compared to default or other defined preset). Applying Presets > Restore Factory Defaults will clear all custom naming defined in this tab and revert naming to factory defaults. 	
<p>Shown in this example is custom labels applied for input names output quadrants (“Out-1” thru “Out-4”), and individual DA outputs. Custom names fully propagate to all controls where a particular signal control is present. The names are defined and applied in the Input/Output Labels table.</p>	
	
	<p>Custom names are also propagated to the Input Status tab.</p>

Table 3-1 9915DA Function Menu List — continued

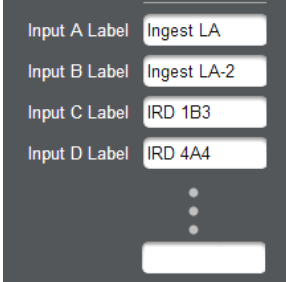
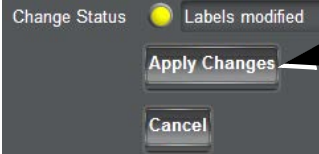
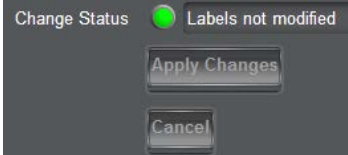

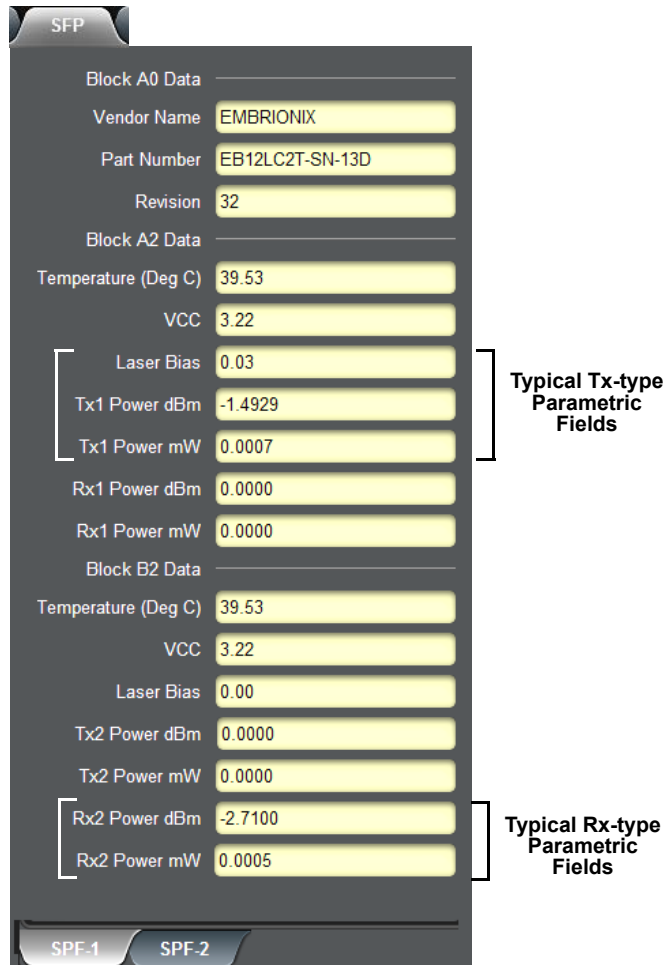
Input/Output Labels	(continued)
<p>Apply custom label names as follows:</p> <ol style="list-style-type: none"> 1. Enter custom label text in desired field(s), continuing for all desired label fields. 	
	
<ol style="list-style-type: none"> 2. When done, click outside of the field to engage the change. 3. When done entering all text changes, click on Apply Changes. (Clicking Cancel aborts all changes and reverts to default labels). 	
	
<ol style="list-style-type: none"> 4. The entered label changes are now displayed on all related DashBoard ID's and controls. Green Change Status indicates labeling changes are saved. 	
	
<ul style="list-style-type: none"> • Labeling changes are persistent (unless changed again or cleared) and are saved for power cycles. • To save custom labeling for a particular setup (where other labeling, or default labeling may later be necessary), custom labeling (along with other card settings such as routing, etc.) can be saved as part of a Preset. When the Preset is loaded, any labeling saved within the Preset will take effect. (See Presets (p. 3-16) for more info on Presets.) 	
<ol style="list-style-type: none"> 5. If necessary to clear all custom labeling after being saved, go to the Presets tab and click Restore Factory Defaults. (Note that this will also clear any custom routing changes to factory defaults.) 	
<p>Note: If custom labeling is saved within a Preset, this labeling can be recalled (even following a reset to factory defaults) by again loading the Preset associated with the custom labeling.</p>	

Table 3-1 9915DA Function Menu List — continued

	<p>Provides status tables that show OEM ID and parametric operating info for SFP modules fitted to 9915DA card.</p>
---	---

Note: **SFP** tab has identical independent sub-tabs for both **SFP-1** and **SFP-2** (SFP cages 1 and 2, respectively). (If a plug-in SFP is not installed in a cage, the respective SFP sub-tab parametric fields read all zeros, and the Vendor/Part Number fields displays are blank.)

SFP sub-tabs show parametric reports related to **SFP-1** and **SFP-2** operational status, as well as provide Vendor OEM info as shown below.



Block A0 Data	
Vendor Name	EMBRIONIX
Part Number	EB12LC2T-SN-13D
Revision	32
Block A2 Data	
Temperature (Deg C)	39.53
VCC	3.22
Laser Bias	0.03
Tx1 Power dBm	-1.4929
Tx1 Power mW	0.0007
Rx1 Power dBm	0.0000
Rx1 Power mW	0.0000
Block B2 Data	
Temperature (Deg C)	39.53
VCC	3.22
Laser Bias	0.00
Tx2 Power dBm	0.0000
Tx2 Power mW	0.0000
Rx2 Power dBm	-2.7100
Rx2 Power mW	0.0005

Note:

- In some cases, -2OE (dual Rx) types may not return expected **Rx Power dBm** and **Rx Power mW** values (may read zero). This is due to lack of conformity in mapping of this data reported by the plug-in SFP device. In all cases, card DashBoard and on-card display uses a separate, independent mechanism for determining lock/unlock that in no manner relies on the Rx status/parameters reported/displayed here.

- Where Tx or Rx type SFP devices are not installed in SFP cages, the Tx and/or Rx fields here will respectively report all zero data or null data.

Table 3-1 9915DA Function Menu List — continued


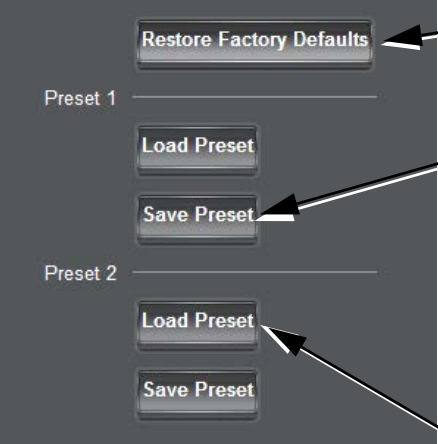

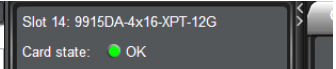

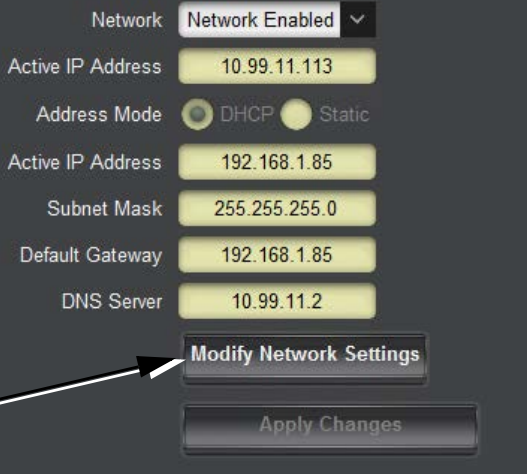

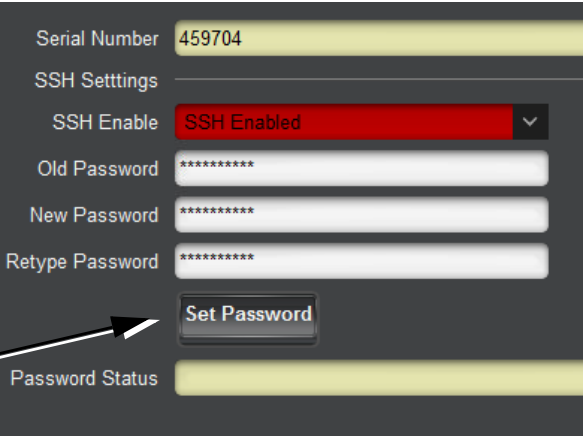
	<p>Allows user control settings to be saved in a Preset and then loaded (recalled) with a one-button press as desired. Presets also provides a one-button restore of factory default settings.</p>
<p>The Presets tab offers two presets (Preset 1 and Preset 2) where unique user custom settings can be saved. Any custom user control settings state can be saved to a preset, including:</p>	
<ul style="list-style-type: none"> • All Crosspoint tab settings (including Failover routing and actions settings). • All Network Settings tab settings. • All Input/Output tab settings, including all custom labels text. 	
	<p>To restore factory defaults from any custom settings or engaged preset, press Restore Factory Defaults. (Saved presets can be invoked again if desired by selecting and loading the preset as shown below.)</p> <p>To save custom settings, press Save Preset of the desired preset number to which the states are to be saved. When Save Preset is pressed, a Confirm pop-up appears.</p>
	 <p>To load an already-saved preset, press Load Preset of the desired preset number to be loaded. When Load Preset is pressed, a Confirm pop-up appears.</p>
<p>Note: • Before saving custom states to a preset, make certain Card state indicator on Card Info pane shows green — OK. If Save is pressed before OK (green), intended changes may not be saved to the preset.</p>	
<ul style="list-style-type: none"> • Pressing Restore Factory Defaults will restore all basic factory routing (including disabling any failover settings). Restore Factory Defaults will also clear any user custom Input/Output Labels settings/text. (Custom labeling however is saved if the preset is again loaded). If alternate input/output labeling is desired for another preset, it is recommended to clear custom labeling using Restore Factory Defaults, and then develop and save alternate custom labeling using another preset.) • Even if Restore Factory Defaults is invoked, any saved preset can be recalled and invoked using the Load Preset function described above. 	

Table 3-1 9915DA Function Menu List — continued

	<p>Provides controls for setting the card comm IP address.</p>
<p>Note: Frame per-card dedicated net connection is available only on certain frame models. The IP setup controls here are completely separate and independent of any DashBoard or frame IP setup.</p>	
<ul style="list-style-type: none"> • Network select to enable or disable the network. • Address Mode allows setting address to static (user) address or via DHCP (where a DHCP server is available for the connection). • IP Address, Subnet Mask, and Default Gateway fields allow setting IP parameters when Static mode is selected. • Card Active IP Address shows the currently configured IP address (whether static or DHCP). • DNS Server allows setting IP address to match DNS Server where required. <p>For all settings here, clicking Modify Network Settings opens the dialogs shown above. To apply or cancel the entered changes, click Apply or Cancel as desired.</p>	
	<p>Shows card serial number.</p>
<ul style="list-style-type: none"> • Serial Number shows the card serial number. <p>SSH Settings----</p> <ul style="list-style-type: none"> • SSH Enable select to enable or disable SSH. • Old Password type old password. • New Password type new password. • Retype Password retype new password. • Password Status shows password status. <p>For all settings here, clicking Set Password to apply the changes.</p>	

Troubleshooting

This section provides general troubleshooting information and specific symptom/corrective action for the card and its remote control interface. The 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.

DashBoard™ Status/Error Indicators and Displays

Figure 3-3 shows and describes the DashBoard™ status indicators and displays. These indicator icons and displays show status and error conditions relating to the 9915DA card itself and remote (network) communications.

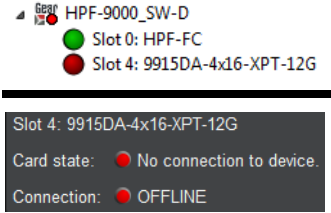
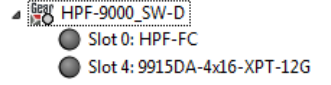
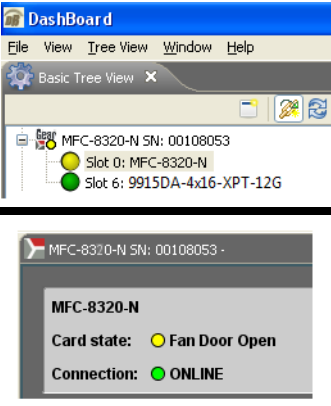
Indicator Icon or Display	Error Description
	<p>Red indicator icon in Card Access/Navigation Tree pane shows card with Error condition (in this example, the Card Access/Navigation Tree pane shows a general error issued by the 9915DA card in slot 4).</p> <p>Specific errors are displayed in the Card Info pane (in this example “No connection to device” indicating 9915DA card is not connecting to frame/LAN).</p>
	<p>Gray indicator icon in Card Access/Navigation Tree pane shows card(s) are not being seen by DashBoard™ due to lack of connection to frame LAN (in this example, both a 9915DA card in slot 4 and the HPF-FC Network Controller Card for its frame in slot 0 are not being seen).</p>
	<p>Yellow indicator icon in Card Access/Navigation Tree pane shows card with Alert condition (in this example, the Card Access/Navigation Tree pane shows a general alert issued by the MFC-8320-N Network Controller Card).</p> <p>Clicking the card slot position in the Card Access/Navigation Tree (in this example Network Controller Card “Slot 0: MFC-8320-N”) opens the Card Info pane for the selected card. In this example, a “Fan Door Open” specific error is displayed.</p>

Figure 3-3 DashBoard™ Status Indicator Icons and Displays

Error and Failure Indicator Overview

The card itself and its remote control systems all (to varying degrees) provide error and failure indications. Check all available indications in the event of an error or failure condition.

The various card and remote control error and failure indicators are individually described below.

Note: The descriptions below provide general information for the various status and error indicators. For specific failures, also use the appropriate subsection listed below.

- Basic Troubleshooting Checks (p. 3-19)
- 9915DA Processing Error Troubleshooting (p. 3-21)
- Troubleshooting Network/Remote Control Errors (p. 3-22)

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 3-2 provides basic system checks that typically locate the source of most general problems. If required and applicable, perform further troubleshooting in accordance with the other troubleshooting tables in this section.

Table 3-2 Basic Troubleshooting Checks

Item	Checks
Verify power presence and characteristics	<ul style="list-style-type: none"> • On both the frame Network Controller Card and the 9915DA, 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 the Power Consumed indication for the 9915DA card. This can be observed using the DashBoard™ Card Info pane. <ul style="list-style-type: none"> • If no power is being consumed, either the frame power supply, connections, or the 9915DA card itself is defective. • If excessive power is being consumed (see Technical Specifications (p. 1-9) in Chapter 1, "Introduction"), the card may be defective.
Check Cable connection secureness and connecting points	<p>Make certain all cable connections are fully secure (including coaxial cable attachment to cable ferrules on coaxial 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.</p>
Card seating within slots	<p>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.)</p>

Table 3-2 Basic Troubleshooting Checks — continued

Item	Checks
Check status indicators and displays	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.

9915DA On-Card Status Indicators/Display

Figure 3-4 shows and describes the 9915DA card status indicators/display. These indicators show status and error conditions relating to the card itself and remote (network) communications (where applicable), as well as input presence. Because these indicators/display are part of the card itself and require no external interface, the indicators/display are particularly useful in the event of communications problems or inaccessibility with external devices such as network remote control devices.

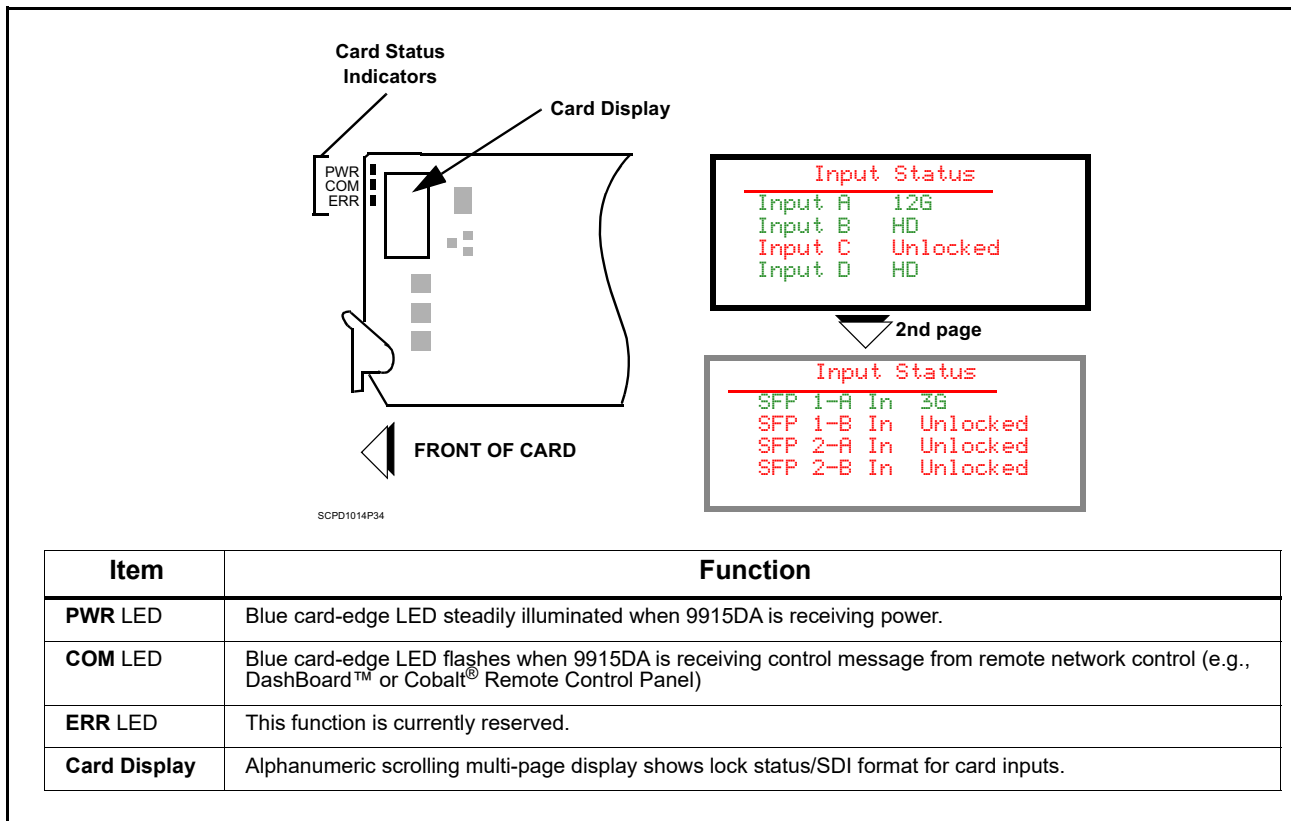


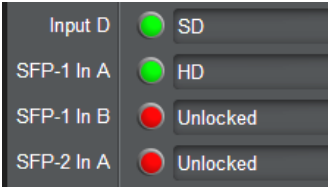
Figure 3-4 9915DA Card Status Indicators/Display

9915DA Processing Error Troubleshooting

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

In the majority of cases, most errors are caused by simple errors where the card is not appropriately set for the signal(s) to be received by the card.

Table 3-3 Troubleshooting Processing Errors by Symptom

Symptom	Error/Condition	Corrective Action
DashBoard™ shows red icon (No Signal) in Card Info pane.	<ul style="list-style-type: none"> No video input present on a source input 	Make certain intended video sources are connected to appropriate card video inputs. Make certain coaxial cable connections between Rear I/O Module for the card and signal source are OK.
Routing not as expected; unexpected sources present on destination outputs.	Failover not set as expected	Failover (when enabled and LOS occurs) may return to desired Primary input source or stay on Secondary input source until forced to use Primary. See Failover Function (p. 3-12) and make certain failover settings are set as desired.
<p>Input Status shows Unlocked message in 9915DA Input Status pane</p> 	<ul style="list-style-type: none"> No video input present on a source input or improper input connection Fiber connection not fully mated or connected to wrong SFP port 	<ul style="list-style-type: none"> Make certain intended video source is connected to appropriate 9915DA card video input. Make certain coaxial cable connections between Rear I/O Module for the card and signal source are OK. On fiber connections to card rear module, make certain fiber cable is properly plugged into and mating with appropriate Rx input port. Make certain upstream fiber sources feeding the card are indeed connected to a -OE-type SFP device (device type can be checked on the SFP DashBoard tab). On fiber connections, after verifying cable connection(s), SFP tab can be checked for Rx status. This can help pinpoint to unexpected fiber Rx LOS. <p>Note: In some cases, -2OE (dual Rx) types may not return expected Rx Power dBm and Rx Power mW values (may read zero) on SFP tab/page. See SFP Parameters Display (p. 3-15) for more information.</p>

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. 1-12) in Chapter 1, “Introduction“ for contact information.



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