BBG-1300-FR

1RU Enclosure for openGear® Cards

Product Manual

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BBG-1300-OM (V1.0)

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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® BBG-1300-FR 1RU Enclosure for openGear® Cards. The BBG-1300-FR 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 BBG-1300-FR, please contact us at the contact information on the front cover.

Manual No.:	BBG-1300-OM
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Description of product/manual changes:	- Initial official release

Important Safety Instructions

	Read these instructions.
	Keep these instructions.
	Heed all warnings.
	Follow all instructions.
 **Warning**	Do not use this apparatus near water.
	Clean only with a dry cloth.
 **Warning**	Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
	Do not defeat the safety purpose of polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
	Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
 **Warning**	Only use attachments/accessories specified by the manufacturer and in this manual.
	Unplug this apparatus during lightning storms or when unused for long periods of time.
 **Warning**	Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
 **Warning**	This apparatus shall not be exposed to dripping or splashing. Do not place objects such as water containers on the apparatus.
 **Warning**	The AC mains power receptacle on the rear of the apparatus shall only be connected by means of the power cord supplied with this apparatus. No other devices or cables shall be connected to this connector. If the supplied AC power cord is damaged or lost, it shall only be replaced using the AC power cord specified in this manual or by the manufacturer.
	To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
 **Warning**	Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
	To reduce the risk of fire, replacement fuses shall be the same type and rating as installed and as specified on the rear label adjacent to the power receptacle fuse holder.

EMC Notices

US FCC Part 15

(FCC 47 CFR Part 15 Subpart B) This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

Changes or modifications to this equipment not expressly approved by Cobalt Digital Inc. could void the user's authority to operate this equipment.

CANADA

This Class “A” digital apparatus complies with Canadian ICES-003 Issue 6:2016.

OTHER/ADDITIONAL

EN 55032, EN55035

Safety Notices/Certifications

The following have been submitted but are **currently pending** with expectation of authorization:

- UL 62368-1, 2nd Edition, 2014-12-01 (Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements)

- CSA C22.2 No. 62368-1-14, 2nd Edition, 2014-12 (Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements)

- IEC 62368-1:2014 (Second Edition)

- EN62368-1:2014 +A11

Table of Contents

Chapter 1

Introduction

Overview

This manual provides installation and operating instructions for the **BBG-1300-FR** 1RU Enclosure for openGear® Cards (also referred to herein as the **BBG-1300-FR**).

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 BBG-1300-FR.
- **Chapter 2, "Installation and Setup"** – Provides instructions for setup of the BBG-1300-FR, installing Rear I/O Modules and cards, and setting up network connections.

This chapter contains the following information:

Manual Conventions

In this manual, connectors are shown using the exact name shown on the BBG-1300-FR itself. In this manual, the terms below are applicable as follows:

- **BBG-1300-FR** refers to the BBG-1300-FR enclosure that houses Cobalt® or other openGear®-compliant cards.
- **Device** and/or **Card** refers to an openGear®-compliant card that is installed in the frame.
- **System** and/or **Video System** refers to the mix of interconnected production and terminal equipment served by the frame.
- Functions and/or features that are available only as an option are denoted in this manual like this:

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

	Important note regarding product usage. Failure to observe may result in unexpected or incorrect operation.
	Electronic device or assembly is susceptible to damage from an ESD event. Handle only using appropriate ESD prevention practices. If ESD wrist strap is not available, handle card only by edges and avoid contact with any connectors or components.
	Symbol (WEEE 2002/96/EC) For product disposal, ensure the following: • 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 covers on equipment containing an AC power supply. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

Cautions

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

BBG-1300-FR Functional Description

The Cobalt® BBG-1300-FR is a 1/3 rack-width 1RU openGear® compatible[1] enclosure capable of housing up to 2 cards as a basic standalone desktop unit, or up to 3 units racked together as a 1RU group for rack mounting. Looping reference on the BBG-1300-FR unit itself provides card reference support without using reference connections that consume card rear module connector count.

Most cards within the Cobalt product lineup can be housed in the BBG-1300-FR, with a total available power of 60 W. Up to three BBG-1300-FR units can fit onto a single 1RU tray for maximum density where a 2RU frame is not feasible.

The BBG-1300-FR allows Ethernet connectivity to any number of connections for full multi-point control and monitoring via free DashBoard™ software. SNMP is a standard feature for the BBG-1300-FR.

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

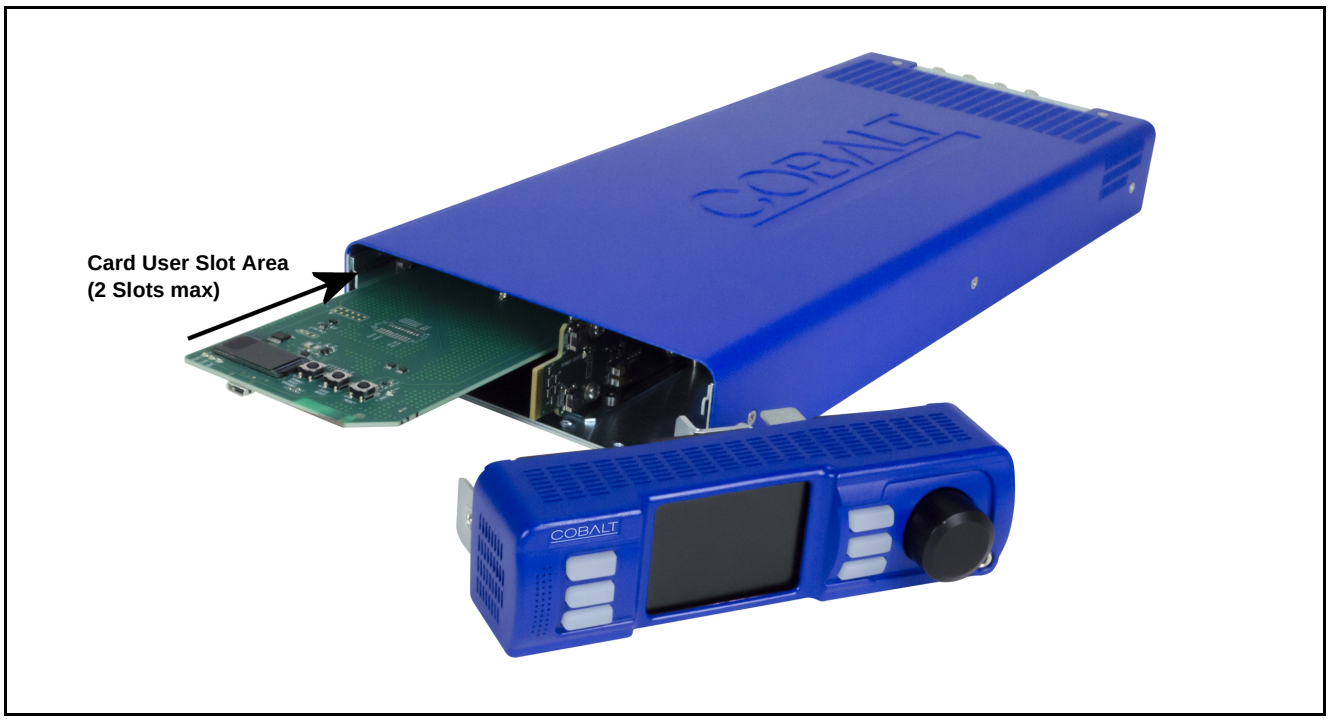


Figure 1-1 BBG-1300-FR (Front View with Card Access Front Door Separated from Chassis)

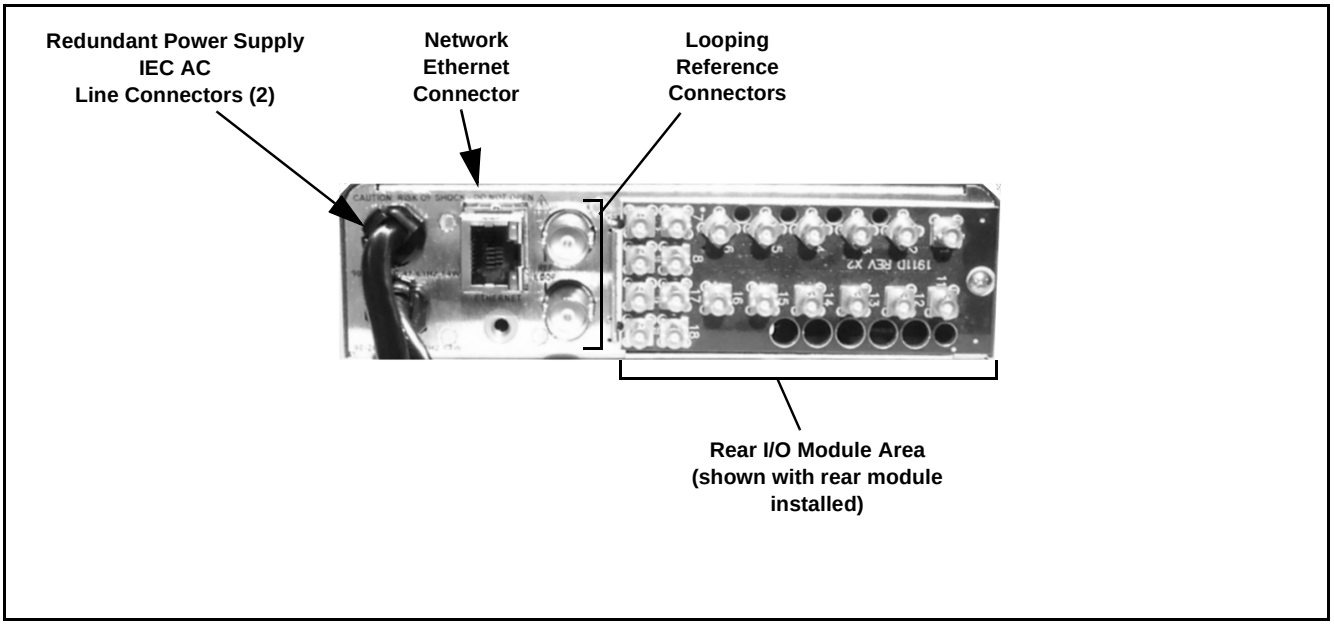


Figure 1-2 BBG-1300-FR (Rear View)

Rear I/O Modules

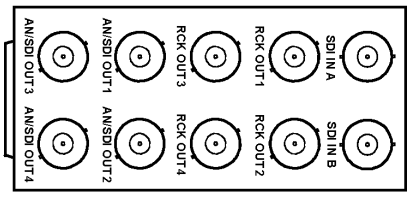
Note: Various Rear I/O Modules for Cobalt® cards are available and described in respective product information for the cards. Rear I/O Modules are not supplied with the BBG-1300-FR.

(See Figure 1-3.) Cards within BBG-1300-FR physically interface to system video and audio connections using a Rear I/O Module. All signal inputs and outputs enter and exit the card via the card edge backplane connector. The Rear I/O Module breaks out the card edge connections to industry standard connections that interface with other components and systems in the signal chain.

In this manner, the particular inputs and outputs required for a particular application can be accommodated using a Rear I/O Module that best suits the requirements. The required input and outputs are broken out to the industry standard connectors on the module.

The BBG-1300-FR supports a Standard-Width rear module which serves one card, or a Split rear module that will support two cards. (The rear module, when fitted to BBG-1300-FR, is rotated (as compared to typical frame rear module fitment) to positioning shown in Figure 1-3.)

Standard-Width Rear I/O Module
Standard-Width Rear Modules can offer a variety of connection types – all on the same module – including BNC, 3-wire removable Phoenix, and other connector types.



Split Rear I/O Module
Split Rear I/O Modules accommodate 2 cards per module (as opposed to a single card per module). Split rear modules are identified by "**S**" in the part number (for example, "RM20-9902-A/S").

Note: Utilization of BBG-1300-FR as a two-card device requires Split Rear I/O Module usage. Split rear modules are not available for all cards.

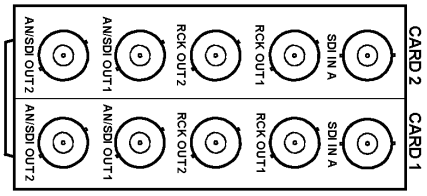


Figure 1-3 Rear Module Types Compatible with BBG-1300-FR

Network Interface

Figure 1-4 shows the user remote control interface options for BBG-1300-FR.

Note: All user control interfaces described here are cross-compatible and can operate together as desired. Where applicable, any control setting change made using a particular user interface is reflected on any other connected interface. Additionally, SNMP is offered standard on the BBG-1300-FR.

- **DashBoard™ User Interface** – Using DashBoard™, card(s) in the BBG-1300-FR can be controlled from a computer and monitor.

  DashBoard™ allows users to view all frames/devices on a network with control and monitoring for all populated slots inside a frame or enclosure. 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).

- **Cobalt® OGCP-9000, OGCP-9000/CC and WinOGCP Remote Control Panels** – The OGCP-9000, OGCP-9000/CC, and WinOGCP Remote Control Panels conveniently and intuitively provide parameter monitor and control of the cards within the BBG-1300-FR.

  The remote control panels allow quick and intuitive access to hundreds of cards in a facility, and can monitor and allow adjustment of multiple parameters at one time.

  The remote control panels are totally compatible with the openGear® control software DashBoard™; any changes made with either system are reflected on the other.

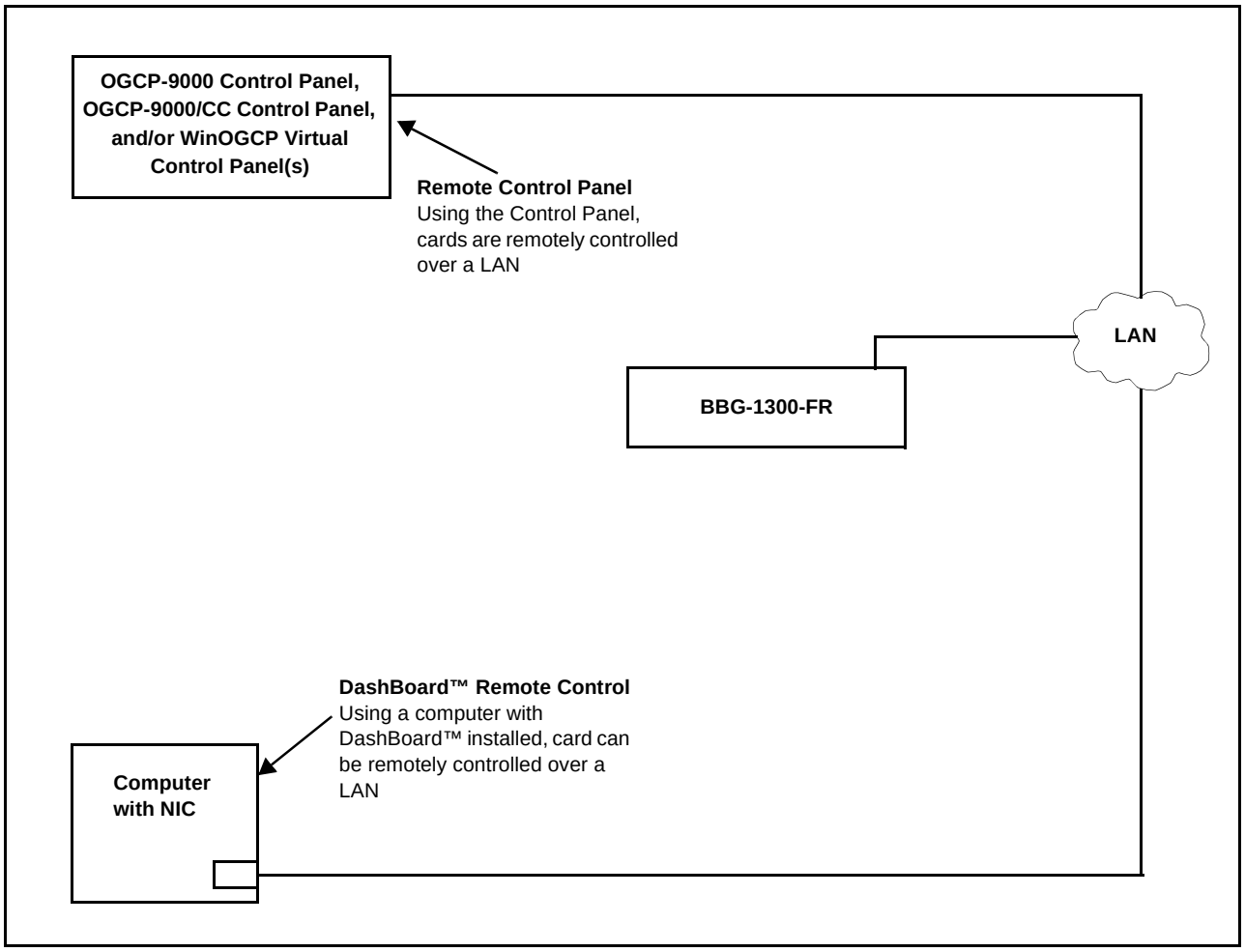


Figure 1-4 User Network Remote Control Interface

Technical Specifications

Table 1-1 lists the technical specifications for the BBG-1300-FR.

Table 1-1 Technical Specifications

Item	Characteristic
Part number, nomenclature	BBG-1300-FR 1RU Enclosure for openGear® Cards
Installation/usage environment	Intended for installation and usage in environmentally controlled installation using openGear®-compliant cards and network control.
AC Line Input (per each of 2 (max) PSU IEC inputs)	(2) AC IEC inputs for redundant supplies 100-240 VAC, 50/60 Hz, 120 W per supply **Note:** AC power is largely dependent on whether 2 cards are fitted, as well as the power consumption of the hosted card(s).
Environmental: Operating temperature: Relative humidity (operating or storage):	 32° – 104° F (0° – 40° C) < 95%, non-condensing
Total available card (net) power	60 W (One (1) card not exceeding 60 W, or two (2) cards not exceeding 60 W total)
Available user card slots	2 maximum **Note:** 2-card max capacity only in conjunction where Split (dual-card) rear module can be fitted.
Device communication	10/100/1000 Mbps Ethernet with Auto-MDIX
Physical: Dimensions (WxHxD): Weight:	 5.7 x 1.4 x 14.7 in (14.5 x 3.6 x 37.4 cm) 6 lb (2.7 kg) **Note:** Empty weight; does not include card(s) or rear module.
Reference Video Input	Single looping 2-BNC connection. SMPTE 170M/318M “Black Burst”, SMPTE 274M/296M “Tri-Level”.
Optional accessories	**BBG-1300-TRAY** 1RU Mounting Tray (supports 3 units) **BBG-TRAY-RSB-L** 24-30 Long-Length (24-30 in (61-76 cm)) Support Bracket & Rail Kit For BBG-1300 TRAY **BBG-TRAY-RSB-M** 20-24 Medium-Length (20-24 in (51-61 cm)) Support Bracket & Rail Kit For BBG-1300 TRAY **BBG-TRAY-RSB-S** 18-20 Short-Length (18-20 in (46-51 cm)) Support Bracket & Rail Kit For BBG-1300-TRAY

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:

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- Product information and pricing
- Technical support
- Upcoming trade show information

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Technical Support:	support@cobaltdigital.com

Chapter 2

Installation and Setup

Overview

This chapter contains the following information:

Installing the BBG-1300-FR

Note:
- Where BBG-1300-FR is to be installed on a mounting plate (or regular table or desk surface) **without** optional frame Mounting Tray BBG-1300-TRAY, affix four adhesive-backed rubber feet (supplied) to the bottom of BBG-1300-FR in locations marked with stamped “x”. If feet are not affixed, chassis bottom cooling vents will be obscured.
- Where BBG-1300-FR is to be installed **with** optional frame Mounting Tray BBG-1300-TRAY, **do not** affix adhesive-backed feet.

Installing Using BBG-1300-TRAY Optional Mounting Tray

BBG-1300-TRAY allows up to three BBG-1300-FR to be mounted and securely attached to a 1 RU tray that fits into a standard EIA 19” rack mounting location. Install BBG-1300-FR unit into tray as described and shown in Figure 2-1.

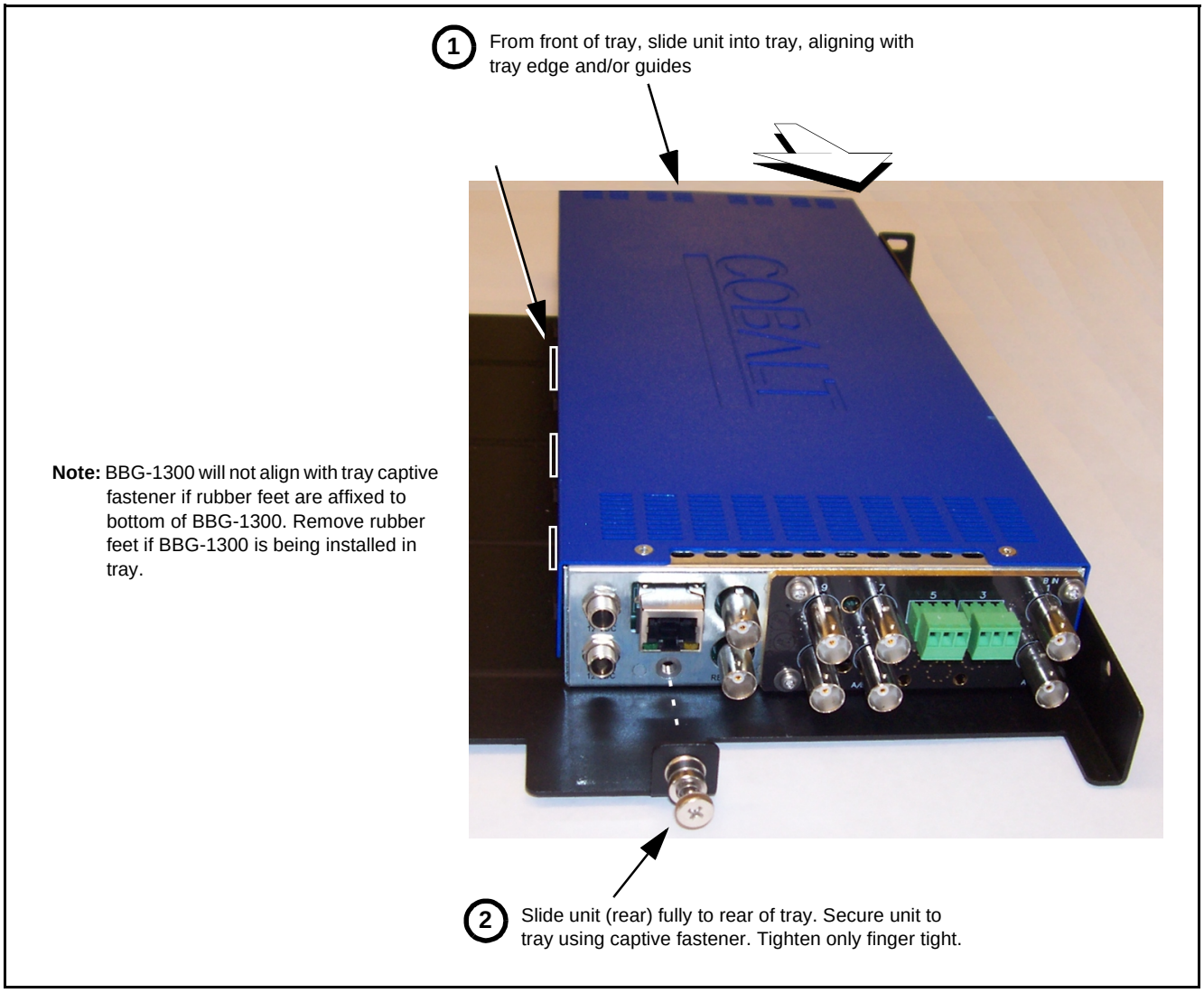
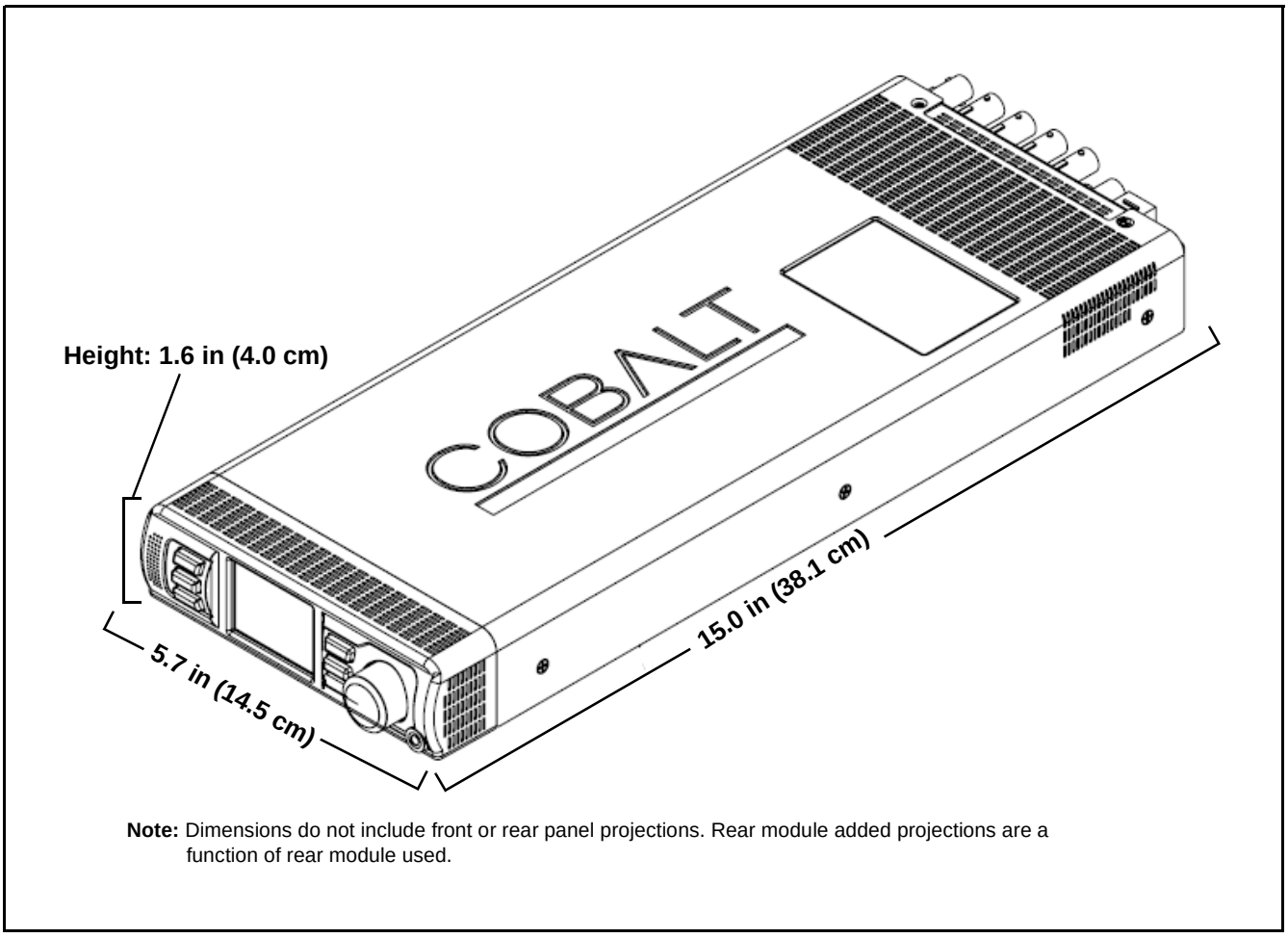


Figure 2-1 Mounting BBG-1300-FR Using Frame Mounting Tray

BBG-1300-FR Dimensional Drawing

Figure 2-2 shows the installation dimensional details for the BBG-1300-FR.



Note: Dimensions do not include front or rear panel projections. Rear module added projections are a function of rear module used.

Figure 2-2 BBG-1300-FR Dimensional Drawings

Ventilation Considerations

BBG-1300-FR has three fans built into the front bezel assembly. Overall, the unit takes in cooling air and provides exhaust through vents on all sides of the front bezel, and via vents near the rear of the chassis. Make certain these vents are not obstructed.

The BBG-1300-FR bottom has elastic-type pads that help ensure that the bottom vent remains raised from mounting surfaces such that air is free to flow through the bottom vent.

Cable Connections

Figure 2-3 shows the BBG-1300-FR rear panel connections for power, network, and reference loop.

Note: Rear Module (Card) connections are a function of rear module used. Refer to card manual for rear module connections.

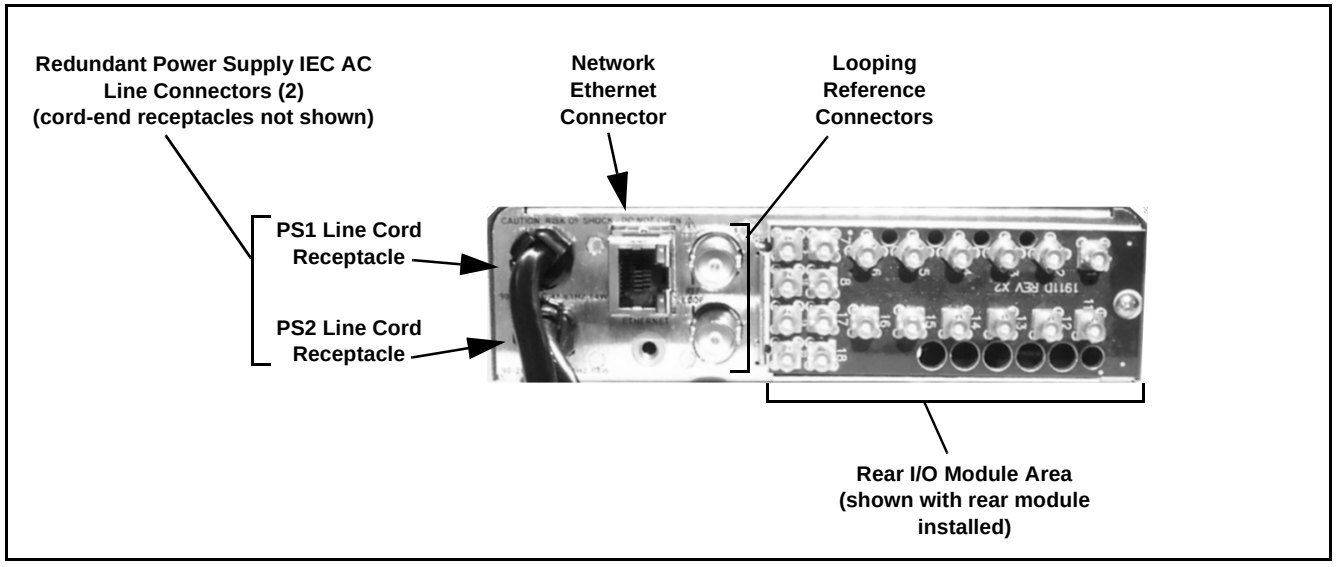


Figure 2-3 BBG-1300-FR Rear Panel Connections

Power Connections

(See Figure 2-3.) BBG-1300-FR is equipped with two corded IEC power input receptacle which mate to IEC cord sets.

Note: For non-redundant AC power input, either receptacle can be used for power connection. For redundant AC power inputs, connect both receptacles to separate independent power sources.

1. Connect supplied power cords (or equivalent) to IEC power input receptacle(s) on BBG-1300-FR.

2. Connect supplied power cords (or equivalent) to suitable AC power outlet. BBG-1300-FR is not equipped with power switches; unit will power up when power is applied.

Network Connection

(See Figure 2-3.) Connect RJ-45 Ethernet network cable to rear panel Ethernet connector. When the device is powered and connected to an active network connection, basic connectivity is shown by illuminated indicators on Ethernet receptacle.

Note: BBG-1300-FR must be configured to properly communicate with the card remote control network (DashBoard and/or OGCP/WinOGCP devices). See Setting Up Network Remote Control (p. 2-11) for instructions.

Reference Loop Connections

(See Figure 2-3.) A looping BNC pair is provided for a device **REF** loop.

Note: Looping reference connectors can receive ref input on either connector of the looping pair. Unless daisy-chained to another node, an open connector here must be terminated into an appropriate 75Ω terminator.

Installing Rear I/O Modules and Cards

Rear I/O Module Installation

In the mounting area corresponding to the slot location, install Rear I/O Module as shown in Figure 2-4.

Note:
- Only Standard-Width or Split Rear I/O Modules can be used with BBG-1300-FR.
- For cards that have projecting sub-assemblies on the top (component) area (such as daughtercards or fans), the card may not fit in the typically-available top slot of BBG-1300-FR in conjunction with a Standard-Width rear module. Ideally, these cards should be mated with a rear module specified (on web page or manual) as:

  Note: Mates to card in **odd** slot.

  Odd-slot rear module places card mating in lower BBG-1300-FR slot and circumvents top-clearance issue.

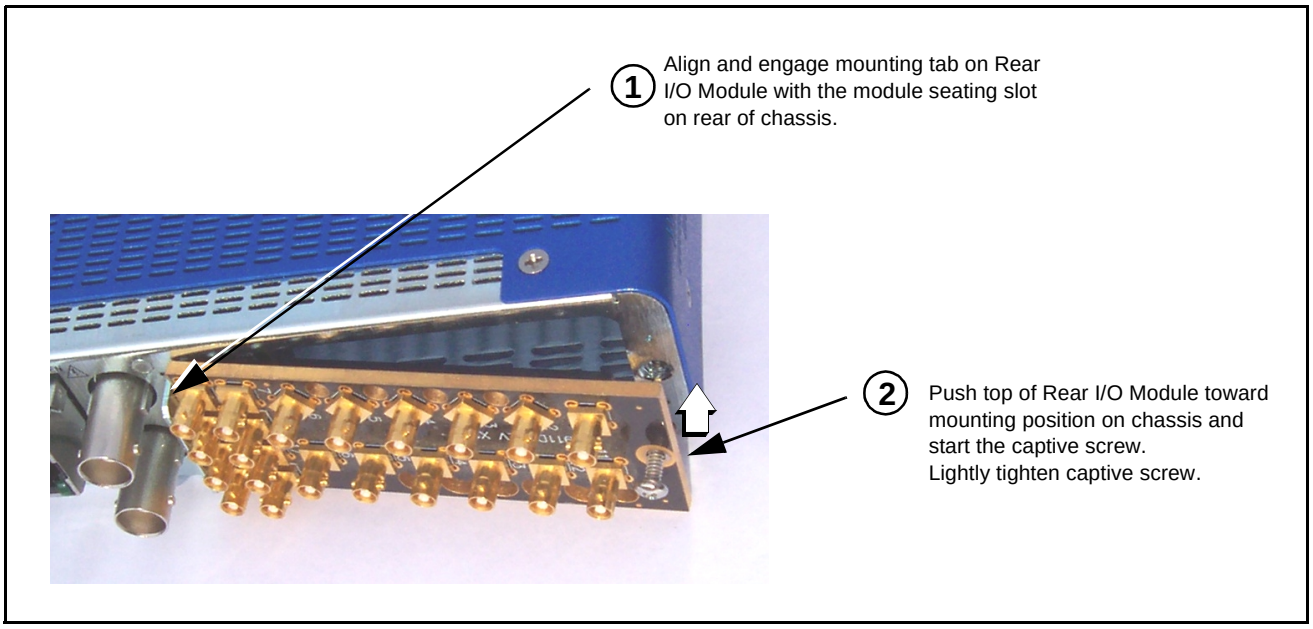


Figure 2-4 Rear I/O Module Installation

User Card Installation

	**Cards contain 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

Make certain Rear I/O Module is installed before installing the card into the card slot. Damage to card and/or Rear I/O Module can occur if module installation is attempted with card already installed in slot.

Card access is facilitated by removing the Front Bezel Assembly, and then inserting the card in the appropriate slot as follows:

1. On underside of front bezel assembly, remove retaining screw and place aside in safe place.
2. (See Figure 2-5.) While firmly holding BBG-1300-FR chassis with one hand, grasp front bezel assembly and pull front bezel assembly straight away from chassis.

Note: Use care to pull front bezel assembly away from BBG-1300-FR chassis as straight as possible. If bezel is pulled out unevenly, mounting tab(s) could bend. This may result in needing to straighten the tab(s) before the bezel can again mate with slots in the BBG-1300-FR chassis.

3. (See Figure 2-6.) While holding the card by the card edges, align the card horizontal such that the plastic ejector tab is on the **right** (component-side facing up).
4. Align the card with the side 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 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. Repeat steps 3 thru 5 for other card (if used).
7. When card(s) is inserted in slot(s), re-install the front bezel assembly as follows:
   - **7.1** Align the mounting tabs on front bezel with mating slots on chassis and **making certain bezel is oriented with screw hole aligning with chassis securing tab**.
   - **7.2** Push the front bezel assembly fully toward the chassis until bezel is fully flush with chassis.
   - **7.3** Start and lightly tighten retaining screw on underside of bezel.

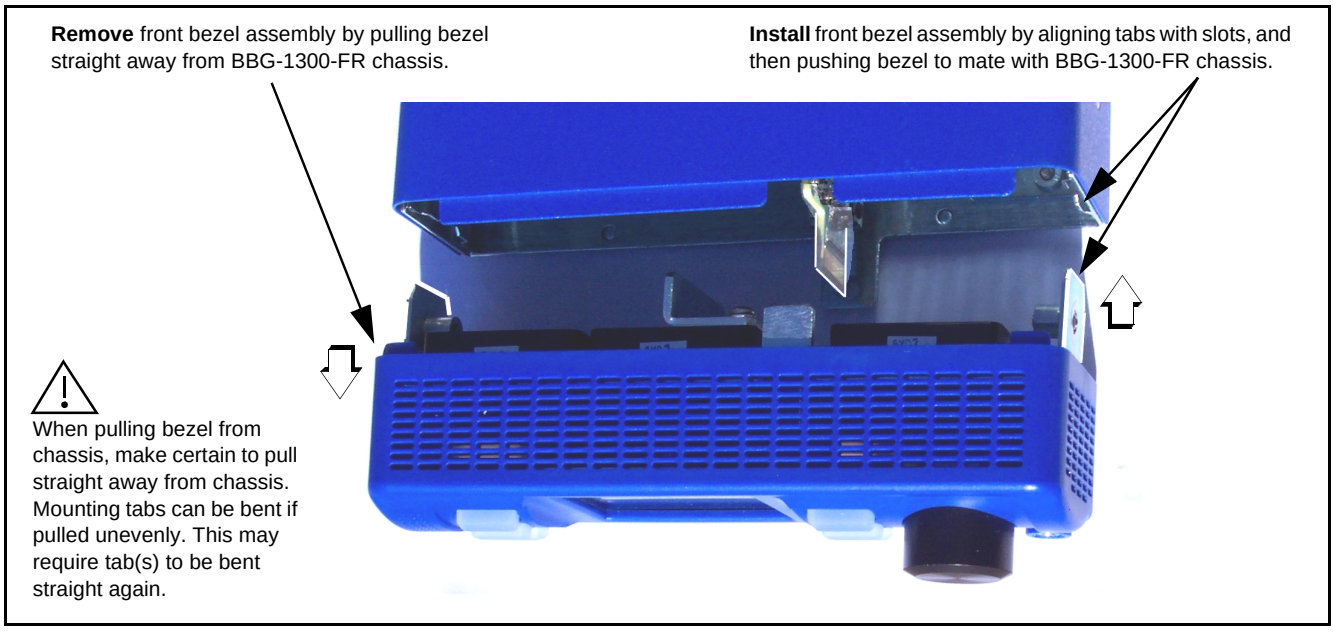
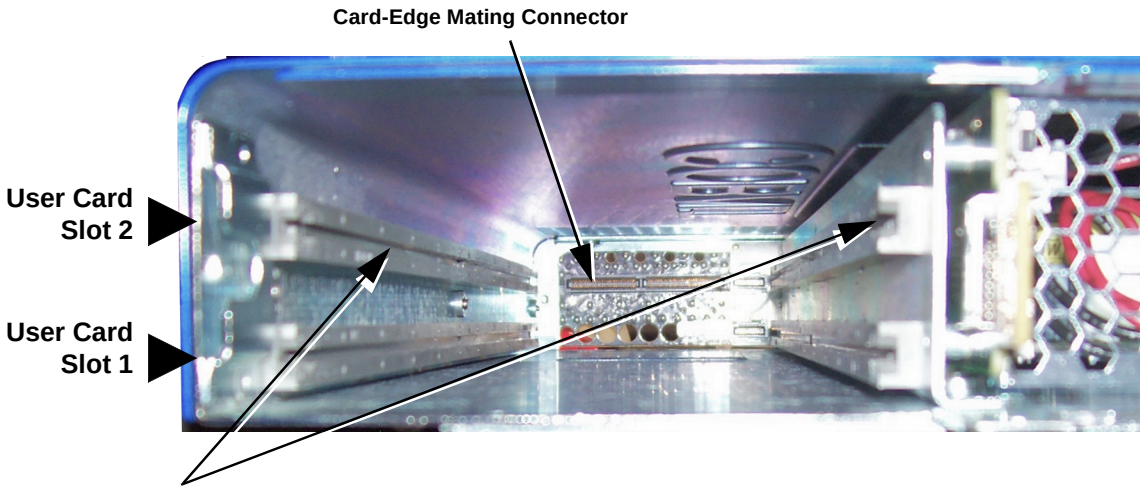


Figure 2-5 Front Bezel Removal/Installation



1. Note the upper and lower pairs of card guides. Also note Rear I/O Module card-edge mating connector.
   - Where **Standard-Width (single-card)** rear module is used, card is typically inserted in **top** guide pair.
   - Where **Split (dual-card)** rear module is used, one card is inserted in **top** guide pair, and the other is inserted in **lower** guide pair.
2. Push card lightly and fully into slot until card-edge connector on card fully mates with Rear I/O Module mating connector.

⚠ In most cases, a Standard-Width rear module will place the mating connector such that card in **top** slot mates with connector. However, some Standard-Width rear modules will have the connector mating with card in lower slot. Assess proper installation orientation **before** installing card.

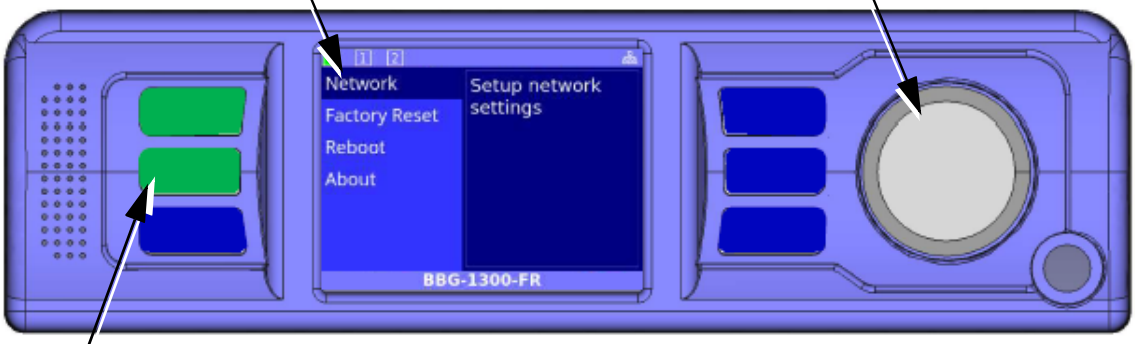
Figure 2-6 Card Installation

BBG-1300-FR Multi-Function Display

Figure 2-7 shows and describes the BBG-1300-FR front panel display, soft keys, and menu access rotary knob.

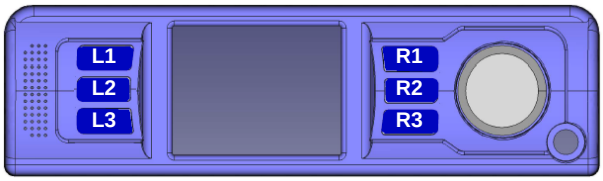
Display shows available main menu items, as well as sub-menus when a main item is selected.
In some modes, the menu displays system parametric data such as voltage and temperature data.

Navigate/Select Knob allows scrolling up or down thru a menu by rotating, and then selecting a menu item by pressing knob.



Soft Keys allow selection of menu items or access to other items (as described later).

For reference in later sections describing where soft keys are used, the manual text identifies the soft keys as follows:



Note: Where keys are illuminated **green**, keys are functional for a particular item. Where keys are illuminated **blue**, the keys are disabled for the item.

In this example, rotating the knob will select from main menu items
- Network
- Mute Beeper
- Factory Reset
- Reboot
- About
When the desired menu item is highlighted, pressing the knob opens the main menu item, with related sub-menu items now displayed.

When a main menu item is selected by pressing the knob with the item highlighted (in this example, **Network**), associated sub-menu items
- Address Mode
- IP Address
- Mask
- Gateway
are now displayed and can be similarly selected and opened further. (In this example, the IP Address sub-menu has been accessed, now allowing selection of IP address values.)

Figure 2-7 BBG-1300-FR Front Panel Display/Controls

BBG-1300-FR Device Status Displays

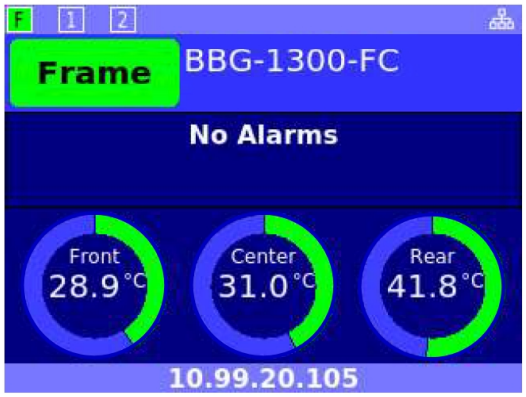
The BBG-1300-FR front panel display can show BBG-1300-FR device power conditions, PSU status, and device temperature as well as user card status as shown below.

Icons in upper display corner show status and presence of BBG-1300-FR device and any installed user cards (**F** for BBG-1300-FR; **1** for user card slot 1; **2** for user card slot 2).
- **Green** background indicates **OK** status.
- **Red/Yel** background indicates **Alert** or **Error** status.
- **No background** indicates **device/card not installed**.

Access the device status display by pressing soft key **L2**.

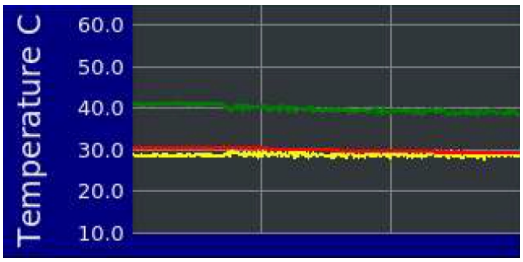
Press soft key **L2** to toggle thru the BBG-1300-FR displays shown here.

Pressing **L2** after the BBG-1300-FR device displays then shows status for user cards installed in BBG-1300-FR.

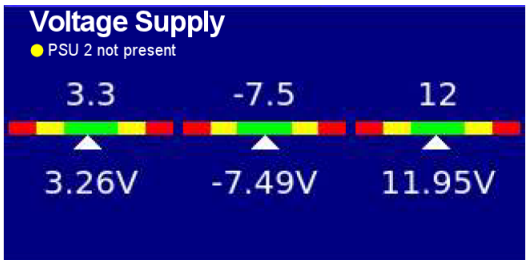


Opening display shows device front, center, and rear internal temperatures (in Celsius). Where no BBG-1300 device alert/alarms are present, selected device name (in this example, “Frame”) has green background).

In cases where an alert/alarm are present for the selected device, the background appears as yellow or red.



Time-based temperature graph plots of the three temperature readings are shown in this mode (green=rear; red=center; yellow=front).



Selecting next display shows rail voltages for device and user card slots. In any display, if one of the device PSU’s are not detected, a **Not present** message is displayed for the PSU not producing power. (**Not present** message is typically displayed if PSU receptacle pigtail is not connected to energized power cord.)

Figure 2-8 BBG-1300-FR Device Status Displays

Setting Up Network Remote Control

BBG-1300-FR uses a standard 100/1000 Mbps Ethernet LAN for communication between BBG-1300-FR the Cobalt® cards and the computer running DashBoard™ remote control, or remote control via Cobalt OGCP-9000 Remote Control Panel or WinOGCP.

Before the card(s) hosted by BBG-1300-FR can be used with remote control, BBG-1300-FR and the remote control devices (e.g., computer running DashBoard™ or remote control panels) must be set up to communicate ("connect") with each other as described in this section.

Note: The sections below which describe using the BBG-1300-FR front panel menus to perform basic network setup **must** be performed first as outlined in this section. Once the BBG-1300-FR has a network connection established and is accessible using DashBoard remote control, additional network and other settings can be performed using the DashBoard UI for the device as described in BBG-1300-FR Setup, Network, and Auxiliary Function Control Tabs (p. 2-19).

Setup Using DHCP

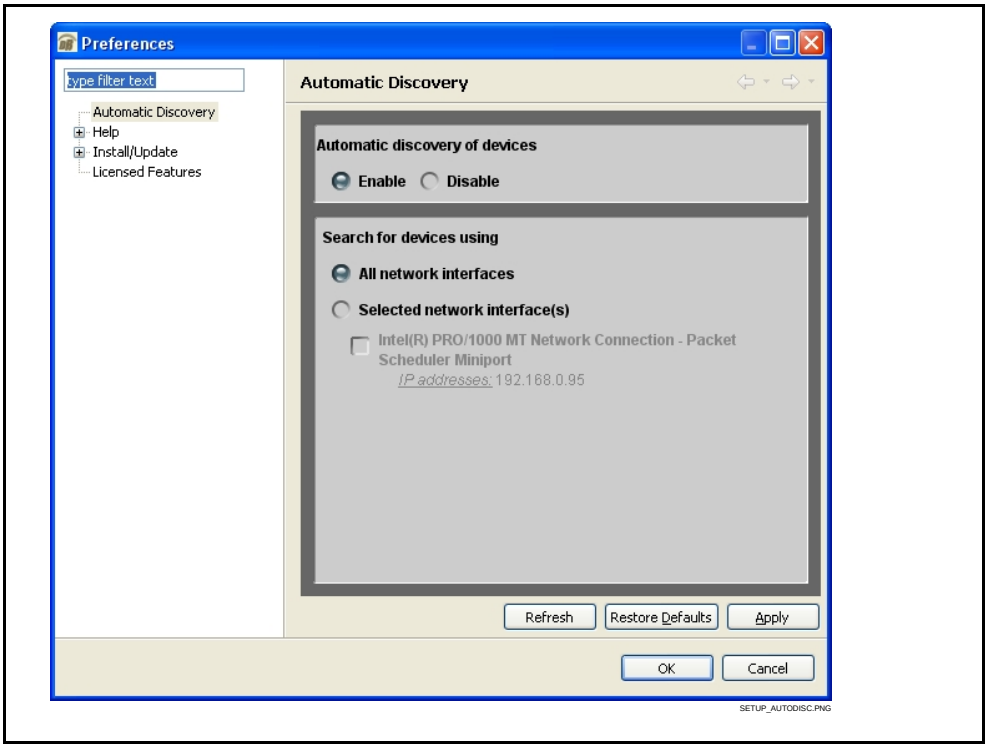
▸ Obtain and Install DHCP Server (if not present)

1. If the LAN connecting the device(s) to DashBoard™ is not already configured with a DHCP server, obtain and install a DHCP server ("TFTP32" or an equivalent is suitable).

▸ Install and Set Up DashBoard™ (if not present)

2. On the computer connected to the device LAN, go to the Cobalt Digital Inc. website: www.cobaltdigital.com and download DashBoard™. Follow the on-line instructions.

3. Open DashBoard™. Under **Window → Preferences...** make certain Automatic discovery of devices **Enable** button is selected (as shown below).



Set Network Computer for DHCP

Note: If connecting multiple devices using DHCP, allow adequate time to correlate the device and its DHCP-assigned IP address before proceeding to the next device. If devices are connected too rapidly without considering this, it may be difficult to correlate device instances in DashBoard™ and the DHCP-assigned addresses with the physical identity of the devices.

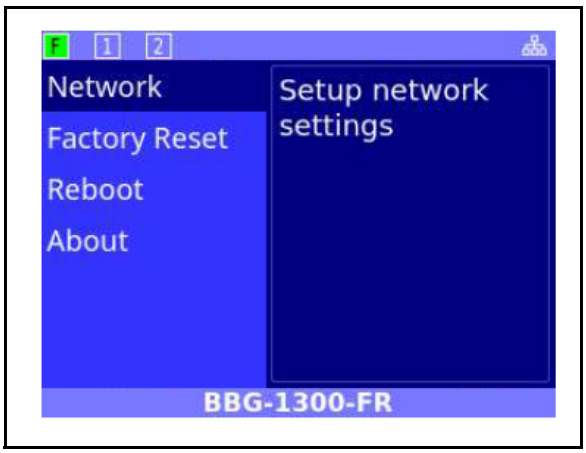
On the computer where DashBoard™ is installed, make certain TCP/IP Properties DHCP settings are as follows:

- **Obtain an IP address automatically**
- **Obtain DNS Server address automatically**

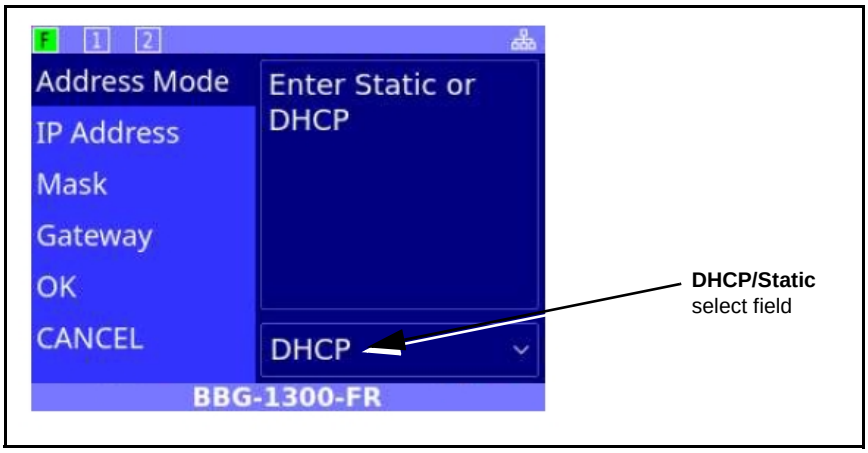
Set BBG-1300-FR for DHCP Connection

1. After **Frame** main menu appears

press soft key **L1** to go to the Frame (BBG-1300-FR) setup menu.



2. Press **Navigate/Select** knob to select **Network**.
The **Address Mode** sub-menu is now displayed.



3. Press **Navigate/Select** knob and select **DHCP**.

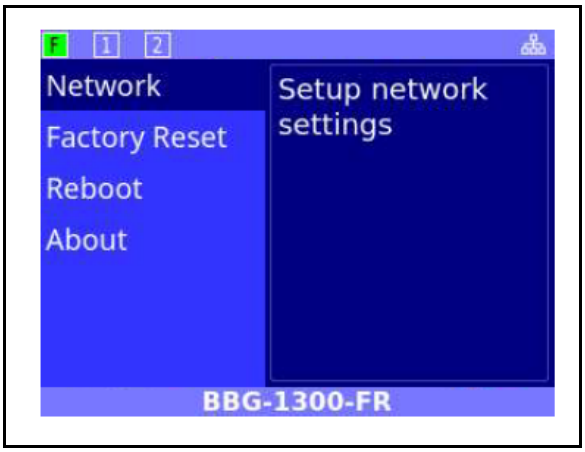
4. With **DHCP** highlighted, press the **Navigate/Select** knob again to select and exit field settings.

5. Using **Navigate/Select** knob, select **OK** and press knob to OK the selected values.

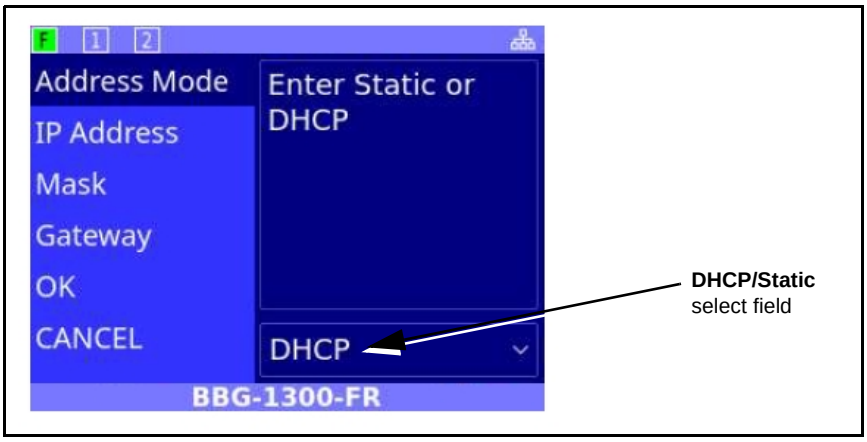
Setup Using Static Address Connection

1. After **Frame** main menu appears

press soft key **L1** to go to the Frame (BBG-1300-FR) setup menu.



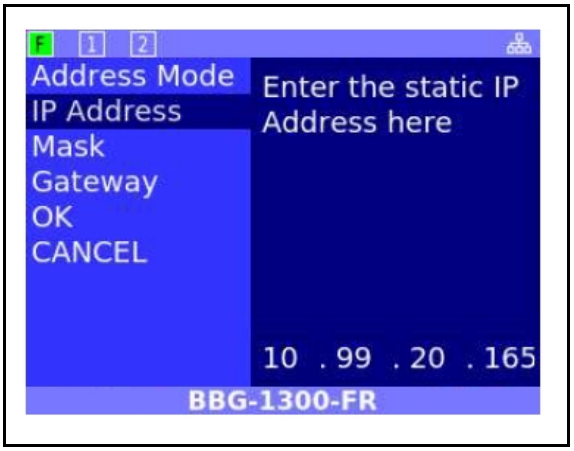
2. Press **Navigate/Select** knob to select **Network**.
The **Address Mode** sub-menu is now displayed.



3. Press **Navigate/Select** knob and select **Static**.

4. With **Static** highlighted, press the **Navigate/Select** knob again to select and exit field settings.

5. Rotate **Navigate/Select** knob to select **IP Address** sub-menu.



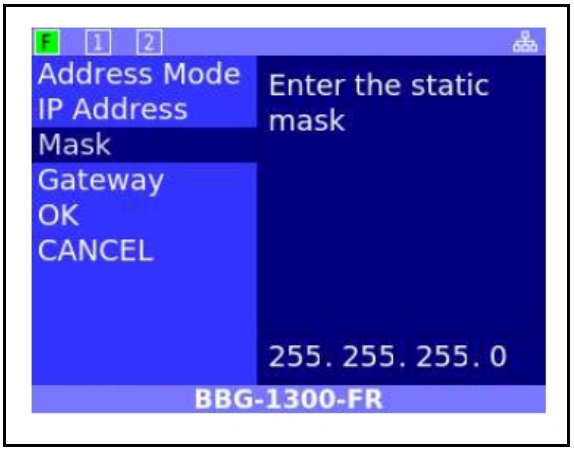
6. Press the **Navigate/Select** knob. A flashing cursor now appears for the first field of the address. Rotate the knob clockwise or counter-clockwise to select the desired value.

7. Press the knob again to move cursor to the next field. Rotate knob to select desired value.

Note: Numeric settings such as address fields can be incremented or decremented by either:
- rotating the **Navigate/Select** knob CW or CCW, or
- pressing soft key **R1** (to increment) or **R2** (to decrement).

8. Repeat until all fields are set as desired. When all fields are set, press the **Navigate/Select** knob again to exit field settings (no flashing cursor).

9. Rotate **Navigate/Select** knob to select **Mask** sub-menu.



Note: Typically, default mask setting of 255.255.255.0 is suitable. If default mask is to be used, simply use Navigate/Select knob to skip past Mask and go to Gateway sub-menu select (step 11).

10. Press the **Navigate/Select** knob. A flashing cursor now appears for the first field of the mask. Rotate the knob clockwise or counter-clockwise to select the desired value. Repeat for other fields.

11. Rotate **Navigate/Select** knob to select **Gateway** sub-menu.

12. Press the **Navigate/Select** knob. A flashing cursor now appears for the first field of the address. Rotate the knob clockwise or counter-clockwise to select the desired value.

13. Press the knob again to move cursor to the next field. Rotate knob to select desired value.

14. Repeat until all fields are set as desired. When all fields are set, press the **Navigate/Select** knob again to exit field settings (no flashing cursor).

15. Using **Navigate/Select** knob, select **OK** and press knob to OK the selected values. Mask is now set as desired.

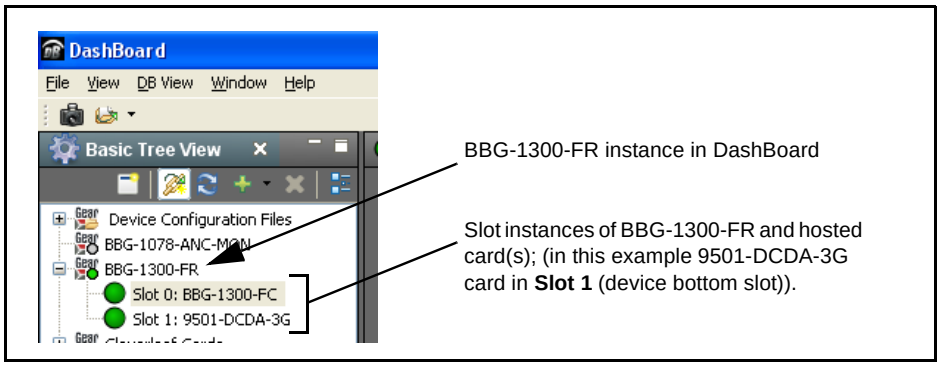
16. IP address and related settings are now engaged into BBG-1300-FR device and device is accessible using configured address.

17. Press soft key **L3** to exit the setup menu and go to frame main menu.

When BBG-1300-FR is successfully configured for desired address the "BBG-1300-FR" device ID banner alternates with the configured address (in this example, "10.99.20.105")

BBG-1300-FR DashBoard Status and Expanded Network Settings Interfaces

Similar to expanded access to network and other setup offered via DashBoard for frame network controller cards, BBG-1300-FR can be accessed via DashBoard on its connected network. When BBG-1300-FR is on the same network as a DashBoard instance, BBG-1300-FR appears in the DashBoard Basic Tree View identically to that of a standard rack-mounted frame.

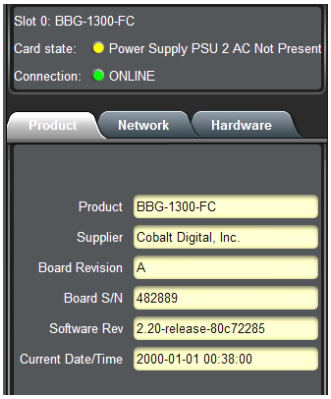


In addition to the **Network** tab described in the sections below for device network settings, several status display and auxiliary function setup access is now available as described below.

BBG-1300-FR Info Tabs

The left pane of the BBG-1300-FR DashBoard page provides an info/status display as shown in Figure 2-9.

Product Display
This displays shows the hardware identifcation of the network card, as well as software revision.



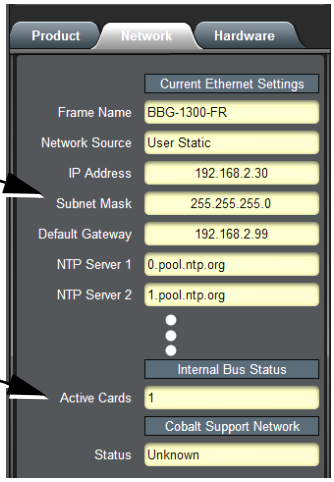
Network Display
This displays shows the user name for the BBG-1300-FR, current network settings (either user configured static or DHCP assigned status) NTP details, and other access-related info.

Access Mode shows Open or Locked (which requires a password for access).

Active Connections shows how many DashBoard instances are currently accessing the device.

Active Cards shows how many cards (user slots 1 and 2) are currently installed and recognized by the device.

Cobalt Support Network Status shows whether or not the Cobalt Support VPN connection to the device is enabled.



Hardware Display
This displays shows the current overall status of the device hardware and its power supplies.

Audible Alarm shows user setting of alarm mute jumper. See Beeper Mute (p. 2-24) for more information.

Power Supplies Status shows PSU presence for each of two PSU slots, as well as status and current for each PSU. (If either of two PSUs are not installed, “missing” is displayed.)

Rail Voltage shows device rail voltages.

Thermal/Fan Status shows fan status, and shows fan speed setting and temperature at various device areas. See BBG-1300-FR Setup, Network, and Auxiliary Function Control Tabs (p. 2-19) for setting fan speed.

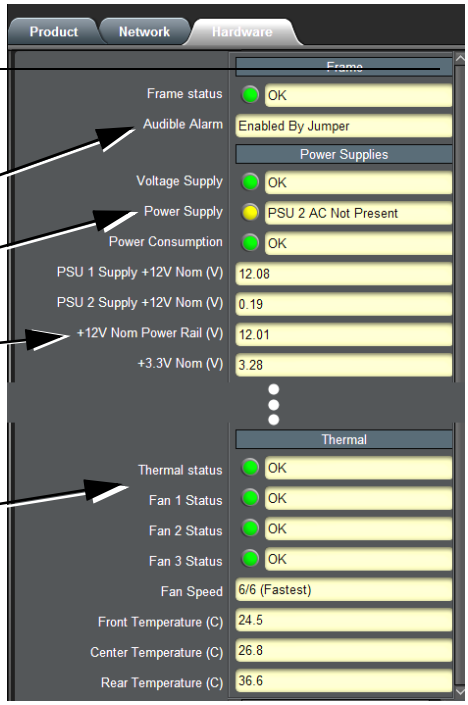


Figure 2-9 BBG-1300-FR Info/Status DashBoard Display

BBG-1300-FR Setup, Network, and Auxiliary Function Control Tabs

Table 2-1 individually lists and describes the Setup, Network, Enumeration, and Alarms control tabs. Where helpful, examples showing usage of a function are also provided.

Table 2-1 BBG-1300-FR Setup and Auxiliary Control Descriptions

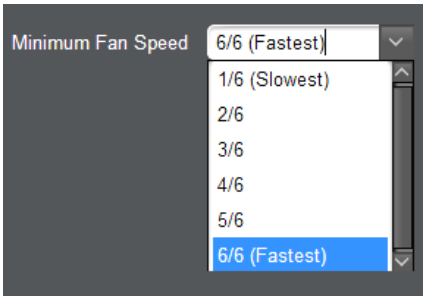
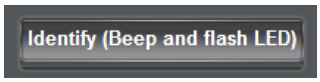
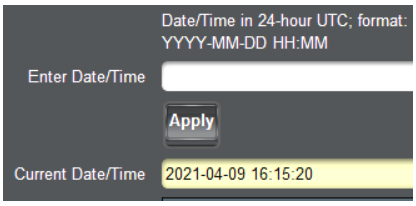
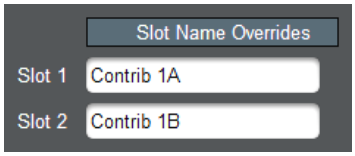
	Provides controls and fields for setting BBG-1300-FR fan speed, date/time, and custom override card naming
• **Fan Speed Control** 	Allows fan speed to be reduced from default fastest (6/6) enabled to reduce ambient acoustic noise levels. • **6/6** is maximum setting (full fan speed enabled) • **1/6** is minimum setting (1/6 max fan speed) **Note:** Fan speed minimum setting is automatically overridden in cases where more cooling is determined to be required based on BBG-1300-FR power consumption.
• **Restore Factory Defaults Button** 	**Restore Factory Defaults** provides factory reset of all fields and functions. ⚠ Invoking Restore Factory Defaults will result in loss of user settings such as network settings.
• **Identify BBG-1300-FR Button** 	When pressed, provides a command to connected BBG-1300-FR to conspicuously identify itself by causing the BBG-1300-FR's front panel soft keys to alternately flash red/green and its beeper to sound (as long as beeper jumper is not set to Mute). Identify function times out automatically in appr. 10 seconds, or can be cancelled by pressing **Identify** again. **Note:** If Mute jumper is in Disable position, beeper will not sound when **Identify** is pressed (see Beeper Mute (p. 2-24) for more info).
• **BBG-1300-FR Date/Time Entry Controls** 	Allows a running date and time to be entered for the BBG-1300-FR and connections displayed in DashBoard. When date/time are entered as desired, press **Apply** to invoke the settings. **Note:** Entry must be entered in format shown to be invoked.
• **Card Slot Name Custom Override Entry** 	Allows user custom names to be entered for cards in user slots 1 and 2. In addition to BBG-1300-FR front panel display, these names will appear in DashBoard Basic Tree View. **Note:** • DashBoard may need Refresh for custom names to appear. • Custom names will only appear in other DashBoard connections where a card is installed in the slot with the custom name.

Table 2-1 BBG-1300-FR Setup and Auxiliary Control Descriptions — continued

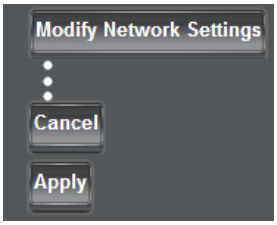
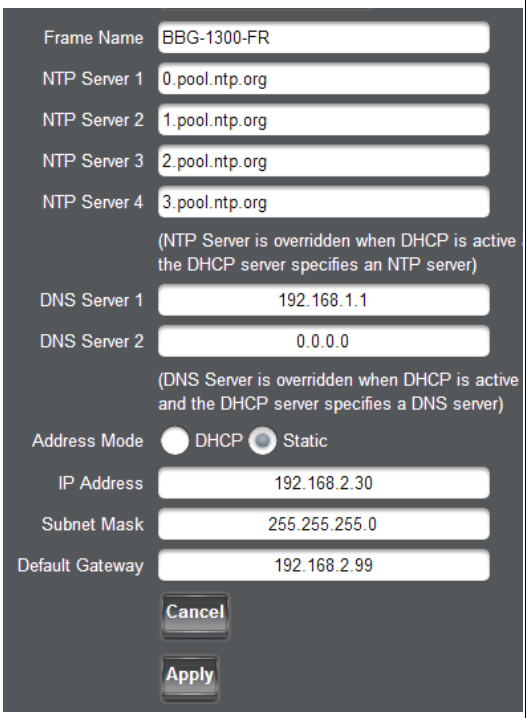
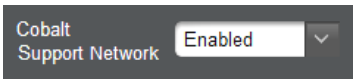
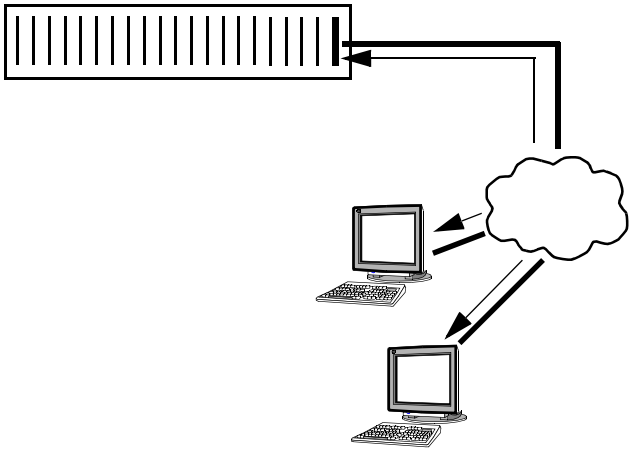
	Provides controls and fields for setting BBG-1300-FR network connection
• **Modify Setting Button** 	Opens the dialog fields on this tab for changing network settings. When Modify Network Settings is opened, at the bottom of the fields are **Cancel** and **Apply** buttons, which allow for exiting without changes or committing changes. When either button is pressed, the Modify Network Settings fields return to default closed.
• **Name/Network Settings Fields** 	Allows setting BBG-1300-FR displayed name, addressing mode, NTP/DNS server addresses, and network settings when card is set for static IP address. • **BBG-1300-FR Name** field allows entry of custom BBG-1300-FR name. • **NTP** and **DNS Server** fields allow entry of NTP and DNS servers (where used). • **Address Mode** shows currently invoked addressing mode. • **IP Address** and related entry fields allow user static address entry. • Click **Apply** or **Cancel** to commit or reject and related entry fields allow user static address entry.
• **Cobalt VPN Support Enable** 	Enables or disables a VPN connection from the BBG-1300-FR and Cobalt Support where the BBG-1300-FR network installation and operation can be viewed, queried, and assessed by Cobalt Support. It is recommended to leave this default setting enabled so that your installation is visible should it need analysis by Cobalt Support.

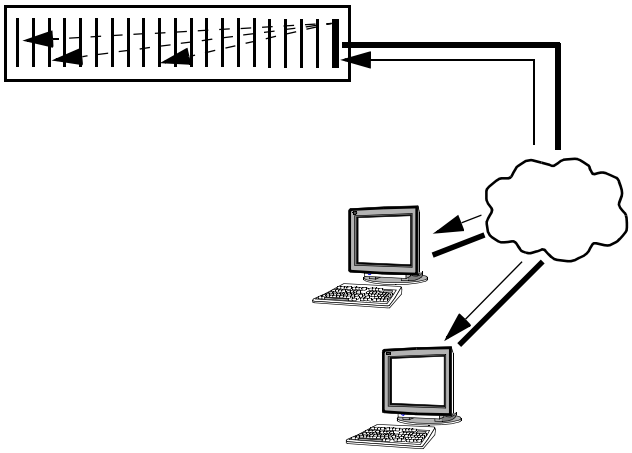
Table 2-1 BBG-1300-FR Setup and Auxiliary Control Descriptions — continued

Enumeration

Provides controls for BBG-1300-FR caching of user card parameters that can enhance DashBoard-to-BBG-1300-FR connection speed using enumerated parameter list caching

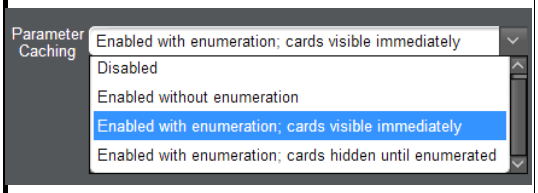


With user cards enumerated by BBG-1300-FR, DashBoard instances query for card presence with communication between only the BBG-1300-FR and DashBoard instances. The BBG-1300-FR internal CAN bus is not queried, greatly speeding-up frame reporting and card presence to DashBoard instances. Cache is updated if card parameters change.



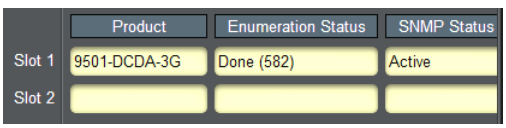
Without user cards enumeration, DashBoard instances must query for card presence using communication between the BBG-1300-FR and DashBoard instances, and additionally then the BBG-1300-FR and the frame internal CAN bus. This can cause longer delays in frame connection (especially when many DashBoard instances are trying to query the same frame).

- **Parameter Caching Mode Select**



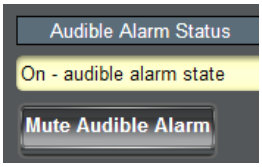
Selects caching mode as follows:

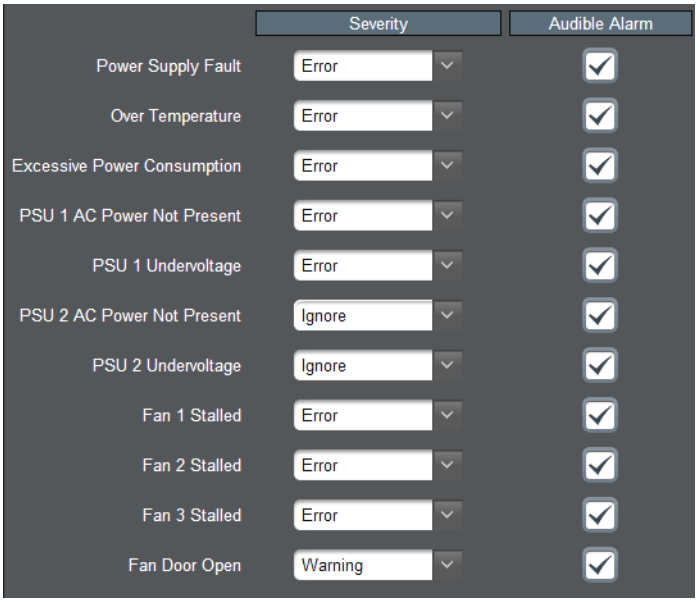
- **Disabled** – no caching; all queries always go thru CAN bus to cards.
- **Enabled without enumeration**– caching is performed, but an enumerated list is not written.
- **Enabled with enumeration; cards immediately visible**– caching is performed and enumerated list is written. BBG-1300-FR and card presence is visible even for cards not fully enumerated. (This setting provides fastest rendering of BBG-1300-FR and cards in DashBoard and is the recommended default setting.) Enumeration list shows write-to-list status.
- **Enabled with enumeration; cards hidden until enumerated**– similar to above, but waits until cards are fully enumerated before displaying a card.



Note: All known instances of Cobalt openGear® cards support parameter caching. If card will not appear, set Parameter Caching to Disabled. This mode is the same as previous BBG-1300-FR function.

Table 2-1 BBG-1300-FR Setup and Auxiliary Control Descriptions — continued

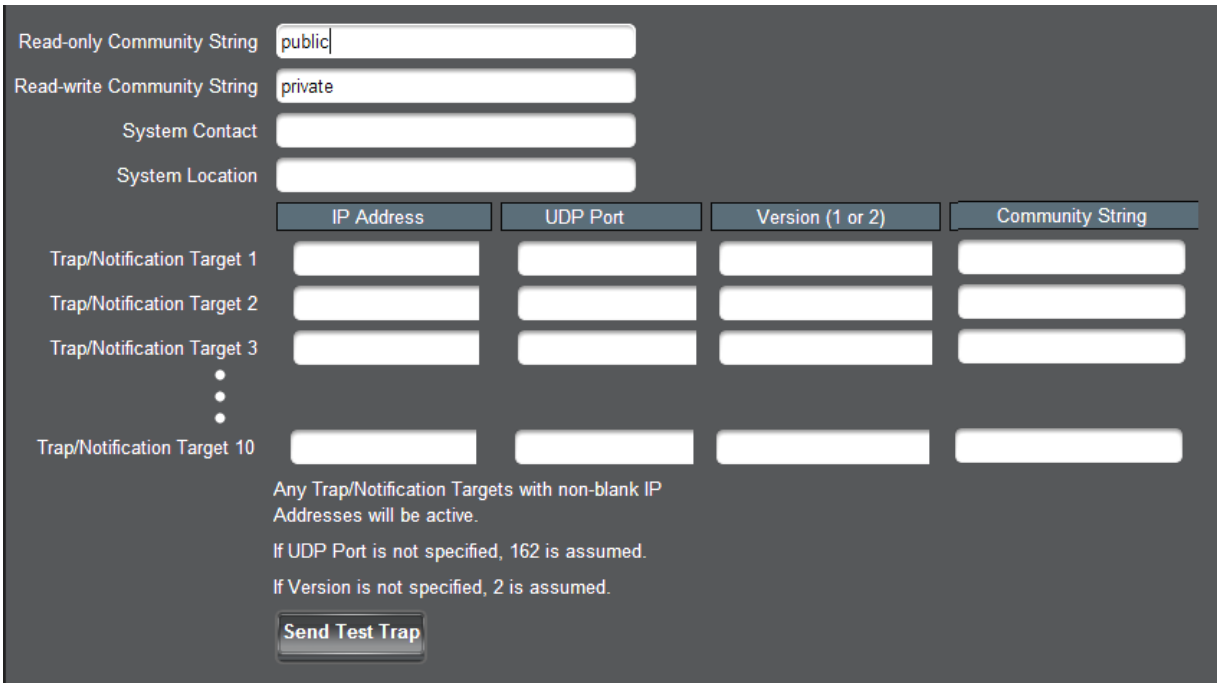
	Provides controls for setting the severity escalation of several monitored BBG-1300-FR conditions
Note: The following terms are used to denote and escalate alarms using this tab: - **Warning/Alert** - item of minor severity that could indicate undesired operation. Propagates **yellow** "LED" in DashBoard. - **Error** - item that is completely non-functional or has failed indicating critical severity. Propagates **red** "LED" in DashBoard.	
• **Audible Alarm Status/Mute** 	Shows if audible alarm is occurring (as follows) and allows temporarily muting alarm beeper by pressing **Mute Audible Alarm**. • **On - audible alarm state** – alarm is currently being issued. One or more of the checked conditions is showing an error or warning condition. • **Off state** – no individual alerts/alarms are occurring (do to no alert/alarm occurring, or Audible Alarm checkbox not selected, or associated drop-down set to **Ignore**). • **Off - temporarily muted state** – alarm may be currently being issued, but has been muted via the device menu or via DashBoard **Mute Audible Alarm** here. **Note:** If hardware Mute jumper is set to disable position, no audible alarms will sound regardless of settings here. (See Beeper Mute (p. 2-24) for more info.) The position of the jumper is shown in DashBoard Card Info tabs: **Hardware > Audible Alarms** field (showing either Enabled by Jumper or Disabled by Jumper).
• **Alarm Setup List**	Provides rows for individually setting alarm presence/severity settings for each item in list. **Ignore** setting allows item to be removed from alarm triggering. **Note:** • Alarm items shown here are related exclusively to the BBG-1300-FR device; hosted card DashBoard alarms are set on the respective card alarm pages (where present). • **Fan Door Open** item pertains to front bezel removed from device.



In this example, items in list are set to provide an Error or Warning alarm upon occurence, with PSU 2 items set to **Ignore** because redundant power supply PSU 2 is not being used/powered in this usage.

Table 2-1 BBG-1300-FR Setup and Auxiliary Control Descriptions — continued

SNMP	Provides setup controls for BBG-1300-FR SNMP agent.



SNMP page offers standard SNMP setup fields. Up to 10 Targets can be independently set.

- **Read-only Community String** accepts SNMP password for GET requests.
- **Read-write Community String** accepts SNMP password for SET requests.
- **System Contact** and **System Location** are auxiliary info fields that can be used to provide this info (or can be disregarded).

Each of 10 Trap/Notification lines (**Target 1** thru **Target 10**) offer standard target fields:

- **IP Address** sets addresses to which traps are sent.
- **UDP Port** sets the UDP port to which traps are sent.
- **SNMP Version (1 or 2)** selects the protocol version for the associated trap.
- **Community String** is set for associated community string.
- **Send Test Trap** will send a test when pressed.

Setting/Configuring Miscellaneous BBG-1300 Functions

Numerous other BBG-1300-FR operating and monitoring functions are available via front panel control and via DashBoard. This section describes these attributes and their setup.

Beeper Mute

- To **temporarily** mute the device alert beeper, select the BBG-1300-FR main menu (by pressing soft key **L1**). From the choices, using **Navigate/Select** knob select **Mute Beeper**. The device beeper will be temporarily muted.
- To **persistently** mute the device alert beeper, perform the following steps to access the **MUTE** jumper and set to **Mute** position.

1. Remove the front bezel as shown in Figure 2-5 on page 2-7.
2. (See Figure 2-10.) With device on side such that front bezel interface PCB is oriented as shown, move the jumper from the Default position to the Mute position.
3. Re-install the front bezel as shown in Figure 2-5 and associated steps.

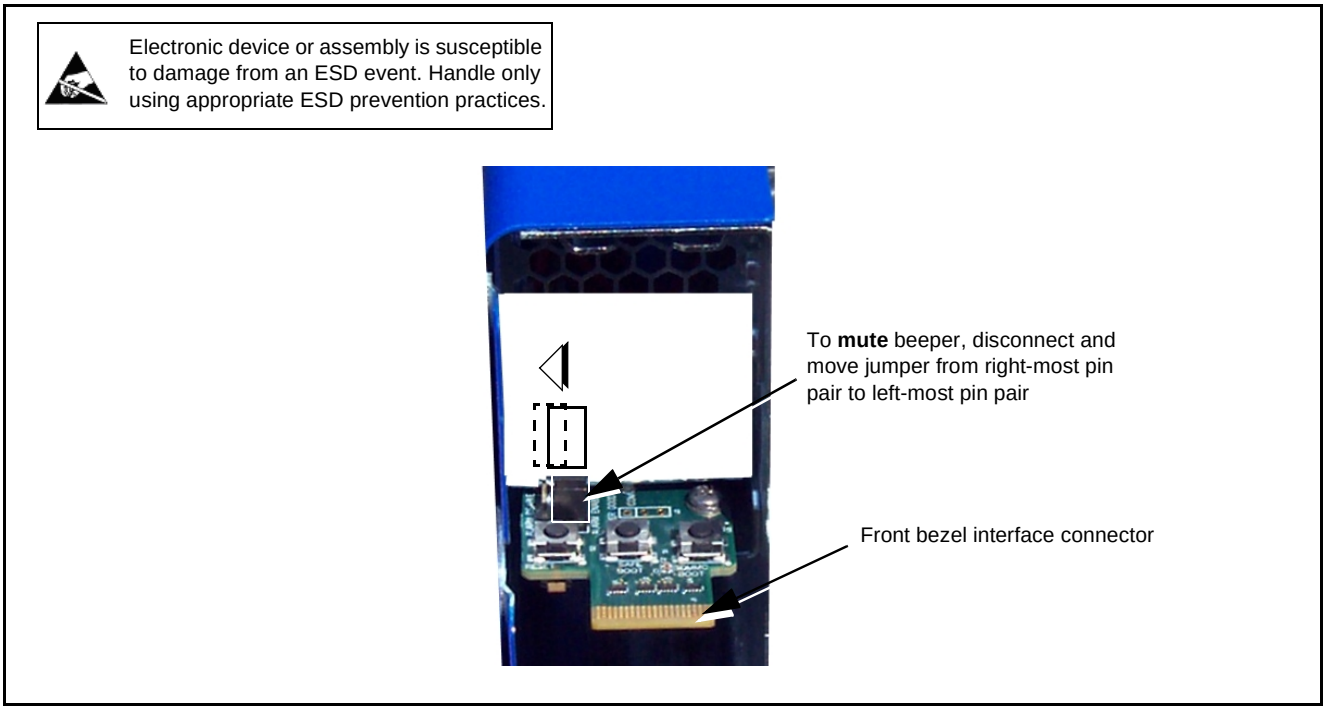


Figure 2-10 Mute Jumper

Factory Reset

When **Factory Reset** submenu item is selected, pressing the **Navigate/Select** knob immediately invokes a reset to "out of the box" device factory reset.

Pressing knob (OK) will invoke reset. Any custom settings (such as static IP address entry) will be lost if reset is invoked.

Reboot

When **Reboot** submenu item is selected, pressing the **Navigate/Select** knob immediately invokes a reboot of the device. (Following reboot, any custom user settings are retained.)

About

When **About** submenu item is selected, pressing the **Navigate/Select** knob displays device current firmware version. Also displayed is the Cobalt Digital corporate mail address and local area telephone number.

Troubleshooting

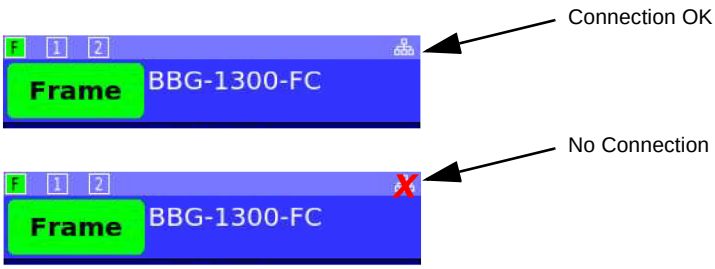
Troubleshooting Network/Remote Control Errors

The table below provides network/remote control troubleshooting information. If remote connections exhibit any of the symptoms listed in the table, follow the troubleshooting instructions provided.

Note: All remote control items described here use industry standard 100/1000 Mbps Ethernet for communication between the BBG-1300-FR and remote control systems such as DashBoard™.

Standard LAN troubleshooting techniques and practices are applicable to this usage. The RJ-45 receptacle that provides the connection to the LAN is equipped with an activity status indicator that can be used to determine activity status.

Troubleshooting Network/Remote Control Errors by Symptom

Symptom	Error	Corrective Action
DashBoard™ does not discover newly added BBG-1300-FR; newly added BBG-1300-FR will not connect to network	• DashBoard™ may not be set to automatically discover added devices	• Make certain DashBoard™ is set to automatically discover devices.
	• Damaged Ethernet cable or cable connector; cable mis-connected	• Make certain the Ethernet cable is properly connected and showing activity on the LAN switch indicators and the **ETHERNET** connector indicator on the BBG-1300-FR. Use `ping` to check the connection. BBG-1300-FR connection to network is shown on front panel as shown below.
		
Newly added BBG-1300-FR in DashBoard™ that uses static IP address will not activate (icon stays grayed-out)	• BBG-1300-FR and LAN computer on different networks	• Make certain LAN hosting computer and BBG-1300-FR are on same network.
	• Address conflict with other nodes or another Network Card	• Make certain that the LAN segment containing the BBG-1300-FR, the hosting computer, and intermediate hubs or switches is isolated from other parts of the network.
Device that received user name change still appears in DashBoard with “old” name	• DashBoard and/or network not set to automatically update or detect changes	• If network does not allow name changes, delete the old instance of the device and manually re-add/re-query the device in DashBoard. New name will now show in DashBoard Basic Tree View.
Nuisance “beeper” alarms	• **Alarms** DashBoard page has items set to provide alarms where not intended	• Make certain items not requiring alarm notice are set to **Ignore**. (This would be the case where redundant power supply usage is not being used. In this case, alarm items related to the unused PSU should be set to **Ignore**.)

In Case of Problems

Recovering Non-Responsive BBG-1300-FR (Device Reset)

If BBG-1300-FR powers up but is “stalled” in displaying only the **Cobalt** opening splash screen graphic, the BBG-1300-FR may need to be reset. (Normal power-up sequence shows the splash screen, then a soft key illumination test sequence, and then finally showing the default device status screen of system temperature data.). The non-responsive mode can occur in rare cases where power-down/power-up occurs in a rapid pattern.

Note: If the non-responsive condition occurs, only BBG-1300-FR device control and monitoring functions are affected. BBG-1300-FR maintains power to device user slots as long as AC power is connected to BBG-1300-FR.

Reset the BBG-1300-FR as follows:

1. Power-down the BBG-1300-FR.
2. Remove the front bezel as shown in Figure 2-5 on page 2-7.
3. Power-up the BBG-1300-FR.

Note: To access PCB buttons on next steps, if possible place the BBG-1300-FR on its left side. This will make access and readability of the switch buttons and their screened legends easier.

4. Perform the reset sequence shown in Figure 2-11.
5. Re-install the front bezel as shown in Figure 2-5. Within a minute, the BBG-1300-FR should go thru its normal power-up self-test sequence, ending with the unit displaying its default **Temperature** screen. The unit is now reset and ready for use.

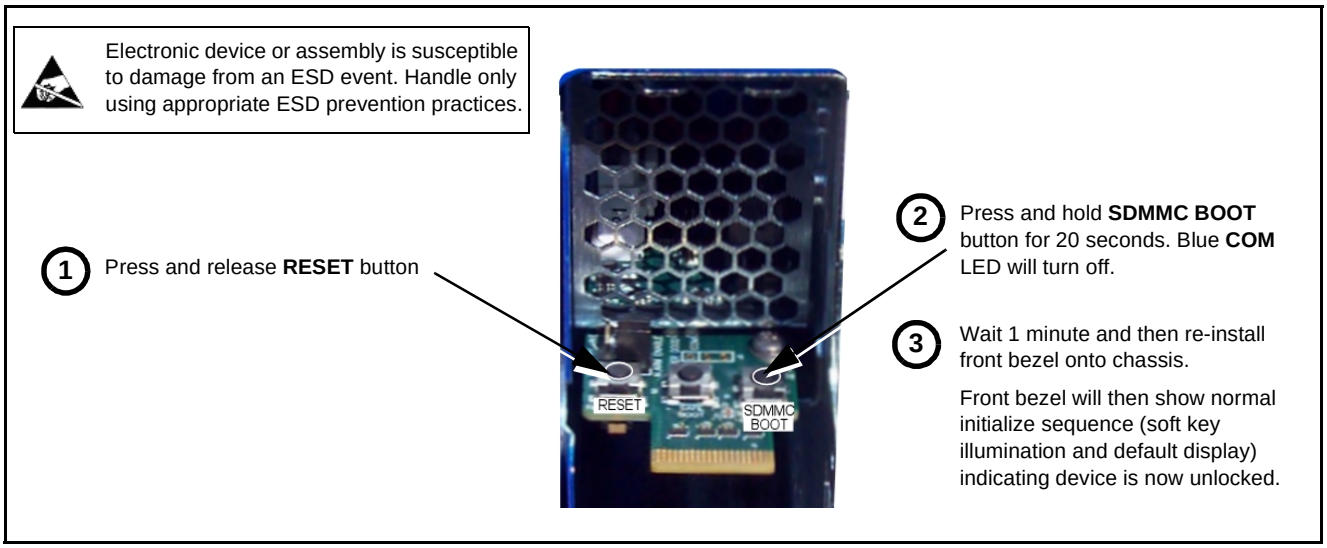


Figure 2-11 BBG-1300-FR Reset Sequence

Contact and Return Authorization

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. 1-10) in Chapter 1, "Introduction" for contact information.

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