VDD-100

VANC Data Decoder

User Manual

ROSS

Live Production Technology

open**Gear**

Product Name: VDD-100

VDD-100 • VANC Data Decoder User Manual

- Ross Part Number: **VDD100DR-004-02**
- Release Date: September 27, 2010. Printed in Canada.

The information contained in this User Manual is subject to change without notice or obligation.

Copyright

Notice

Trademarks

Important Regulatory and Safety Notices

Before using this product and any associated equipment, refer to the "Important Safety Instructions" listed below so as to avoid personnel injury and to prevent product damage.

Products may require specific equipment, and/or that installation procedures be carried out to satisfy certain regulatory compliance requirements. Notices have been included in this publication to call attention to these Specific requirements.

Symbol Meanings

This symbol on the equipment refers you to important operating and maintenance (servicing) instructions within the Product Manual Documentation. Failure to heed this information may present a major risk of damage or injury to persons or equipment.

Warning

The symbol with the word **"Warning"** within the equipment manual indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.

Caution

The symbol with the word "**Caution**" within the equipment manual indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Notice

The symbol with the word "**Notice**" within the equipment manual indicates a situation, which if not avoided, may result in major or minor equipment damage or a situation which could place the equipment in a non-compliant operating state.

ESD Susceptibility

This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from electrostatic discharge.

Important Safety Instructions

Caution

This product is intended to be a component product of the openGear 8000 series frame. Refer to the openGear 8000 series frame User Manual for important safety instructions regarding the proper installation and safe operation of the frame as well as its component products.

Warning

Certain parts of this equipment namely the power supply area still present a safety hazard, with the power switch in the OFF position. To avoid electrical shock, disconnect all A/C power cords from the chassis' rear appliance connectors before servicing this area.

Warning

Service barriers within this product are intended to protect the operator and service personnel from hazardous voltages. For continued safety, replace all barriers after any servicing.

This product contains safety critical parts, which if incorrectly replaced may present a risk of fire or electrical shock. Components contained within the product's power supplies and power supply area, are not intended to be customer serviced and should be returned to the factory for repair.

To reduce the risk of fire, replacement fuses must be the same type and rating.

Only use attachments/accessories specified by the manufacturer.

EMC Notices

US FCC Part 15

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.

⚠️
Notice

Changes or modifications to this equipment not expressly approved by Ross Video Ltd. could void the user's authority to operate this equipment.

CANADA

This Class "A" digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de classe "A" est conforme à la norme NMB-003 du Canada.

EUROPE

This equipment is in compliance with the essential requirements and other relevant provisions of **CE Directive 93/68/EEC**.

INTERNATIONAL

This equipment has been tested to **CISPR 22:1997** along with amendments **A1:2000** and **A2:2002** and found to comply with the limits for a Class A Digital device.

⚠️
Notice

This is a Class A product. In domestic environments this product may cause radio interference in which case the user may have to take adequate measures.

Maintenance/User Serviceable Parts

Routine maintenance to this openGear product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the "**Contact Us**" section on the last page of this manual.

Environmental Information

The VDD-100 complies with the European Union's RoHS Directive. This stands for "the restriction of the use of certain hazardous substances in electrical and electronic equipment". This Directive bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

The equipment that you purchased required the extraction and use of natural resources for its production. Despite compliance with the RoHS directive, it may nevertheless contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, we encourage you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.
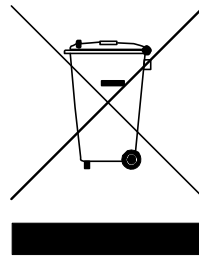
If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

Contents

Specifications 6-1

Service Information 7-1

Introduction

In This Chapter

This chapter contains the following sections:

- Overview
- Functional Block Diagram
- Features
- Documentation Terms

A Word of Thanks

Congratulations on choosing the openGear VDD-100 VANC Data Decoder. The VDD-100 is part of a full line of Digital Products within the openGear Terminal Equipment family of products.

You will be pleased at how easily your new VDD-100 fits into your overall working environment. Equally pleasing is the product quality, reliability and functionality. Thank you for joining the group of worldwide satisfied Ross Video customers!

Should you have a question pertaining to the installation or operation of your VDD-100, please contact us at the numbers listed on the back cover of this manual. Our technical support staff is available for consultation or service.

Overview

The VDD-100 extracts packets from the Vertical Ancillary (VANC) data area of a video signal and closes GPIO contacts when they match user supplied strings.

- VDD-100 can monitor up to 8 different DID/SDID combinations for matching data. As a member of the openGear family, the VDD-100 shares a common control interface, known as DashBoard, with a broad array of other products.

- The VDD-100 is housed in the openGear DFR-8300 series frames. It is compatible with both 10-slot and 20-slot frames

Features

The following features make the VDD-100 ideal solution for detection of VANC services such as AFD, Branding Triggers and others:

- Operates automatically with major SD and HD video formats.
- Can detect specific values of AFD and close GPIO contacts to control equipment such as keyers or up/down/cross converters.
- Can detect specific values of branding triggers and close GPIO contacts to control logo insertion equipment.
- Flexible matching allows detection of a wide variety of VANC data patterns and control of any equipment that can react to a contact closure.
- Frame-accurate triggering: each trigger is delivered within one video frame time.
- Video bypass capability with ONG-MDL-R01, R21 or R23 rear module.
- Fits openGear DFR-8300 series frames.
- the VDD-100 is compatible with the openGear frame's SNMP option, allowing monitoring with third-party SNMP software systems. For more information and to obtain MIBs, contact Ross Technical Support.

Functional Block Diagrams
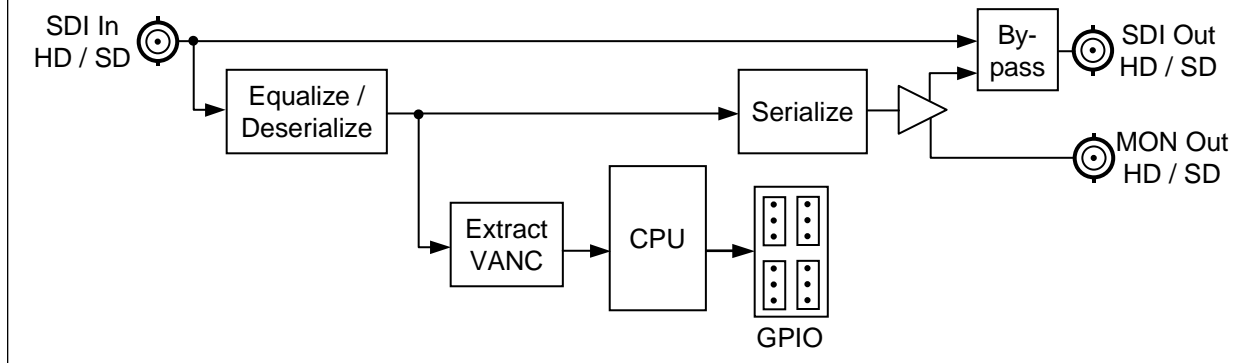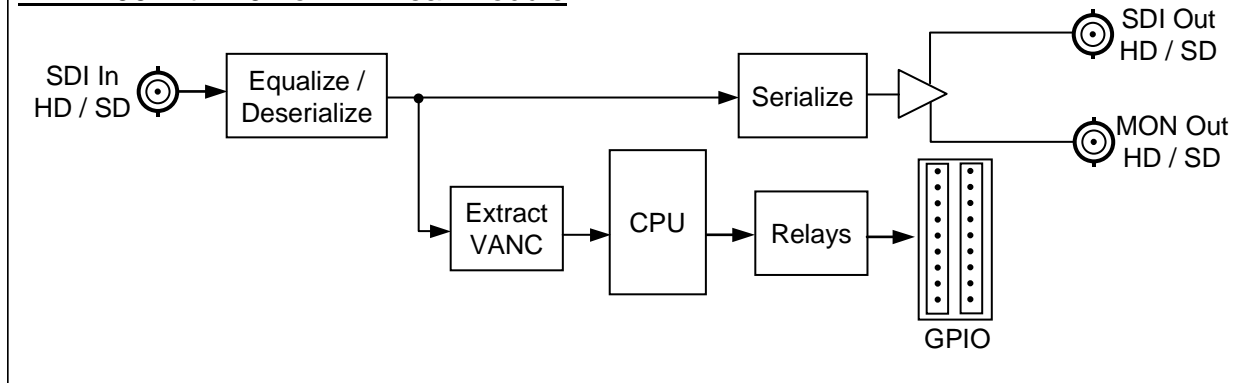
Figure 1. Simplified Block Diagram of VDD-100 Functions

Documentation Terms

The following terms are used throughout this guide:

- "**Frame**" refers to the frame that houses the VDD-100 card.

- "**Operator**" and "**User**" refer to the person who uses the VDD-100.

- "**Board**" and "**Card**" refer to the VDD-100 card itself, including all components and switches.

- "**System**" and "**Video system**" refer to the mix of interconnected production and terminal equipment in which the VDD-100 operates.

- "**Rear Module**" refers to the connector module at the rear of the frame, into which the VDD-100 is inserted.

- "**GPIO**" means General Purpose Input-Output. This term is commonly used in the broadcast industry to refer to DC signals used by one device to control another.

- "**VANC**" is the Vertical Ancillary data space of a serial digital video signal, and is defined by SMPTE standard 291M.

Frame and Rear Module Compatibility

The VDD-100 can operate with the following frame and rear modules combinations.

Table 1.Combinations of VDD-100, Frame and Rear Module models

Rear Module	Frame	Bi-Directional GPIOs	Isolated GPIO	Program 2 Out	Bypass Relay
ONG-MDL-R01	DFR-8310-N	Yes	No	Yes	Yes
ONG-MDL-R02	DFR-8310-N	No	Yes	No	No
ONG-MDL-R21	DFR-8321-C or –CN or -CNS	Yes	No	Yes	Yes
ONG-MDL-R22	DFR-8321-C or –CN or -CNS	No	Yes	No	No
ONG-MDL-R23	DFR-8321-C or –CN or -CNS	Yes	No	No	Yes

Quick Start

Assuming you have a openGear frame, an **ONG-VDD-100** card and a suitable rear module, the following steps will allow you to start matching transport stream identifiers:

1. Connect the frame to your LAN, using the instruction sheet "**Connecting the openGear Frame to a Network**" supplied with the frame.

2. Install DashBoard on a computer connected to the LAN. The DashBoard Control System™ software and user manual is available from the Ross Video website.

3. Install a rear modules in the frame, as described in the section "**Rear Module Installation**" of this manual.

4. Install a VDD-100 into the rear modules, as described in the section "**Board Installation**" of this manual.

5. Connect a 292 or 259 video signal to the SDI input jack on the rear module of the encode card as described in the section "**Cable Connections**" of this manual.

6. Start DashBoard on your computer. It should automatically find your frame within a minute or two. Click the "+" next to the frame name to show the cards in the frame, then double-click the VDD-100 to be used to encode.

7. Click the **GPIO Enable** tab and enable the GPIOs that will be used. Click the **GPIO Enable Save** button to make these changes.

8. Click the **DID / SDID Settings** tab and set the DID and SDID values for the GPIOs that will be used. Click on the **Save** button to make this change. For example, SMPTE 2016-3 specifies that AFD has DID=41h (65 decimal) and SDID=05h. If you want to assign GPIO 1 to AFD, you would enter these numbers into the fields next to GPIO 1.

9. Click the **GPIO Data Matching** tab and set up the matching strings for the GPIOs that will be used. Set the GPIO matching string to modify, and set the length of the match string and indicate whether the packet length must match the match string length. Then set the string bytes one at a time, verifying contents in the string display windows on the GPIO Data Matching tab. For example, the AFD packet for a 16:9 center cut in 8 bytes long as shown in the image on the right.

10. Click the **GPIO Matching Mask** tab and set up the mask strings to apply to any incoming data. For example, to match on the AFD code and to ignore the bar data, the mask should be set as follows: set the GPIO mask string to modify by entering the value in the GPIO field. Enter the mask bytes one at a time, in the Byte to Change and Value fields, verifying the results in the read-only field of the tab.

11. Connect the GPIO outputs to the devices they will be triggering.

12. Verify the GPIOs are triggering when the specified VANC data is present.

Installation and Setup

In This Chapter

This chapter contains the following sections:

- Static Discharge
- Unpacking
- Rear Module Installation (Optional)
- Board Installation
- BNC Labels
- Cable Connections

Static Discharge

Whenever handling the VDD-100 and other related equipment, please observe all static discharge precautions as described in the following note:

ESD Susceptibility — *Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas, and when wearing synthetic fiber clothing. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

Unpacking

Unpack each VDD-100 you received from the shipping container, and check the contents against the packing list to ensure that all items are included. If any items are missing or damaged, contact your sales representative or Ross Video directly.

Rear Module Installation

The VDD-100 for both encoding and decoding require Ross Video Rear I/O Module with GPIO jacks. You will need to install the I/O module in your openGear frame before you can install the VDD-100 in the frame, or connect cables to the slot you have chosen for the VDD-100.

Use the following procedure to install the rear module in an openGear digital distribution frame:

1. Refer to the *openGear DFR-8300 Series Frame User Manual*, to ensure that the frame is properly installed according to instructions.

2. On the rear of the frame, locate the card frame slot.

3. Remove the Blocker Plate (if any) from the rear of the slot you have chosen for the VDD-100 installation. Retain the plate for possible future use.

4. Seat the bottom of the rear module in the seating slot at the base of the frame's back plane.
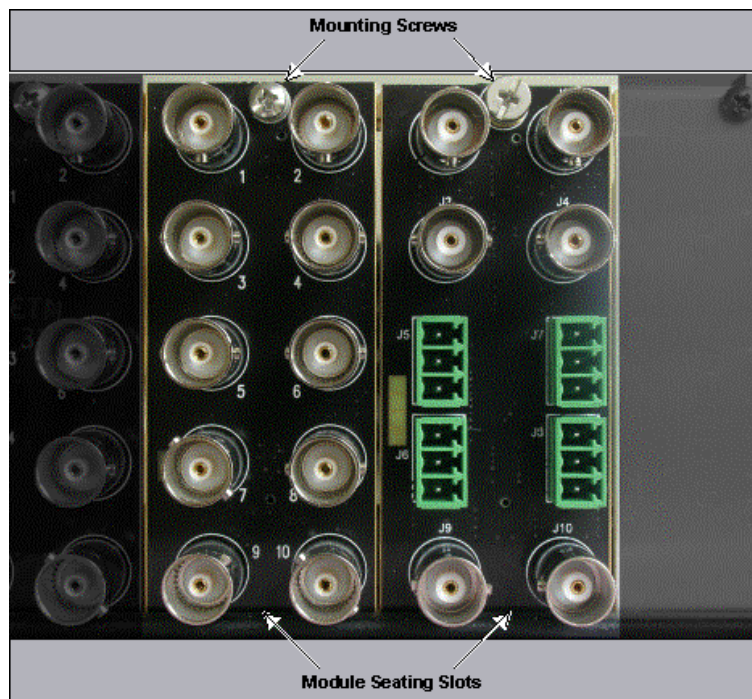
Figure 2. Rear Module Installation, showing RM-8300-B (left) and ONG-MDL-R01 (right) modules

5. Align the top hole of the rear module with the screw hole on the top edge of the frame's back plane.

6. Using a Phillips screwdriver and the supplied screw, fasten the rear module to the back plane. Do not over tighten.

7. Ensure proper frame cooling and ventilation by having all rear frame slots covered with rear I/O modules or blank metal plates. If you need blanks, contact your openGear sales representative.

This completes the procedure for installing the Rear I/O Module in an openGear digital distribution frame.

Board Installation

Use the following procedure to install the VDD-100 in an openGear distribution frame:

⚠ **Notice** — *It is recommended to use a frame with the cooling fan option in all cases, in order to allow all slots to be used without exceeding heat dissipation limits.*

1. Refer to the ***DFR-8300 Series Frames User Manual*** to ensure that the frame is properly installed according to instructions.
2. After selecting the desired frame installation slot, hold the VDD-100 card by the edges and carefully align the card edges with the slots in the frame.
3. Fully insert the card into the frame until the rear connection plugs are properly seated on the midplane and rear modules.

This completes the procedure for installing the VDD-100 in an openGear distribution frame.

BNC Labels

Affix the supplied BNC label, as per the included instructions, to the BNC area on the rear of the module at the position occupied by the VDD-100.

Cable Connections

This section provides information for connecting cables to the installed rear modules on the frame backplane. Connect the input and output cables according to the following diagram. It is not necessary to terminate unused outputs. Note that the BNCs are numbered 1-10 by convention, even though some may not be installed. The upper left BNC is #1, with the other odd-numbered jacks 3-9 below it. The even-numbered BNC jacks 2-10 are in the right column. For example, the ONG-MDL-R01 rear module shown in the following illustration has 1-4 and 9-10.
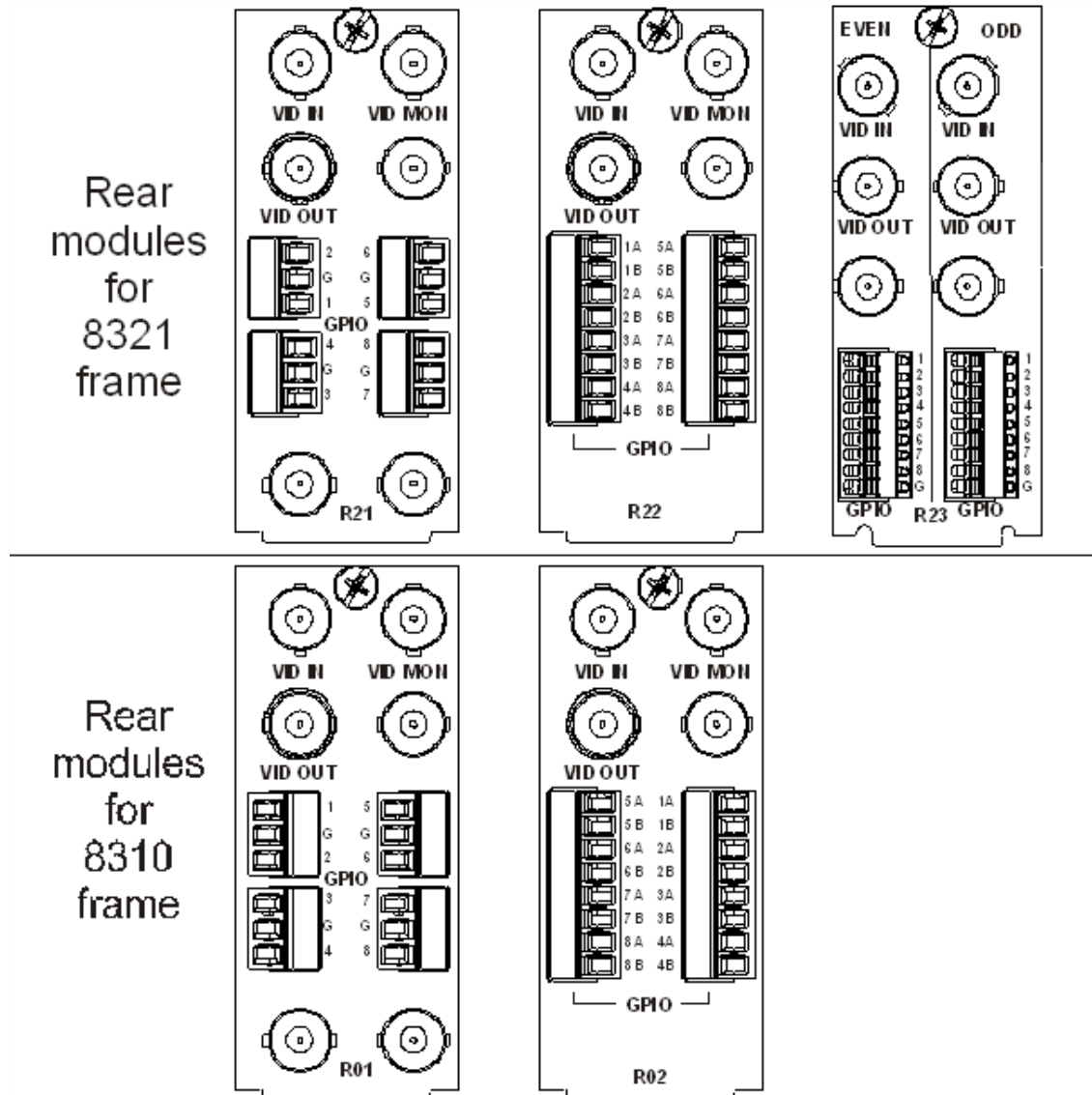

Figure 3. Jack Designations for the VDD-100 with Suitable Rear Modules

BNC 1 SDI Input

This jack accepts an SDI (SMPTE 259) or HD-SDI (SMPTE 292) video signal. The VDD-100 requires this input in all cases. It extracts VANC packets from this signal and routes the resulting output to BNC3. The input signal is internally terminated in 75 ohms when the VDD-100 is active; when using an R01,R21 or R23 rear module and the VDD-100 is in bypass, the termination is provided by the downstream equipment connected to BNC3.

BNC 3 SDI Output

This jack carries the main program output from the VDD-100, consisting of the signal applied to BNC1. When using an R01, R21 or R23 rear module BNC1 is routed directly to BNC3 (without passing through the VDD-100), under the following circumstances: power off, VDD-100 card removed, VDD-100 Bypass pushbutton out, software selection or certain major error conditions.

BNC 2 SDI Output Monitor

When the VDD-100 is active, this jack carries a copy of the SDI output present on BNC3. This can be useful for test purposes. This jack does not have any bypass capability: with power off or the VDD-100 removed, there is no output signal on this jack.

GPIO1-8 Inputs/Outputs

These jacks are output from the VDD-100 triggered when incoming data matches the user supplied match string. The R01, R21 and R23 rear modules provide 3.3V logic levels on outputs 1-8, plus ground connections. The R02 and R22 provide relay contact closures between 1A and 1B, 2A and 2B, and so on.
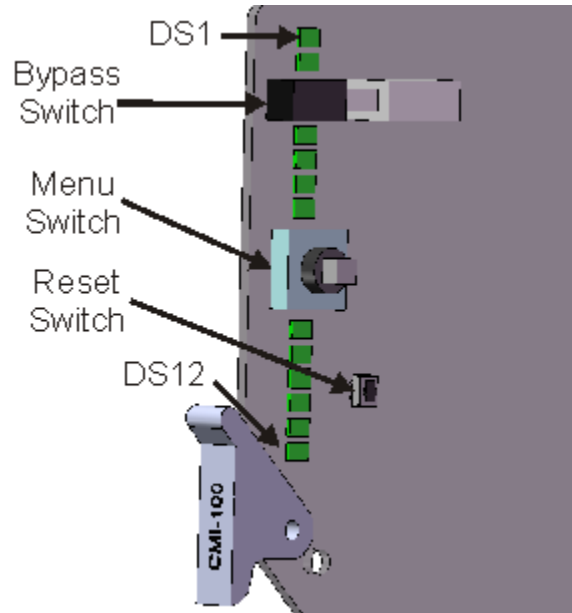
User Controls

In This Chapter

This chapter contains a description of the VDD-100 user controls:

- User Controls
- Switches
- LEDs

User Controls

Figure 4 shows the front edge of the VDD-100. Following the illustration are descriptions of the controls and indicators identified here.

Figure 4. Card-edge User Controls

Bypass Switch

If the VDD-100 is installed in a rear module such as the ONG-MDL-R01 that has a bypass relay, this two-position pushbutton can be used to control the relay. When the pushbutton is in the "IN" position, the VDD-100 is in the video signal path. Pressing it once moves the switch to the "OUT" position and bypasses the VDD-100. Pressing it again restores the VDD-100 to its active state.

Reset Switch

This button is used for rebooting the card.

Menu Switch

Not used on the VDD-100.

LEDs

The front-edge of the card features LEDs that display the status of the input signals. Descriptions are provided in the following table:

Table 1. Selection and Status LED Descriptions

LED	Color	Location	Display and Description
Power	Red/ Green/ Orange	DS1	When off, there is no power. When lit and green the card is running with valid input. When flashing green, the boot loader is waiting for software upload. When lit orange, this is a warning about a signal or configuration error. When lit red, the card is not operational. This will occur if, for example, there is no video input.
Bypass	Off/Red	DS2	When off, VDD-100 is in the video path and is capable of inserting data. When lit red, the VDD-100's video is bypassed.
Program Video In	Red/ Green	DS3	When lit green, the Program Video input is present and valid. When lit red, no valid input is present. This typically means that the input cable is disconnected.
Program Video Out	Red/ Green	DS4	When lit green, the Program Video output serializer is locked to a valid input. When lit red, there is a hardware fault on the card.
Not Used		DS5-8	Not used.
Video Error	Green/ Orange	DS9	Normally lit green. When lit orange, this indicates that there has been an error (e.g. EDH) in the video input stream.
Unknown Rear Module	Green/ Orange	DS10	Normally lit green. When lit orange, this indicates that the rear module connected to the VDD-100 is not one of the types recognized by the software. Operation may not be correct.
Not Used		DS11-12	Not used.

DashBoard and VDD-100 Status

In This Chapter

This chapter provides a detailed explanation of the functions available when using DashBoard to monitor and control the VDD-100. The program is available for download from the Ross Video website.

The following topics are discussed in this chapter:

- Layout and Navigation
- Selecting a VDD-100 Module
- Screen layout
- Status and Setup menus.

Layout and Navigation

This section focuses on the use of the DashBoard program to control and monitor a VDD-100. For a more complete description of DashBoard and its capabilities, please refer to the documentation supplied with the program.

Selecting a VDD-100 Module

Figure 5 shows a typical DashBoard screen. After it has established its connection to the frame containing the VDD-100, a list of modules is displayed at the left side. Clicking on a frame and then on a VDD-100 causes a window for that module to be opened, resulting in the display shown here. In this simple example, there is only one device, the VDD-100 open. DashBoard provides the ability to view multiple devices in this window. For details, see the DashBoard Software User Manual.

Screen layout

The VDD-100 window is divided into four sections as shown:

- The upper left side is the Product Status area, and displays a summary of the present module status.
- The lower left side is the Status area and provides tabs to select more detailed status.
- The right side, the Settings area, provides tabs to allow control of the various functions of the module.
- The bottom band contains buttons for functions that are used relatively infrequently.

Product Status

The left side of this figure shows product information that is useful in discussing the operation of the module with Ross Technical Support.

Figure 5. Main VDD-100 DashBoard Screen, showing Product Status and Settings

GPIO Status

Figure 6 shows the status of the eight GPIO inputs/outputs.   The status of each of the inputs/outputs is either **Open** or **Closed**. When using a logic-level rear module (ONG-MDL-R01, R21 or R23), **Open** means logic level 1 (3.3V) and **Closed** means logic level 0 (0V).

The chapter, "**Setting Up the VDD-100**" describes how the VDD-100 uses the VANC to control GPIOs.

Figure 6. GPIO Output screen
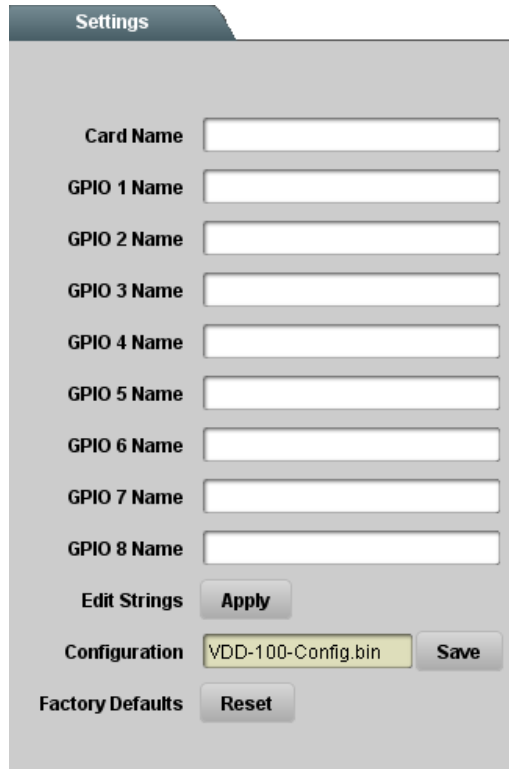
Setting up the VDD-100

In This Chapter

This chapter explains how to use the user interface to set up the VDD-100. This discussion is based on the use of DashBoard through a network connection, however most of these functions are also available through the local Heads-up Display.

The following topics are discussed:

- General Settings

- Assigning DID / SDID values to GPIOs

- Entering Matching Strings for GPIOs

- Using data masks to avoid non-static data.

General Settings

Figure 7 shows the screen that is displayed by clicking the **Settings** tab. Before proceeding to any of the other sections, please ensure that these settings are correct, as they will have an effect on the operation of the other functions.

Figure 7. Settings Menu

The **Card Name** field allows you to assign a unique name to a VDD-100 card. This is especially useful if you have more than one VDD-100 in a frame. If this field were blank, the name would just be "VDD-100".

The **GPIO (x) Name** fields allow you to assign names to the various outputs. This is useful for reminding the user what device is attached to the GPIO. If this field were blank, the name would just be "GPIO (x)".
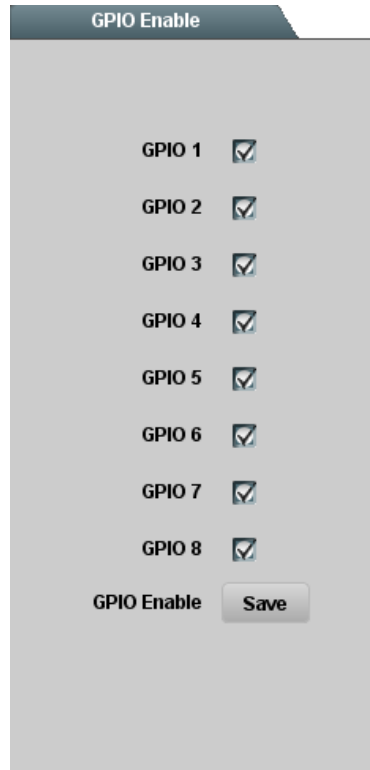
The **Edit Strings Apply** button makes any settings on this tab permanent. It is important to click on this button before moving to another tab or the changes will not be made and saved.

The **Configuration** of the card may be saved to a file on the PC by clicking on the **Save** button. This brings up a dialog box which allows you to name the file and then, by selecting **Save,** to save it to the PC. Configuration files are a fast way to return to a configuration or to clone a configuration to another VDD-100. Use the Upload button on the bottom of the Dashboard screen to restore a configuration. This brings up a dialog screen which allows you to select one of your saved configurations. This is the same button used to upload new firmware to the card. Dashboard automatically determines the difference between a configuration and a firmware file.

The **Factory Defaults Reset** button clears all configuration settings and restores the settings as they were shipped from the factory.

Selecting GPIOs

The VDD-100 has eight GPIOs. The **GPIO Enable** tab controls which of the eight are active. While decoding data packets from the VANC, the VDD-100 will only drive GPIOs that are checked. Normally, an active GPIO closes the contact between the two pins.

Figure 8. GPIO Enable

Setting DID /SDIDs

The VDD-100 can monitor a separate DID and SDID for each of its eight GPIOs. The **DID / SDID Settings** tab allows the user to set the DID and SDID value for each of the GPIOs.

Fill in a DID and SDID value in the boxes to the right of the GPIO number. Once the values are set for the enabled GPIOs, click the **Save** button to make the changes permanent.

Figure 9. DID / SDID Menu

Entering Data Matching Strings

The VDD-100 allows you to set a different data matching string for each of its eight GPIOs .

To set a matching string:

1. Select the GPIO to alter in the **GPIO** box.

2. Select the length of the match string you're entering from the **length** control .

3. Using the Match Type select whether the length of the incoming must match the matching string (LEN), or ignore the incoming length and just match on the bytes supplied (ANY).

4. Click the **Save** button and you should see the change reflected in the GPIO match string windows.

5. Select the byte number you wish to alter and supply a byte to match on.

6. Click the Save button and you should once again see the change reflected in the GPIO match string windows.

7. Repeat steps 5 and 6 until you have entered the entire match string.

If you find the VANC packet you're examining contains data that is non-static (such as a counter), the VDD-100 allows you to ignore those bits / bytes using a data mask described in the **Entering Data Mask** section.

Figure 10. GPIO Data Matching Menu

Entering Data Mask Strings

The VDD-100 allows the user to set matching strings for each of its eight GPIOs . However, sometimes it's desirable to ignore certain bytes or bits when matching. For example, some bytes may have unknown or changing values.

To set the a mask string:

1. Select the GPIO to alter from the **GPIO** control.

2. Select the byte number you wish to alter and supply a 8 bit hex mask byte. This has 1 in each bit that is to be used in matching, and 0 in each bit that is to be ignored.

3. Hit the **Save** button and you should once again see the change reflected in the GPIO match string windows.

4. Repeat steps 3 and 4 until you have entered the entire mask string.

In the example below the user wants GPIO 1 to match on the first, fourth and fifth bytes of the matching string but it should accept any value for the second and third bytes.

Figure 11. GPIO Data Matching Menu

Setting Hold Times
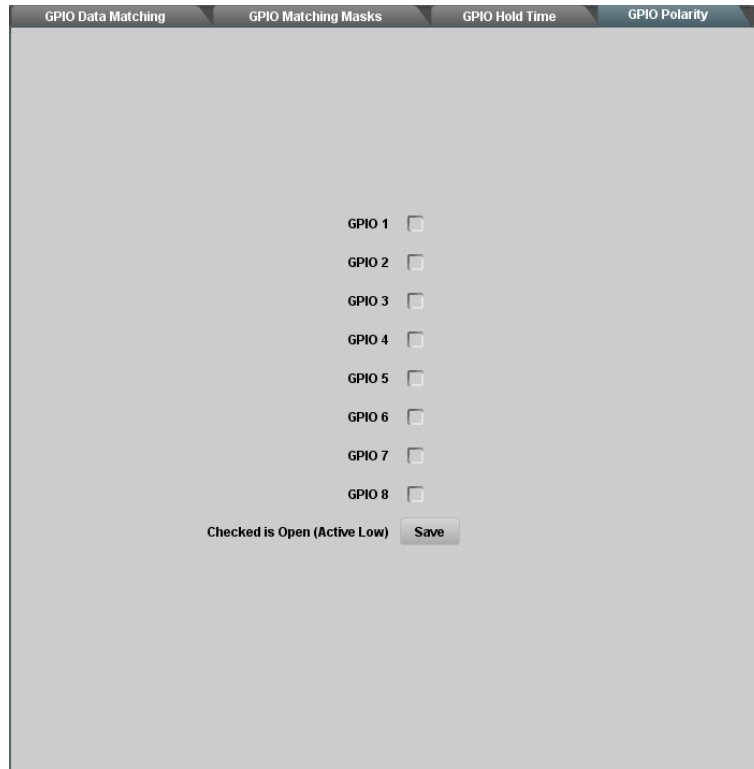
The VDD-100 allows the user to adjust the hold times for each of its eight GPIOs. When a GPIO is triggered by the detection of a specified data pattern in VANC it will remain asserted for the number of seconds specified here. When this value is set to 0, The GPIO is asserted as long as the data pattern is present.
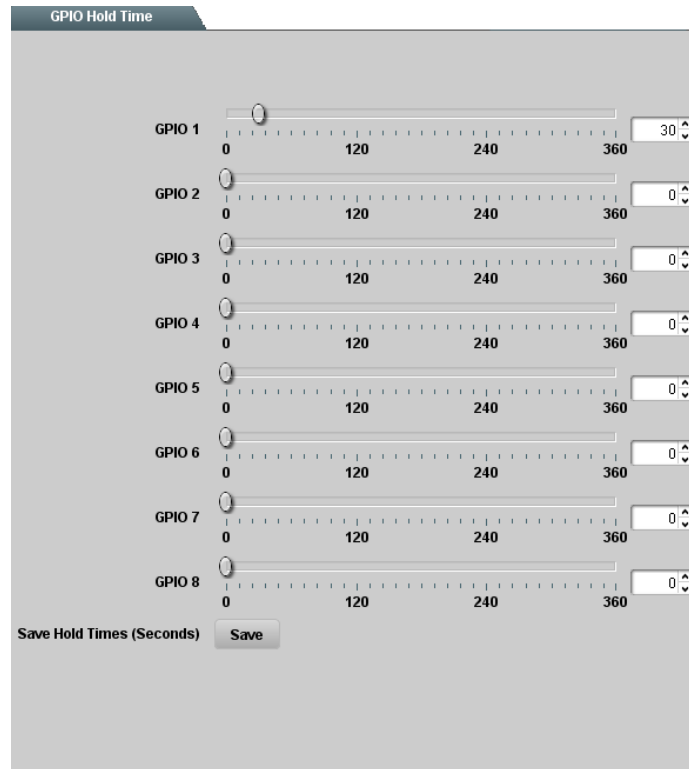
Figure 12. GPIO Hold Time Menu

Setting GPIO Level

The VDD-100 allows the user to use up to 8 GPIOs for triggering. Normally, an active GPIO opens the contact between the two pins. If, instead, you want the contacts to close when the GPIO is active, check the corresponding check box.

Figure 13. GPIO Level

Specifications

In This Chapter

This chapter contains the Technical Specifications table. Note that specifications are subject to change without notice.

Category	Parameter	Specification
Serial Digital Video Inputs	Number Of Inputs	1 input
	Input Signal Standard Accommodated	DVB-ASI (EN 50083-9)
	Impedance	75Ω terminating in Active mode Loop-through to SDI Output in Bypass mode, via the ONG-MDL-R01, R21 or R23 rear module.
	Equalization	Over 100 m of Belden 1694A cable
	Return Loss	>15dB to 270 MHz
Serial Digital Video Outputs	Number of Outputs	1 ASI input monitor 1 on-screen display (OSD) SMPTE 259 SDI output (available with ONG-MDL-R01 or R21 rear module)
	Impedance	75Ω
	Return Loss	>10dB to 270 MHz
	Signal Level	800mV ±10%
	DC Offset	0 Volts ±50 mV
	Rise & Fall Time (20-80%)	700ps. typical
	Overshoot	<8%
Analog video Output	Number of outputs	1 on-screen display (OSD) output
	Impedance	75Ω
	Signal level	1.0 v
	Formats	NTSC-M or PAL-B/G
GPIO Outputs	Number and type of outputs	With ONG-MDL-R02 or R22 rear module: 8 pairs of isolated contacts. (Max 0.1A)
		With ONG-MDL-R01, R21 or R23 rear module: 8 logic outputs (3.3v) and 2 or 4 ground connections.
Other	Maximum Power Consumption	5W
	Warranty	1 year return to factory

Service Information

In This Chapter

This chapter contains the following sections:

- Troubleshooting Checklist
- Power LED Conditions
- Bootload Sequence
- Warranty and Repair Policy

Troubleshooting Checklist

Routine maintenance to this openGear product is not required. In the event of problems with your VDD-100, the following basic troubleshooting checklist may help identify the source of the problem. If the module still does not appear to be working properly after checking all possible causes, please contact your openGear products distributor, or the openGear Technical Support department at the numbers listed under the "**Contact Us**" section at the end of this manual.

1. **Visual Review** – Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the module, the frame, and any associated peripheral equipment for signs of trouble.

2. **Power Check** – Check the power indicator LED on the distribution frame front panel for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. Confirm that the power supplies are fully seated in their slots. If the power LED is still not illuminated, replace the power supply with one that is verified to work.

3. **Reseat the Card in the Frame** – Eject the card and reinsert it in the frame.

4. **Check Control Settings** – Refer to the Installation and Operation sections of the manual and verify all user-adjustable component settings.

5. **Input Signal Status** – Verify that source equipment is operating correctly and that a valid signal is being supplied.

6. **Output Signal Path** – Verify that destination equipment is operating correctly and receiving a valid signal.

7. **Module Exchange** – Exchanging a suspect module with a module that is known to be working correctly is an efficient method for localizing problems to individual modules.

Power LED Conditions

The top front edge of the module has a Power LED which indicates card status. The Power LED displays the following conditions:

- **Off** — there is no power.

- **Green** — the card is running with valid input.

- **Flashing green** — the boot loader is waiting for, or receiving, a software upload.

- **Orang**e — there is a signal or configuration error. Check the inputs and menus.

- **Red** — the card is not operational. This will occur if, for example, there is no video input. Check the inputs, reseat the card, press the Reset button, or call Technical Support.

Bootload Sequence

In the unlikely event of a complete card failure, you may be instructed by a Ross Video Technical Support specialist to perform a complete software reload on the VDD-100.

To perform this task, follow these steps:

1. Press and hold the Menu Switch.
2. While holding the Menu Switch, press the Reset button in.
3. Release the Reset button and then the Menu Switch.

    The Power LED will flash GREEN while the card is waiting for a new software load.

    If a new software load is not sent to the card within 60 seconds, the card will attempt to restart with the last operational software load.

Software loads can be sent to the VDD-100 from DashBoard, using the MFC-8300 Series Network Frame Controller card.

Warranty and Repair Policy

The VDD-100 is warranted to be free of any defect with respect to performance, quality, reliability, and workmanship for a period of FIVE (5) years from the date of shipment from our factory. In the event that your VDD-100 proves to be defective in any way during this warranty period, Ross Video Limited reserves the right to repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this VDD-100 has failed after your warranty period has expired, we will repair your defective product should suitable replacement components be available. You, the owner, will bear any labor and/or part costs incurred in the repair or refurbishment of said equipment beyond the FIVE (5) year warranty period.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

This User Manual provides all pertinent information for the safe installation and operation of your VDD-100. Ross Video policy dictates that all repairs to the VDD-100 are to be conducted only by an authorized Ross Video Limited factory representative. Therefore, any unauthorized attempt to repair this product, by anyone other than an authorized Ross Video Limited factory representative, will automatically void the warranty. Please contact Ross Video Technical Support for more information.

In Case of Problems

Should any problem arise with your VDD-100, please contact the Ross Video Technical Support Department. (Contact information is supplied at the end of this publication.)

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your VDD-100. If required, a temporary replacement module will be made available at a nominal charge. Any shipping costs incurred will be the responsibility of you, the customer. All products shipped to you from Ross Video Limited will be shipped collect.

The Ross Video Technical Support Department will continue to provide advice on any product manufactured by Ross Video Limited, beyond the warranty period without charge, for the life of the equipment.

Notes:

Notes:

Contact Us

Contact our friendly and professional support representatives for the following:

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

PHONE	**General Business Office and Technical Support**	613 • 652 • 4886
	After-hours Emergency	613 • 349 • 0006
	Fax	613 • 652 • 4425
E-MAIL	**General Information**	solutions@rossvideo.com
	Technical Support	techsupport@rossvideo.com
POSTAL SERVICE	**Ross Video Limited**	8 John Street, Iroquois, Ontario, Canada K0E 1K0
	Ross Video Incorporated	P.O. Box 880, Ogdensburg, New York, USA 13669-08880

Visit Us

Please visit us at our website for:

- Company information
- Related products and full product lines
- Trade show information
- News

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