# MC1-UHD, MC1-UHD-A, and MC1-UHD-B User Guide

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David Ross
CEO, Ross Video
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# MC1 · User Guide

- Ross Part Number: **8922DR-304-08**
- Revision: 6
- Release Date: January 26, 2026.
- Software Version: **4.1**

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## Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

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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 the user will be required to correct the interference at his own expense.

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**Canada**

This Class "A" digital apparatus complies with Canadian ICES-003 and part 15 of the FCC Rules.

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**European Union**

This equipment is in compliance with the essential requirements and other relevant provisions established under regulation (EC) No 765/2008 and Decision No 768/2008/EC referred to as the "New Legislative Framework".

**Warning** — *This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.*

**Australia/New Zealand**

This equipment is in compliance with the provisions established under the Radiocommunications Act 1992 and Radiocommunications Labeling (Electromagnetic Compatibility) Notice 2008.

**Korea**

This equipment is in compliance with the provisions established under the Radio Waves Act.

Class A equipment (Broadcasting and communications service for business use)

This device is a business-use (Class A) EMC-compliant device. The seller and user are advised to be aware of this fact. This device is intended for use in areas outside home.

| Type of Equipment | User's Guide |
|---|---|
| A급 기기<br>(업무용 방송통신기자재) | 이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다. |
| Class A Equipment<br>(Industrial Broadcasting & Communication Equipment) | This equipment is **Industrial (Class A) electromagnetic wave suitability equipment** and seller or user should take notice of it, and this equipment is to be used in the places except for home. |

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This equipment has been tested under the requirements of CISPR 22:2008 or CISPR 32:2015 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 of this manual. All openGear products are covered by a generous 5-year warranty and will be repaired without charge for materials or labor within this period. See the "**Warranty and Repair Policy**" section in this manual for details.

## Environmental Information

The equipment may 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, Ross Video encourages 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. You can also contact Ross Video for more information on the environmental performances of our products.

## Security and Privacy

If you would like more information on how Ross Video security and privacy practices have been applied to the MC1, what you should know about maintaining security of this product, and how we can partner with you to ensure security throughout this product's life-cycle, contact techsupport@rossvideo.com.

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- Product and Supplier Risk Assessment
- Vulnerability and Patch Management
- Secure Coding Practices and Analysis
- Vulnerability Scanning
- Access Controls appropriate to Customer Data
- Incident Response
- Clear paths for two-way communication between customers and Ross Video

If you would like to report a potential product related privacy or security issue (incident, breach, or vulnerability), contact techsupport@rossvideo.com.

## Company Address


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# Contents

# Introduction

This guide covers the installation, configuration, and use of the MC1-UHD, MC1-UHD-A, and MC1-UHD-B. The following chapters are included:

- "**Introduction**" summarizes the guide and provides important terms, and conventions.
- "**Before You Begin**" provides general information to keep in mind before installing and configuring your MC1.
- "**Integration Example**" provides one possible work-flow that includes an MC1.
- "**Hardware Overview**" provides a basic introduction to the MC1 hardware features including the cabling and monitoring features of the rear module.
- "**Physical Installation**" provides instructions for the physical installation of the MC1 and its rear module into an openGear frame.
- "**Cabling**" provides an overview of connecting input and output devices to the rear module of the MC1.
- "**Getting Started**" outlines how to display the MC1 interfaces in DashBoard.
- "**Licensed Features**" outlines the available software licensed features, and how to install a software key for a licensed feature.
- "**Reference and Timing Setup**" provides instructions for specifying the reference source for the MC1.
- "**Configuring the SDI Outputs**" provides instructions for setting the card output video format and assigning the SDI signals to the outputs.
- "**Program Failover Setup**" outlines how to configure the Program Failover feature, monitor the failover status, and if required, force an automatic failover.
- "**Router Setup**" provides instructions for the basic physical installation and communications setup of your MC1 to the Ultrix router.
- "**Crosspoint Mapping**" outlines how to specify the number of available crosspoints, and assign sources to each crosspoint.
- "**Channel Ganging**" outlines how to configure multiple cards with one primary MC1 to control up to three remote (secondary) MC1 over an ethernet connection.
- "**Using RossTalk**" outlines how to establish a connection point between the MC1 and an external device using the RossTalk protocol.
- "**Comtrol® DeviceMaster® Setup**" describes how to set up communications between the MC1 and a Comtrol DeviceMaster.
- "**Using the TSL UMD v3.1 Protocol**" outlines how to configure the MC1 to communicate with a device via the TSL UMD 3.1 protocol.
- "**Using the Presmaster Protocol**" outlines how to configure the MC1 to support a subset of Miranda™ Presmaster Control System automation commands.
- "**Using the APC Protocol**" outlines how to configure the MC1 to communicate with a device via the APC protocol
- "**Setting up an EAS with MC1**" outlines how to set up communications between the Sage Digital ENDEC 3644 and the MC1.
- "**On Air Control Overview**" provides a basic introduction to the MC1, including an overview of the different areas of the On Air Control interface, using the menu system, as well as a brief summary of how video is controlled by the MC1.
- "**Audio**" provides instructions for configuring the audio features of the MC1 using the options available in DashBoard.

- "**Media File Management**" outlines how to select and configure the two Logo channels for the MC1.
- "**Keying**" summarizes the MC1 keying features.
- "**Mattes**" outlines how to set up a matte color and assign a matte generator to an external key.
- "**Transitions**" outlines how to specify the post transition behavior, configure the TAKE button, set a transition rate, and perform basic transitions.
- "**SqueezeBack Effects**" outlines the SqueezeBack feature of the MC1.
- "**Ancillary Data**" provides an overview of ANC processing for the MC1.
- "**Configuring the GPI/Tallies**" outlines how to configure each GPI/Tally independently on the MC1.
- "**Upgrading the Software**" outlines how to upgrade the MC1 via DashBoard.
- "**DashBoard Interface Overview**" summarizes the menus and parameters of the MC1 tabs in DashBoard.
- "**Technical Specifications**" provides the specifications for the MC1.
- "**Service Information**" provides information on the warranty and repair policy for your MC1.
- "**Software Licenses**" provides third-party software license information for your MC1.
- "**Glossary**" provides a list of terms used throughout this guide.

## Related Publications

It is recommended to consult the following Ross documentation before installing and configuring your MC1:

- ***DashBoard User Guide***, Ross Part Number: 8351DR-004
- ***MC1-PANEL-16 User Guide***, Ross Part Number: 8800DR-004
- ***MFC-OG3-N and MFC-8322-S User Guide***, Ross Part Number: 8322DR-004
- ***OGX-FR Series Quick Start Guide***, Ross Part Number: 8322DR-202
- ***OGX-FR Series User Guide***, Ross Part Number: 8322DR-204

## Documentation Conventions

Special text formats are used in this guide to identify parts of the user interface, text that a user must enter, or a sequence of menus and sub-menus that must be followed to reach a particular command.

### Interface Elements

Bold text is used to identify a user interface element such as a dialog box, menu item, or button. For example:

In the **Network** tab, click **Apply**.

### User Entered Text

Courier text is used to identify text that a user must enter. For example:

In the **Language** box, enter **`English`**.

### Referenced Guides

Text set in bold and italic represent the titles of referenced guides, manuals, or documents. For example:

For more information, refer to the ***MC1-PANEL-16 User Guide***.

### Menu Sequences

Menu arrows are used in procedures to identify a sequence of menu items that you must follow. For example, if a step reads "**File** > **Save As**," you would select the **File** menu and then click **Save As**.

### Important Instructions

Star icons are used to identify important instructions or features. For example:

✶ Contact your IT department before connecting to your facility network to ensure that there are no conflicts.

## Contacting Technical Support

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel. During business hours (Eastern Time), technical support personnel are available by telephone. After hours and on weekends, a direct emergency technical support phone line is available. If the technical support person who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. This team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

- **Toll Free Technical Support (North America)**: 1-844-652-0645
- **Toll Free Technical Support (International)**: +800 1005 0100
- **Technical Support**: (+1)613-652-4886
- **After Hours Emergency**: (+1)613-349-0006
- **E-mail**: techsupport@rossvideo.com
- **Website**: http://www.rossvideo.com

# Before You Begin

If you have questions about the MC1, contact us at the numbers listed in "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

## Overview

MC1 is a software-defined UHD Master Control solution for the GATOR platform, which allows mixing, keying, and logo insertion up to UHD rates. With native 12G-SDI interfaces, you won't get bogged down with multi-link interfaces in your UHD workflow. This allows easy insertion of external key sources, like the Ross XPression 4K. MC1 also features an internal animated logo store. Use RossLinq to transfer logos directly from Ross XPression™ to the MC1 on-air frame buffer seamlessly. The MC1 also includes a suite of protocol support for automation control, and router control.

✶ The MC1 must be installed in an OGX-FR frame with an MFC-OG3-N or MFC-OGX-N Network Controller card.

## Features

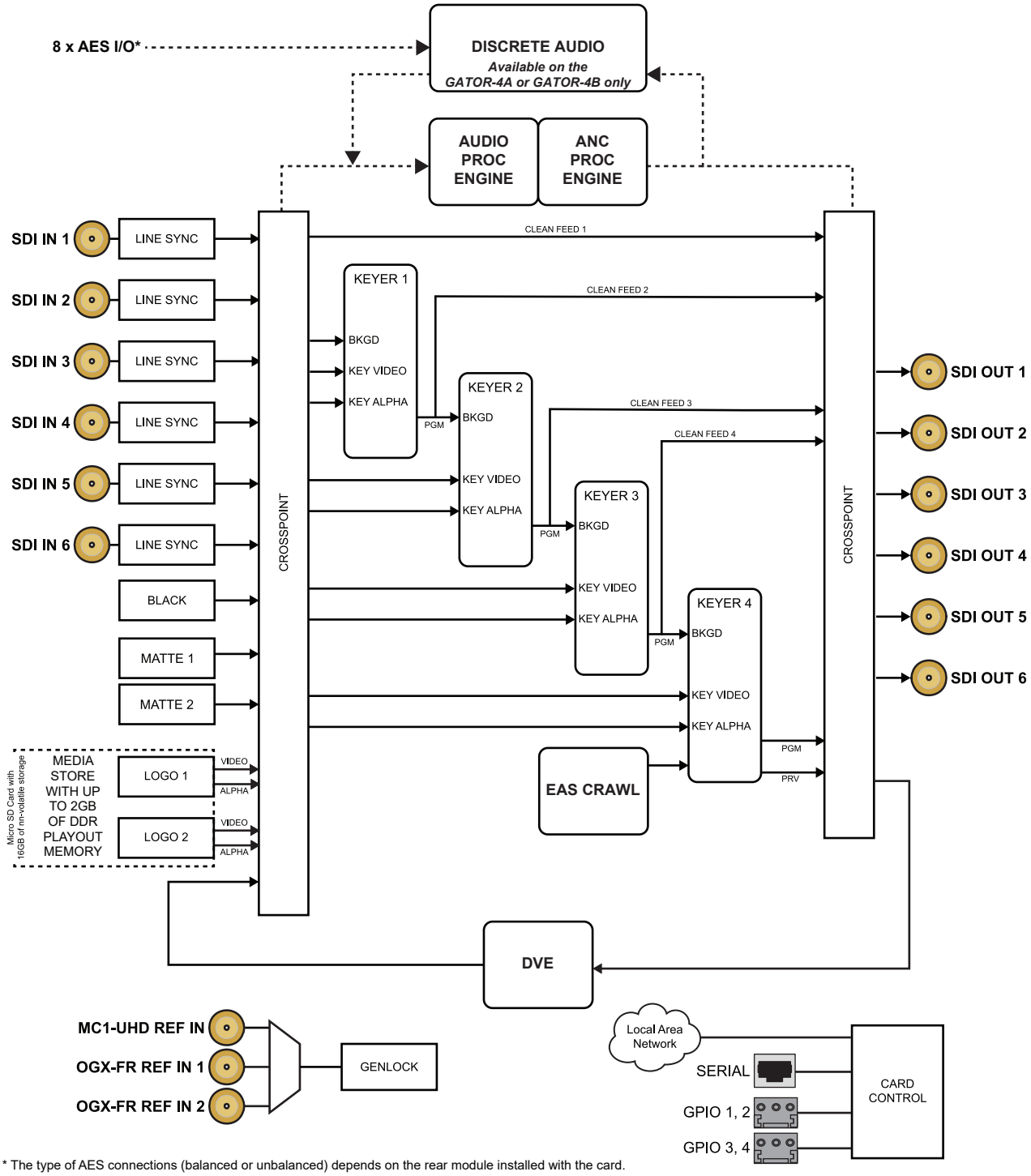
Some features of the MC1 include:

- 6 x 12G SDI Inputs (Background, Preset, 2 x Key/Fill)
- 6 assignable 12G SDI Outputs (Program, Preview, Clean Feeds)
- Support for SD, HD, and UHD video formats
- 2 External Key + Alpha can come from any SDI input or any of the 2 logo channels
- Keys can be transitioned independently
- Support for cross fade, cut, v fade, fade/cut, and cut/fade transitions
- 2 internal logo/animation play-out channels
- Logo animations up to full screen
- Non-volatile logo storage via the Micro SD Card
- Rosslinq interface to XPression LiveCG
- Ultrix router support
- Channel ganging capability to switch multiple MC1 cards in tandem, either manually or under automation (supports one primary MC1 and a maximum of two client MC1)
- Automation Support via the Presmaster protocol
- RossTalk support
- APC support
- GPI control
- Clean/quiet transitions
- An optional AES daughter card provides 8 Balanced AES or 8 unbalanced AES inputs per channel
- Support for on-air 2D DVE (SqueezeBack) transitions
- Stand-alone SqueezeBack
- Stand-alone audio/voice over mixing
- Audio processing for 16 embedded audio channels
- Audio shuffling from any embedded input (or mute or tone) for each embedded output
- Clean audio switching for embedded audio at 48kHz

- Configure up to 4 audio profiles that can be recalled on any crosspoint
- Fully compliant with openGear specifications
- 5 year transferable warranty

## Functional Block Diagram

**Figure 1** provides a general overview of the MC1 workflow.




* The type of AES connections (balanced or unbalanced) depends on the rear module installed with the card.

*Figure 1 Functional Block Diagram — Workflow*

## User Interfaces

Control is available via the DashBoard client software, through third-party protocols, and the optional MC1-PANEL-16 control panel.

### DashBoard Interfaces

The DashBoard client software enables you to monitor and control openGear frames and cards from a computer. DashBoard communicates with cards in the openGear frames through an MFC-OG3-N or MFC-OGX-N installed in the frame. This controller card is required in order to use DashBoard to control and monitor the MC1.

The MC1 includes DashBoard interfaces for configuration and operation. The interfaces are accessed by expanding the MC1 node in the DashBoard Tree View and selecting the appropriate sub-node.

**For More Information on...**

- displaying the DashBoard interfaces, refer to "**Getting Started**".
- the interfaces available in DashBoard, refer to "**DashBoard Interface Overview**".

### Third-Party Protocols

The MC1 uses the RossTalk, TSL UMD v3.1, Presmaster, or APC protocols to establish a communication link to a computer based editing or automation system.

**For More Information on...**

- setting up an automation system with the MC1, refer to "**Using RossTalk**", or "**Using the Presmaster Protocol**".
- communication via the TSL UMD v3.1 protocol, refer to "**Using the TSL UMD v3.1 Protocol**".

### MC1-PANEL-16

The MC1-PANEL-16 is a stand-alone control panel that provides all the basic user input of the MC1 card (channel) it is controlling. Up to 10 channels can be configured independently, allowing a single MC1-PANEL-16 to communicate and control 10 cards.

**For More Information on...**

- configuring an MC1-PANEL-16, refer to the ***MC1-PANEL-16 User Guide***.

# Integration Example

MC1 offers 6 configurable outputs with selections for PGM / PREVIEW and CLEAN. The look-ahead PREVIEW is ideal for live productions providing confidence in quality and accuracy of the next scene to go to air.

## System Integration Example

The setup seen in **Figure 2** includes the following:

- An ULTRIX-NS-FR5 with one Multiviewer Head output and 6 SDI outputs to the MC1
- One MC1 with a PREVIEW output, a PROGRAM output, and 4 SDI outputs to a ULTRIX-NS-FR5
- One XPression with a Rosslinq data connection to the OGX-FR frame
- A Master Control Automation System
- A DashBoard client computer with a network connection

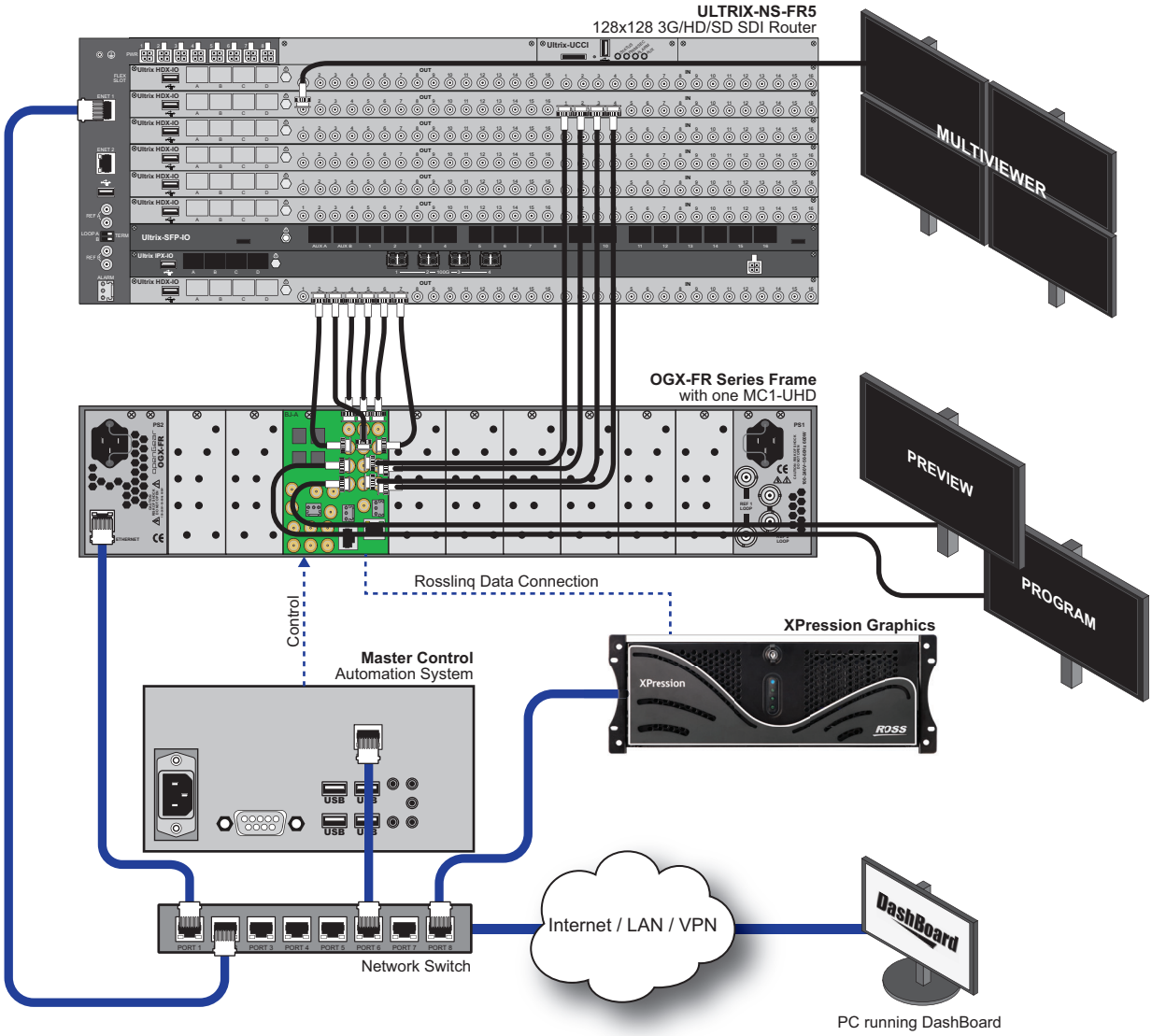



*Figure 2 Example of Integrating the MC1 with an Existing System*

## Physical Setup Overview

Ensure the following tasks are performed:

1. Install and configure the openGear frame that houses the MC1. Refer to the ***OGX-FR Series User Guide***.
2. Install the required rear module into the rear panel of the frame. Refer to "**Installing the Rear Module into the OGX-FR Frame**".
3. Install the MC1 into its rear module. Refer to "**Installing the MC1 into an OGX-FR Frame**".
4. Connect the SDI signals to the MC1 rear module. Refer to "**Cabling**".

## Network Settings Overview

Now you connect the MC1 to the network and ensure it can communicate with a computer running the latest DashBoard client software. The DashBoard client software enables you to monitor, configure, and operate your MC1.

Perform the following tasks to access and configure the MC1:

1. Verify that a computer running the latest DashBoard client software is installed and available on the same subnet as the MC1. The DashBoard client software and user guide are available from our website.
2. Verify that the openGear frame displays in the Tree View of DashBoard. Refer to the ***OGX-FR Series User Guide*** for details.
3. Set up network communications for the MC1 as outlined in "**Configuring the Initial Network Settings**".
4. Display the MC1 in DashBoard as outlined in "**Accessing the MC1 Interfaces in DashBoard**".

## Configure the MC1

The MC1 is now ready for configuration. To complete the setup:

1. Select a valid reference source. Refer to "**Specifying a Global Reference Source**".
2. Specify the video signal for each of the six SDI outputs. Refer to "**Configuring the Outputs**".
3. Configure the MC1 to communicate with the Ultrix router. Refer to "**Router Setup**".
4. Map the crosspoints buses on the MC1. Refer to "**Crosspoint Mapping**".
5. Configure the MC1 as a client to the Master Control Automation device. For a Miranda™ Presmaster Control System, refer to "**Using the Presmaster Protocol**".

## XPression Setup Requirements

To set up communications between XPression and the MC1:

1. Ensure the RossLinq channel in XPression is set as a passive FTP connection. Refer to the ***XPression*** user documentation for details.
2. Establish an FTP connection between the MC1 and XPression. Refer to "**Connection using RossLinq**".

# Hardware Overview

This chapter presents information on the MC1 card and rear module.

## Overview

The MC1 is an openGear modular system composed of two sub-systems.

- a main board which connects to a rear module and the openGear frame midplane
- a rear module that provides physical connectors

**Table 1** outlines which rear module mates with specific MC1 PCB version and openGear frames.

**Notice** — *Installing the MC1 in a frame other than the OG3-FR or OGX-FR could damage the card, the rear module, or both.*

***Table 1 Rear Modules — Supported openGear Frames***

| Code Displayed in DashBoard | Main PCB Marketing Code | PCB Part Number | Rear Module Marketing Code | Rear Module Part Number | Number of Frame Slots | Supported openGear Frame |
|---|---|---|---|---|---|---|
| MC1-UHD | GATOR-2 | 8929AR-251 | R4-GATOR | 8323AR-325<br>8323AR-325A | 2 | OGX-FR |
| MC1-UHD-A | GATOR-4A | 8929AR-253 | R3A-GATOR | 8322AR-317C<br>8322AR-317D | 4 | OG3-FR, OGX-FR |
| MC1-UHD-B | GATOR-4B | 8929AR-254 | R3B-GATOR | 8322AR-318D<br>8322AR-318D-02 | 4 | OG3-FR, OGX-FR |

## Main PCB Overview

The main PCB is a typical openGear card. On the front edge is an ejector to secure the card to the slot inside the openGear frame. Slide the card into the frame until it inserts into a connector on the back of the rear module. (**Figure 3**)

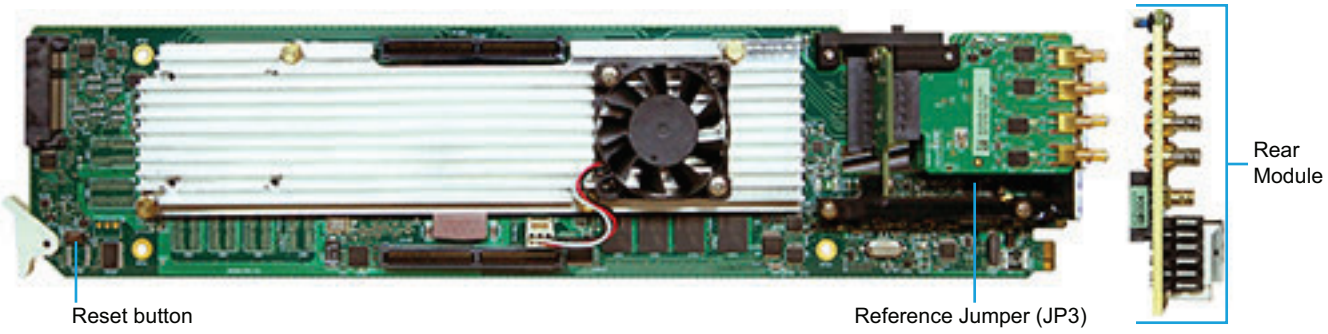



*Figure 3 MC1 — Base Card Components*

### Reset Button

Pressing this button performs a hard reset of the microprocessor and re-initializes the card. This should only be performed if advised by Ross Video Technical Support.

## Reference Termination Jumper (J3)

**JP3** is a 3-position jumper block used to configure the 75ohm termination on the local reference input on the rear module.

- **Pin 1** (bottom) + **Pin 2** (center) — In this position, the reference is terminated with a 75ohm resistor. This configuration is to be used for point-to-point cabling, or on the last card of a daisy chain topology. This is the default position. Refer to **Figure 4** for pin positions.

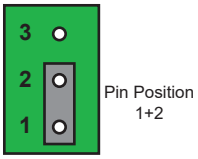



*Figure 4 J3 — Default Position*

- **Pin 2** (center) + **Pin 3** (top) — In this position, the 75ohm termination is removed and the reference is not terminated. This configuration is used in a daisy chain cabling topology where only the last card is terminated.

## Audio Daughter Card

The MC1-UHD-A and MC1-UHD-B include a daughter card installed on the main PCB. This daughter card is required for the audio features of the MC1-UHD-A and MC1-UHD-B.

## Back Components

The Micro SD card slot is located on the backside of the main PCB and just above the ejector (not shown).

✶ Ensure the SD card is properly seated in its slot before installing the MC1.

## MC1-UHD Cabling Overview

The MC1-UHD requires the R4-GATOR rear module. (**Figure 5** or **Figure 6**) The following connections are available:

- 6 SDI inputs on HD-BNCs
- 6 SDI outputs on HD-BNCs
- 1 local reference input signal
- 4 GPIO connections

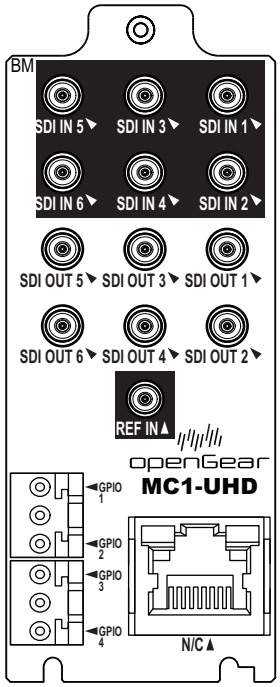



*Figure 5 Cabling — 8323AR-325*

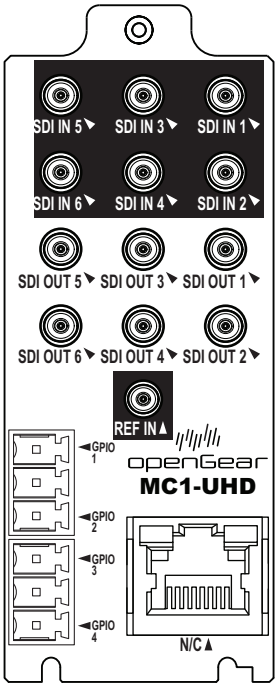



*Figure 6 Cabling — 8323AR-325A*

## MC1-UHD-A Cabling Overview

The MC1-UHD-A requires the R3A-GATOR rear module. (**Figure 7** or **Figure 8**) The following connections are available:

- 6 SDI inputs on HD-BNCs
- 6 SDI outputs on HD-BNCs
- 8 AES unbalanced connections on HD-BNCs
- 1 local reference input signal
- 1 SERIAL port
- 6 GPIO connections

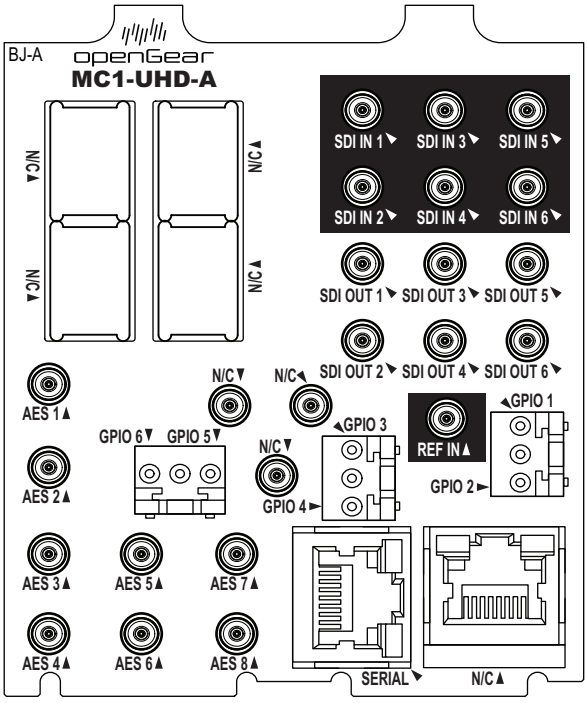



*Figure 7 Cabling — 8322AR-317C*

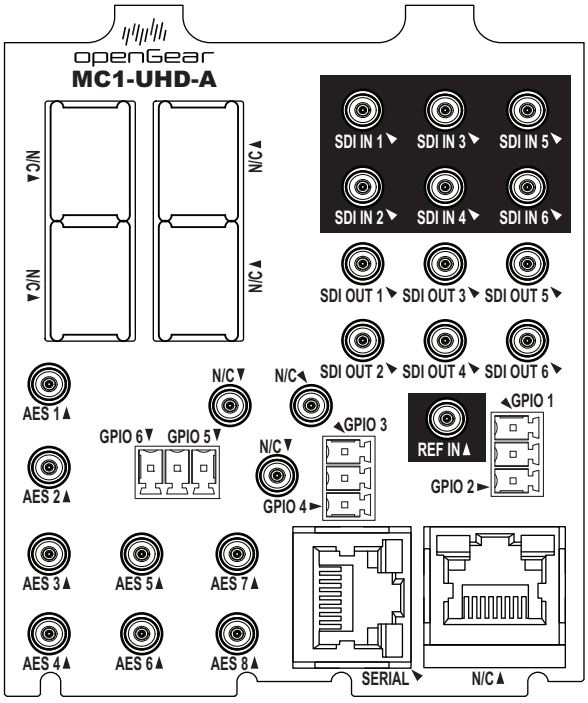



*Figure 8 Cabling — 8322AR-317D*

## MC1-UHD-B Cabling Overview

The MC1-UHD-B requires the R3B-GATOR rear module. (**Figure 9** or **Figure 10**) The following connections are available:

- 6 SDI inputs on HD-BNCs
- 6 SDI outputs on HD-BNCs
- 8 AES balanced connections on 3-pin connectors
- 1 independent reference input signal (bi-level or tri-level sync)
- 1 SERIAL port
- 6 GPIO connections

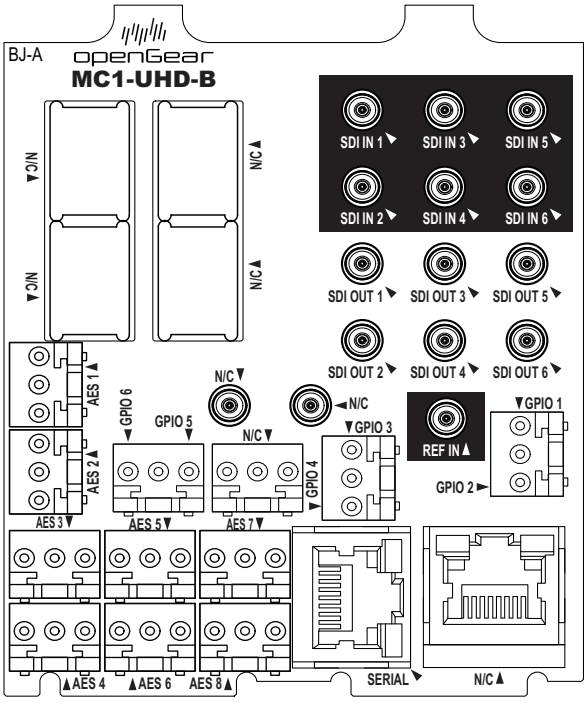



*Figure 9 Cabling — 8322AR-318D*

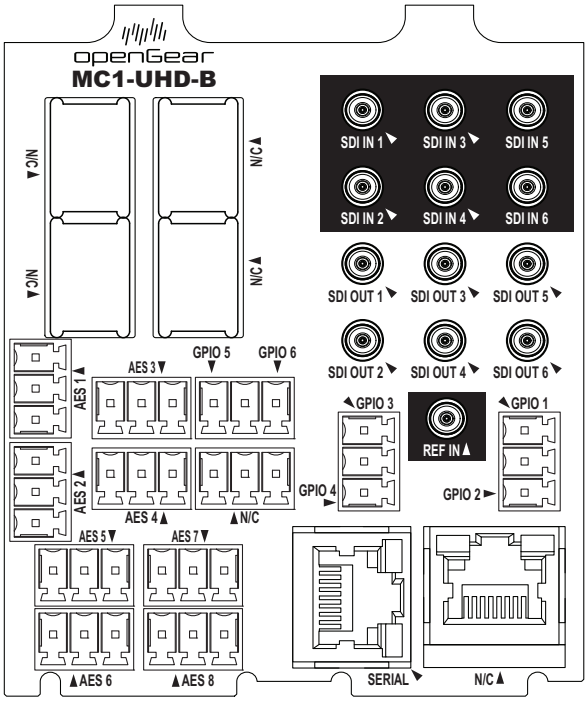



*Figure 10 Cabling — 8322AR-318D-02*

# Physical Installation

Installing an MC1 card into the OGX-FR frame requires you to remove the blank plates in the required frame slots, install the required rear module into the frame rear panel, and then install the MC1 card into the required frame slot. This chapter provides instructions for the physical installation of the MC1-UHD and its rear module into an openGear frame.

If you have questions pertaining to the installation of the MC1, contact us at the numbers listed in "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

**For More Information on…**

- the technical specifications for the MC1, refer to "**Technical Specifications**".

## Before You Begin

These installation guidelines assume the following:

- Ensure the OGX-FR frame is properly installed. Refer to the ***User Guide*** for your frame.
- An MFC-OG3-N or MFC-OGX-N Network Controller Card installed in your OGX-FR frame.
- A valid IP address is available for the MC1.
- If the rear module is already installed in the OGX-FR frame, proceed to "**Installing the MC1 into an OGX-FR Frame**"

### Static Discharge

Throughout this chapter, please heed the following cautionary 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 synthetic fiber clothing is worn. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

## Removing the Blank Plates from the Rear Panel

When a frame slot is not populated with an openGear card, a blank plate must be installed to ensure proper frame cooling and ventilation.

**Notice** — *Installing the R4-GATOR rear module in a frame other than the OGX-FR could damage the card, the rear module, or both.*

**To remove a blank plate from the OGX-FR frame**

1. Locate the slots in the OGX-FR frame you wish to install the MC1 into.
2. If you are using an R3A-GATOR or R3B-GATOR rear module, it is recommended to use the following slot combinations:
   - Slots 1, 2, 3, 4
   - Slots 5, 6, 7, 8
   - Slots 9, 10, 11, 12
   - Slots 13, 14, 15, 16
   - Slots 17, 18, 19, 20

3. If you are using an R4-GATOR rear module, it is recommended to use the following slot combinations:

   - Slots 1, 2
   - Slots 3, 4
   - Slots 5, 6
   - Slots 7, 8
   - Slots 9, 10,
   - Slots 11, 12
   - Slots 13, 14
   - Slots 15, 16
   - Slots 17, 18
   - Slots 19, 20

4. Use a Phillips screwdriver to unfasten each blank plate from the OGX-FR frame backplane.
5. Remove each blank plate from the chassis and set aside.

✶ You must remove two Blank Plates (covering four slots) in the OGX-FR frame when installing an R3A-GATOR or R3B-GATOR rear module.

## Installing the Rear Module into the OGX-FR Frame

If the rear module is already installed in the OGX-FR frame, proceed to "**Installing the MC1 into an OGX-FR Frame**".

**To install a rear module into the OGX-FR frame**

1. For each retaining screw on the rear module, push the o-ring to the end of the screw (but not off the screw). This will help to align the rear module to the frame backplane in step 3.

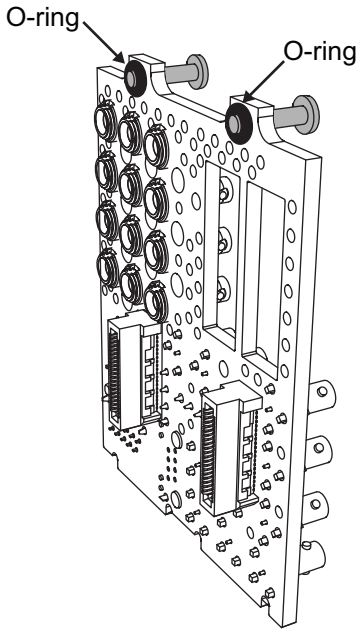



*Figure 11 Location of the O-ring on the R3A-GATOR or R3B-GATOR Rear Module*

2. Seat the bottom of the rear module in the seating slots at the base of the frame's backplane.
3. Align the top holes of the rear module with the screw holes on the top-edge of the frame backplane.
4. Using a Phillips screwdriver and the provided screw, fasten the rear module to the backplane.

✶ Do not fully tighten the screws until after installing the card and you have verified that the main PCB aligns with the rear module.

## Installing the MC1 into an OGX-FR Frame

The slot the MC1 installs into depends on the slot combination you installed the rear module in. This allows adequate spacing to avoid damaging the card, the cards installed in the neighboring slots, or both.

Refer to **Table 2** for valid slot combinations when using an R3A-GATOR or R3B-GATOR rear module.

***Table 2 Card Slot Combinations — R3A-GATOR, R3B-GATOR***

| Rear Module is Installed in | Main PCB Installs into Slot |
|---|---|
| Slots 1, 2, 3, 4 | 2 |
| Slots 5, 6, 7, 8 | 6 |
| Slots 9, 10, 11, 12 | 10 |
| Slots 13, 14, 15, 16 | 14 |
| Slots 17, 18, 19, 20 | 18 |

Refer to **Table 3** for valid slot combinations when using the R4-GATOR rear module.

***Table 3 Card Slot Combinations — R4-GATOR***

| Rear Module is Installed in | Main PCB Installs into Slot |
|---|---|
| Slots 1, 2 | 1 |
| Slots 3, 4 | 3 |
| Slots 5, 6 | 5 |
| Slots 7, 8 | 7 |
| Slots 9, 10 | 9 |
| Slots 11, 12 | 11 |
| Slots 13, 14 | 13 |
| Slots 15, 16 | 15 |
| Slots 17, 18 | 17 |
| Slots 19, 20 | 19 |

**To install the card into the OGX-FR frame**

1. Locate the frame slot the card will slide into.
2. Using a Phillips screwdriver fasten the rear module to the backplane using the provided screws.

✶ Do not over tighten the screws.

3. Hold the card by the edges and carefully align the card edges with the slot rails in the frame.
4. Fully insert the card into the frame until the card is properly seated in the rear module.

# Cabling

This chapter provides an overview of connecting input and output devices to the rear module of the MC1.

If you have questions pertaining to the installation of MC1, contact us at the numbers listed in "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

✶ Ross Video does not supply the required cables.

## Cabling the Ethernet Port on the OGX-FR Frame

The MC1 is connected to your network via the MFC-OG3-N or MFC-OGX-N in the OGX-FR frame. This enables the MC1 to interface with other cards in the frame, and the computer running the DashBoard client. After a physical connection is established, DashBoard is used to configure the network settings for the MC1.

✶ You must provide an Ethernet connection to the frame as outlined in the ***OGX-FR Series User Guide***.

Contact your IT department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP address, Subnet Mask, and Gateway for your MC1.

✶ If difficulties or problems are experienced when connecting to a network hub, contact your network administrator.

## Cabling the Local Reference Input

Each MC1 rear module also includes a **REF IN** HD-BNC that can assigned as a local reference input. This section outlines how to connect to this reference input port. There is also the option to specify the signal on the SDI IN 1 port as the reference source.

✶ The OGX-FR frame provides two reference input connections that the MC1 can use as a reference source. Refer to the ***OGX-FR Series User Guide*** to learn more about cabling these ports.

**For More Information on…**

- specifying the reference source for your card, refer to "**Reference and Timing Setup**".

**To connect a reference source to the MC1 rear module**

- Connect the reference signal to the **REF IN** HD-BNC on the rear module.

✶ The reference input on th MC1 is terminated by default. You may disable the termination by moving **J3** on the rear module. Refer to "**Reference Termination Jumper (J3)**" for details.

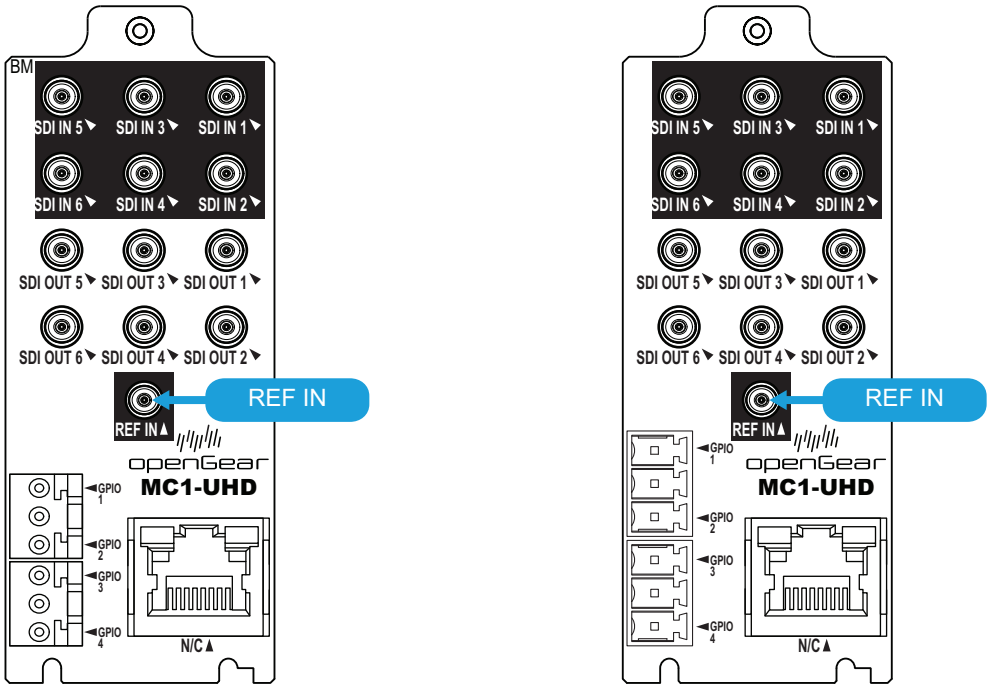



*Figure 12 MC1-UHD — REF IN*

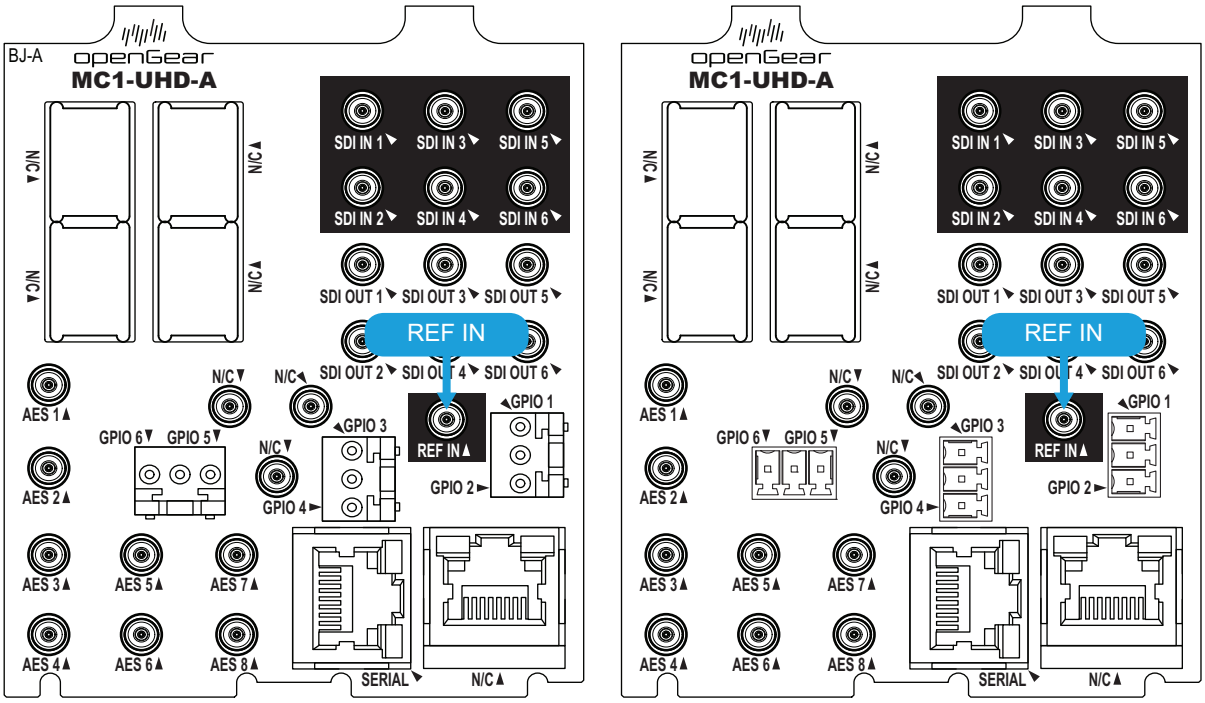



*Figure 13 MC1-UHD-A — REF IN*

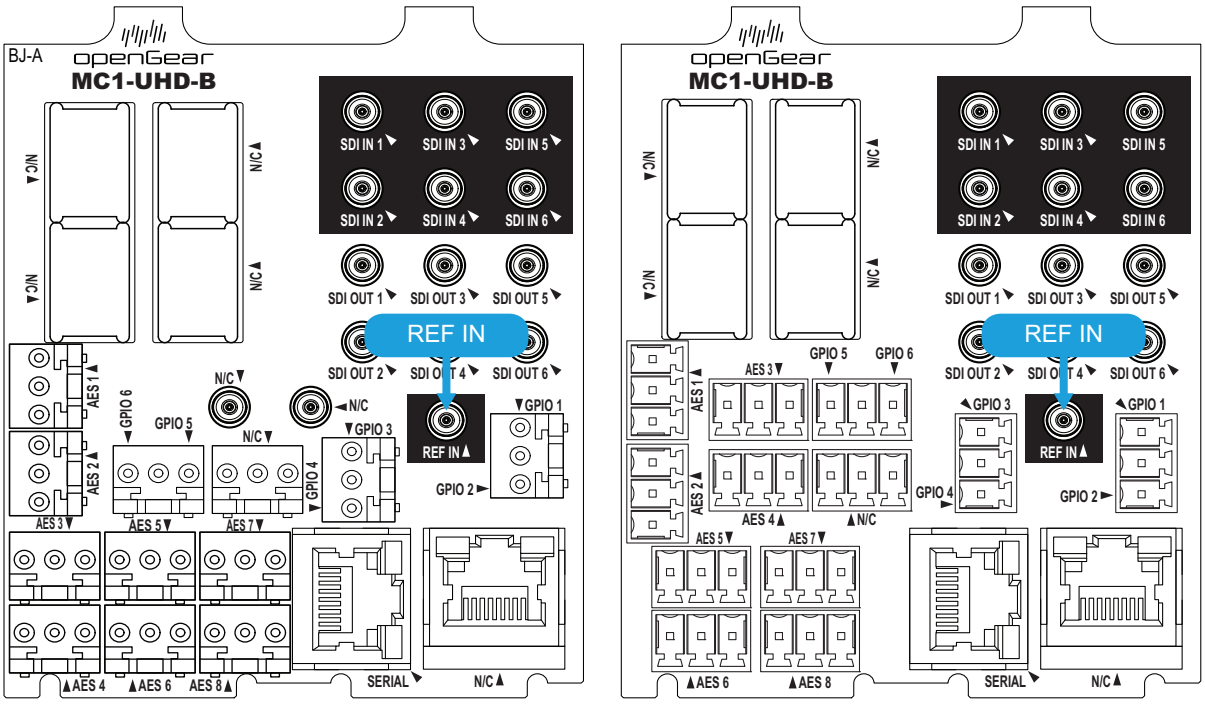



*Figure 14 MC1-UHD-B — REF IN*

## Video Signal Cabling

Each rear module provides connections for up to six SDI inputs and six SDI outputs.

### SDI Inputs

Connect your input video signals to the SDI IN HD-BNCs on the rear module as required.

✶ SDI IN 1 can be used as a reference source. Refer to "**Specifying a Global Reference Source**".

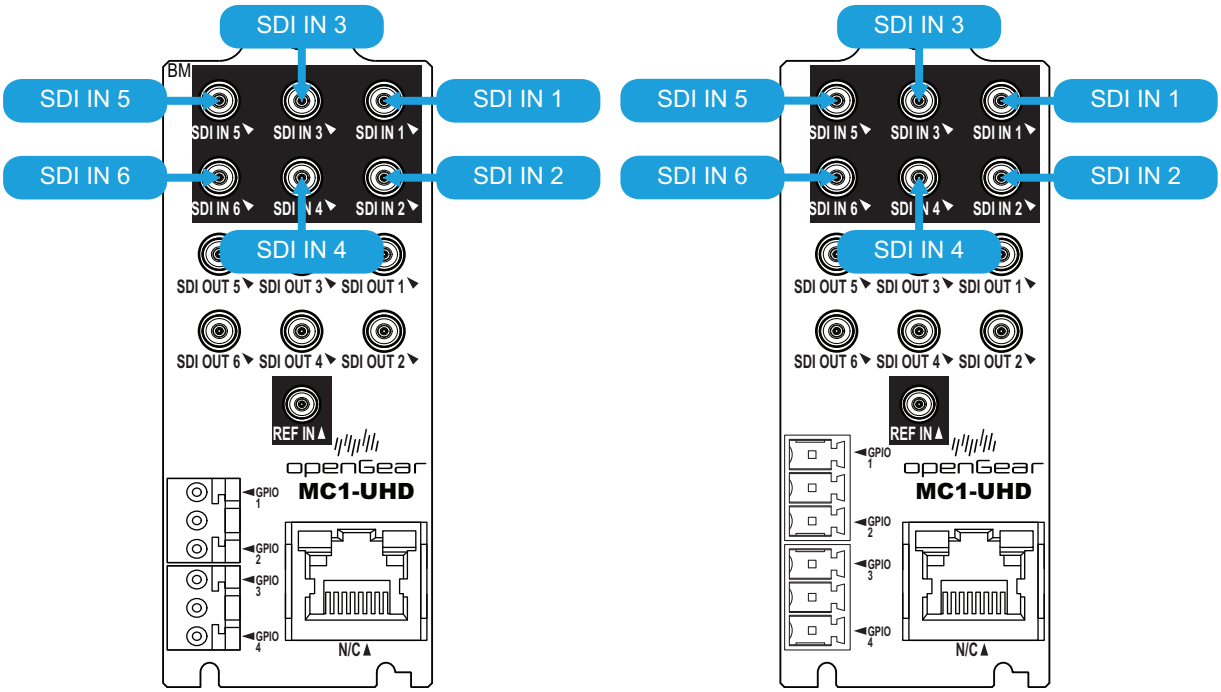



*Figure 15 MC1-UHD — SDI Inputs*

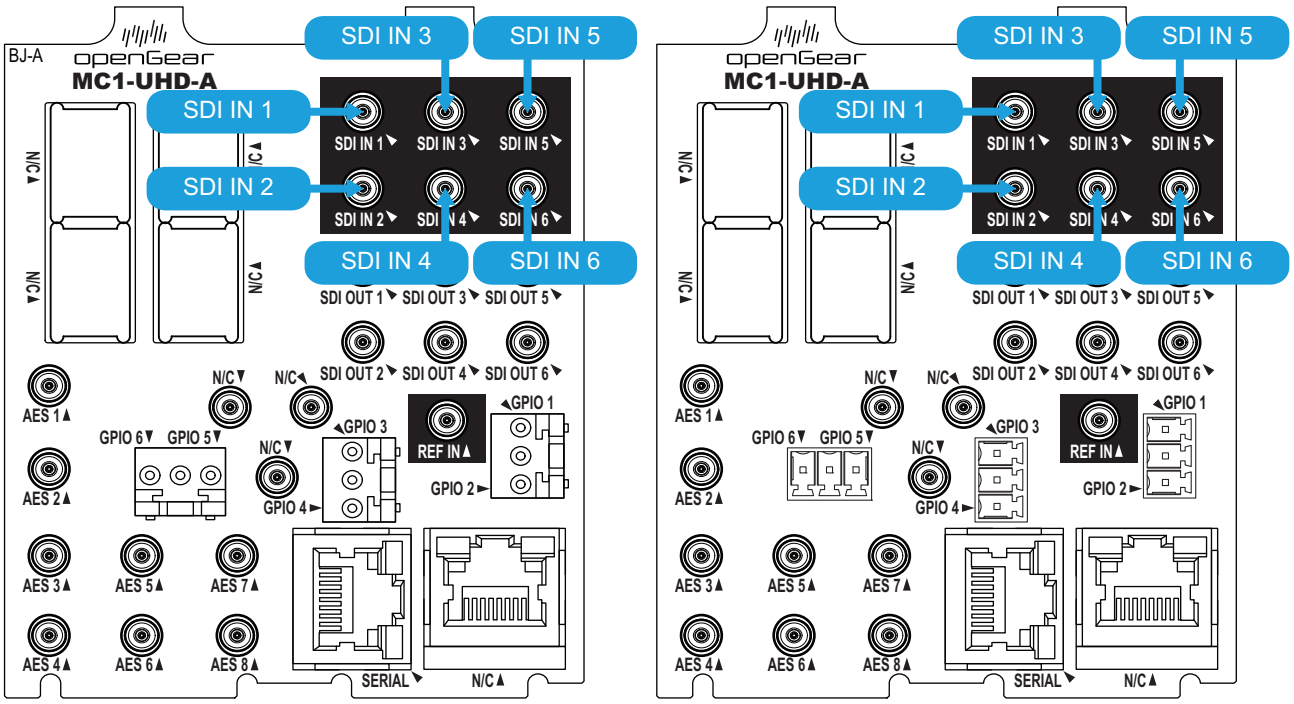



*Figure 16 MC1-UHD-A — SDI Inputs*

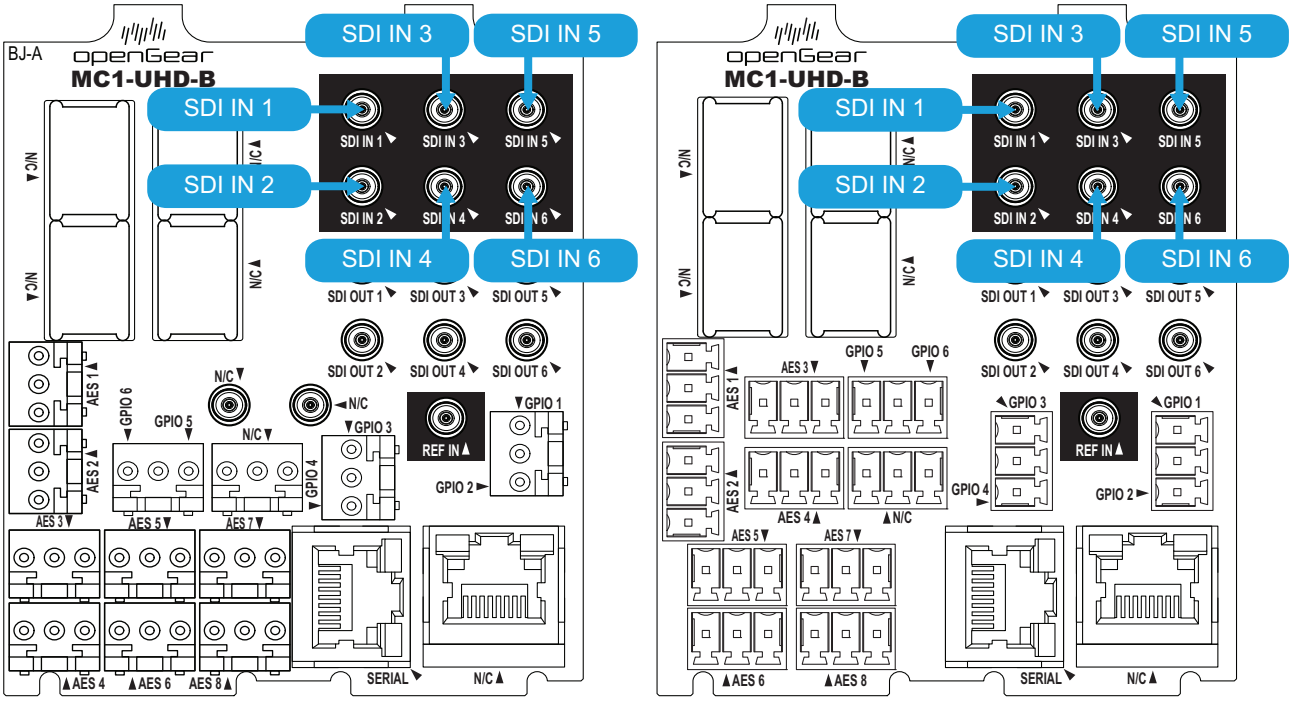



*Figure 17 MC1-UHD-B — SDI Inputs*

## SDI Outputs

Connect your destination devices to the SDI OUT HD-BNCs on the rear module as required. There are six HD-BNC SDI outputs available on each rear module.

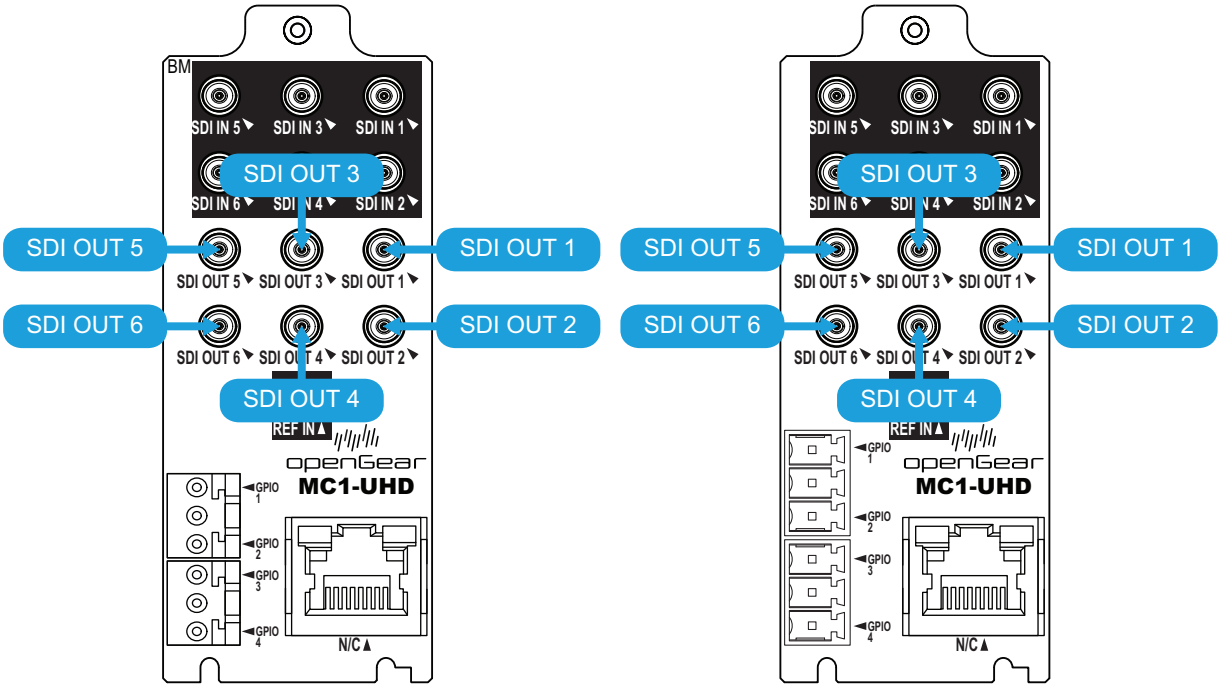



*Figure 18 MC1-UHD — SDI Outputs*

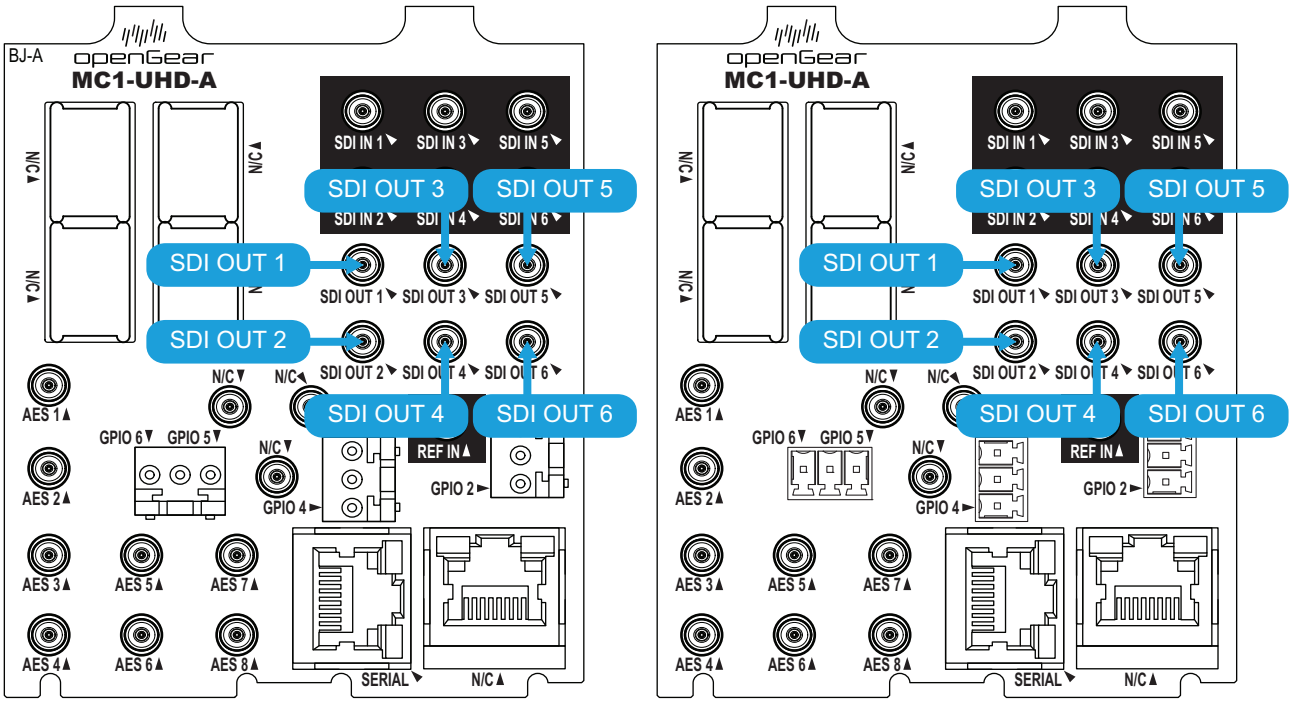



*Figure 19 MC1-UHD-A — SDI Outputs*

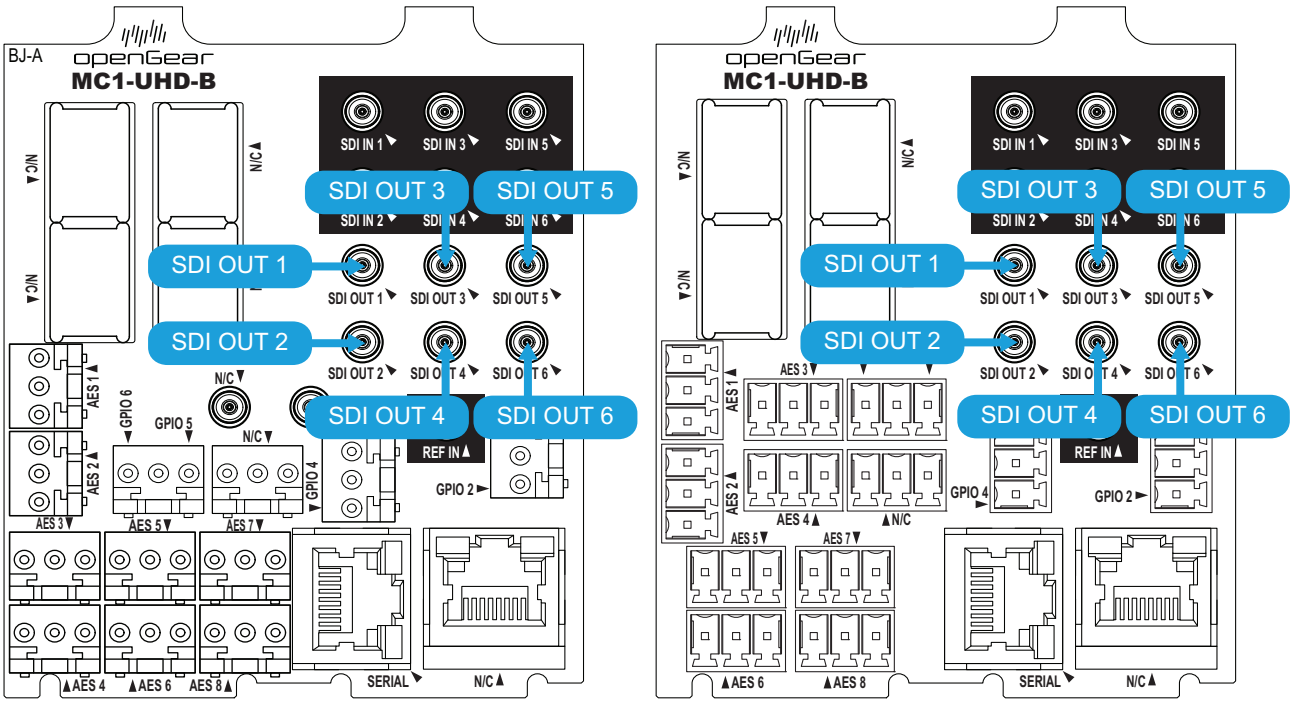



*Figure 20 MC1-UHD-B — SDI Outputs*

## Serial Cabling

If the MC1-UHD-A or MC1-UHD-B will communicate with an external device via a serial communications protocol, you will also need to connect this device to the **SERIAL** port on the rear module.

✶ This section applies only to the R3A-GATOR or R3B-GATOR rear modules. The R4-GATOR (8323AR-325) rear module does not include a **SERIAL** port.

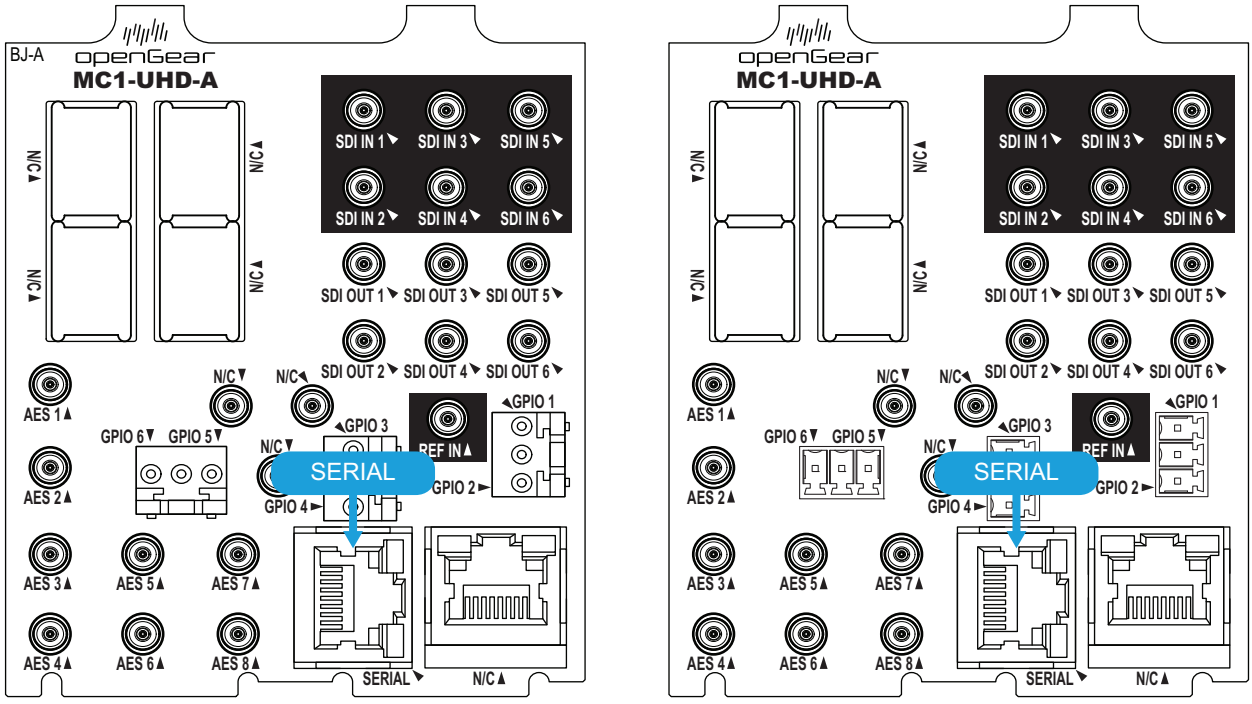



*Figure 21 MC1-UHD-A — Serial*

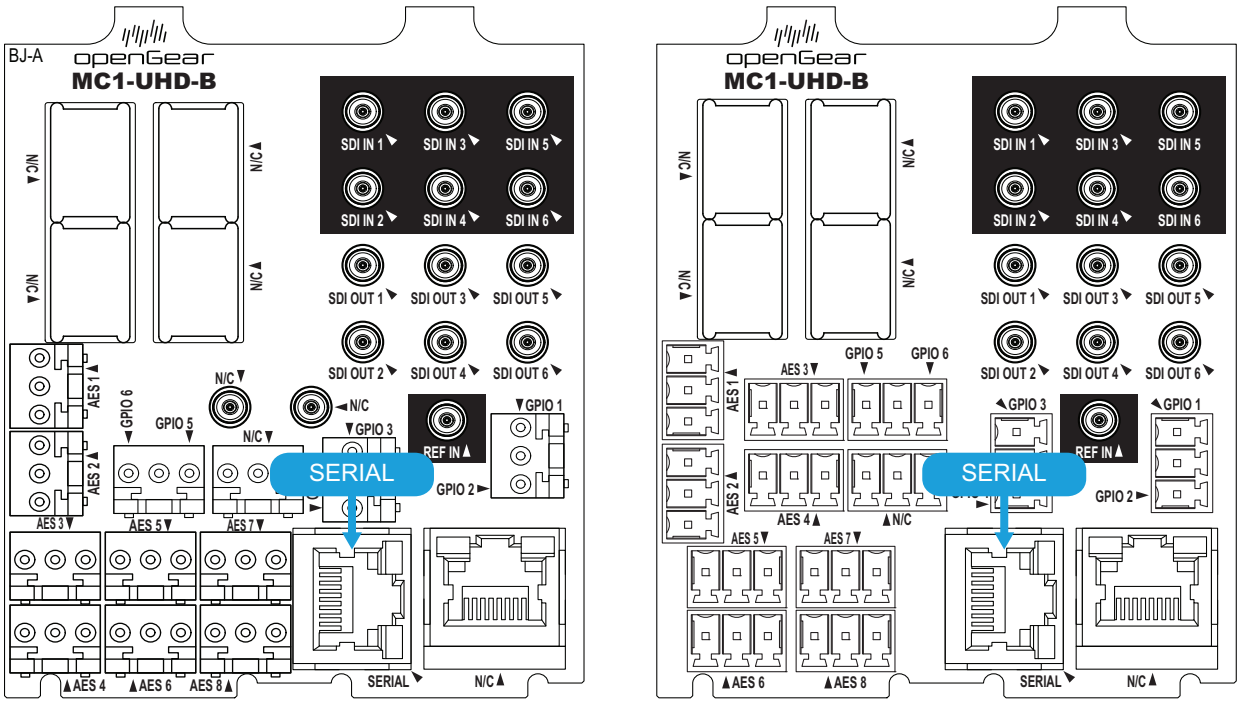



*Figure 22 MC1-UHD-B — Serial*

Refer to **Table 4** for pin-outs for the **SERIAL** port on the rear modules.

***Table 4 Serial Pinouts for the MC1-UHD-A and MC1-UHD-B***

| RJ45 Pin | RS-232 | RS-422 |
|---|---|---|
| 1 | n/c | Tx+ |
| 2 | Rx | Tx- |
| 3 | Tx | Rx+ |
| 4 | n/c | n/c |
| 5 | n/c | n/c |
| 6 | n/c | Rx- |
| 7 | GND | GND |
| 8 | GND | GND |

## Audio Cabling

This section outlines the audio cabling designations for the MC1-UHD-A and MC1-UHD-B.

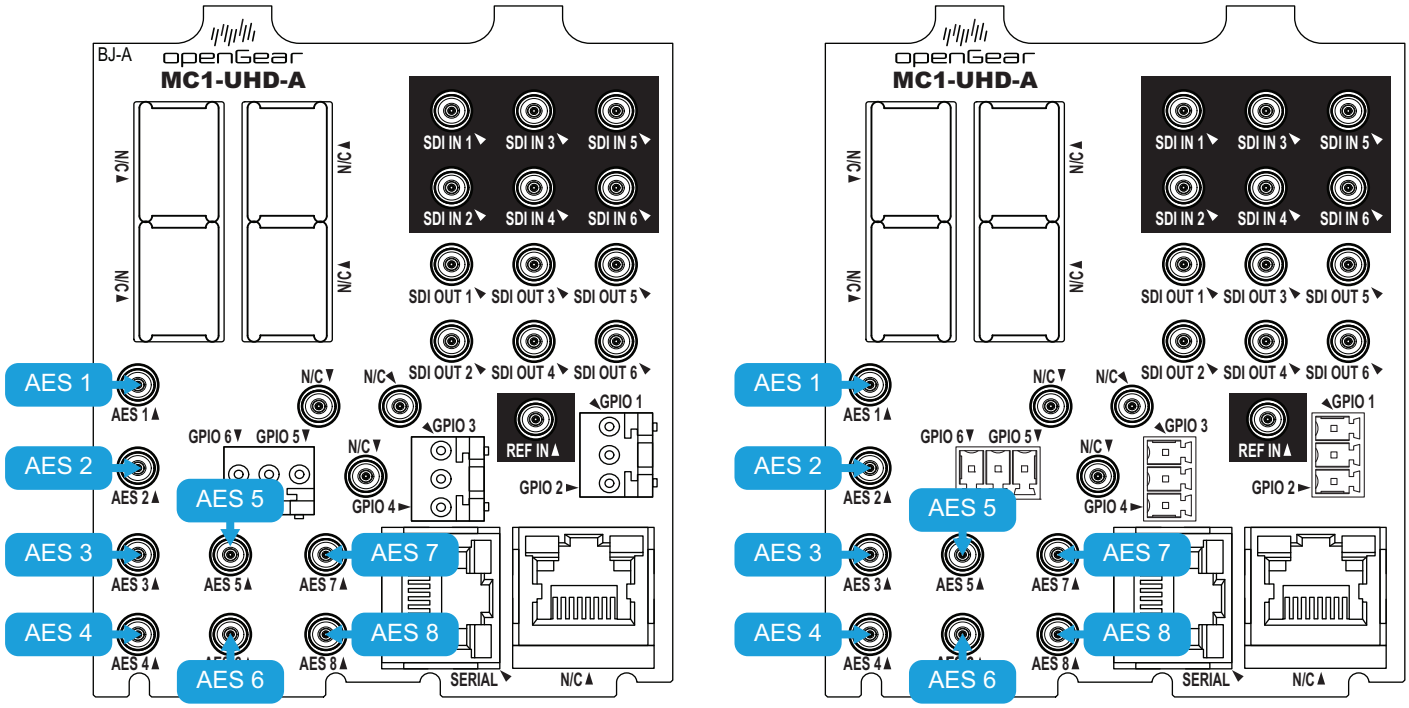



*Figure 23 MC1-UHD-A — AES*

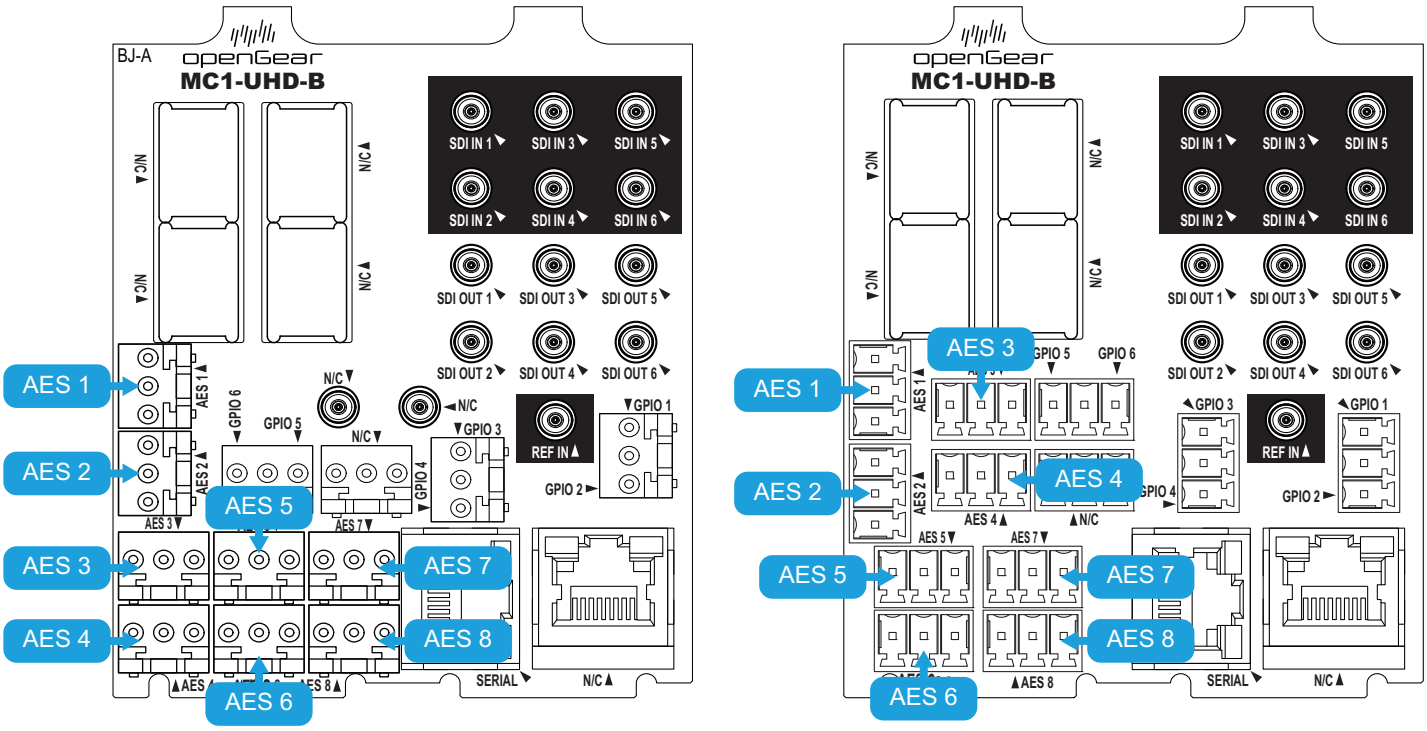



*Figure 24 MC1-UHD-B — AES*

# GPI/Tally Cabling

The GPIO ports are user programmable to be either an input (GPI) or an output (Tally) using the GPI/Tally Setup tab in DashBoard. Electrically, the ports are setup for contact closure to ground, with 4.75kohm pull-up resistor to +5V, so they default to a logical high state.

The ports are available on two 3-pin connectors located on each rear module. The 3-pin mating connectors are provided with the rear module. The default state for the GPIO contacts is active low signaling. This way, if the card is removed from the openGear frame, no external events will be inadvertently asserted by the card. This also means that if a cable is absent from the rear module, no GPI or Tally will be triggered and executed inadvertently by the card.

The number of available ports depends on the rear module (**Table 5**).

***Table 5 Rear Modules — GPIO Ports***

| Rear Module | Number of GPIO Ports |
|---|---|
| MC1-UHD | 4 |
| MC1-UHD-A | 6 |
| MC1-UHD-B | 6 |

## MC1-UHD Cabling

**Figure 25** shows the GPIO designations for the MC1-UHD.

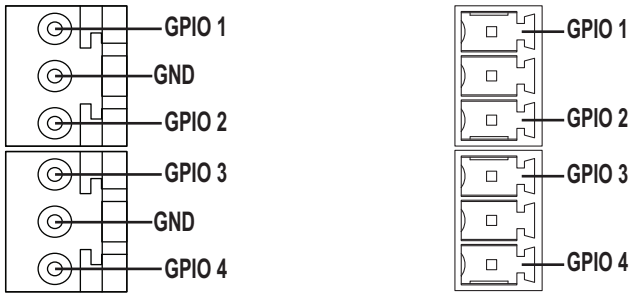



*Figure 25 MC1-UHD — GPIOs*

## MC1-UHD-A Cabling

**Figure 26** shows the GPIO designations for the MC1-UHD-A.

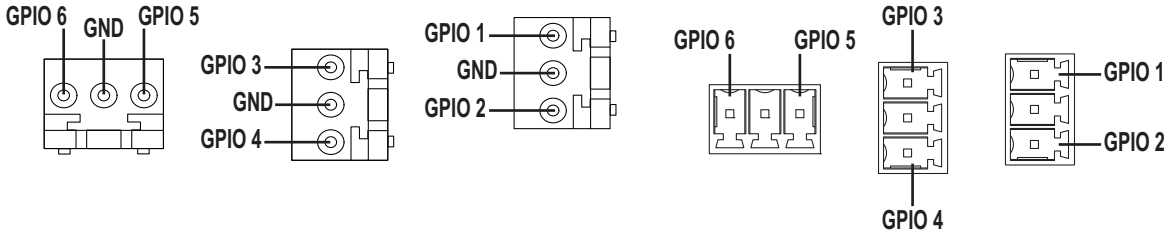



*Figure 26 MC1-UHD-A — GPIOs*

## MC1-UHD-B Cabling

**Figure 27** shows the GPIO designations for the MC1-UHD-B.

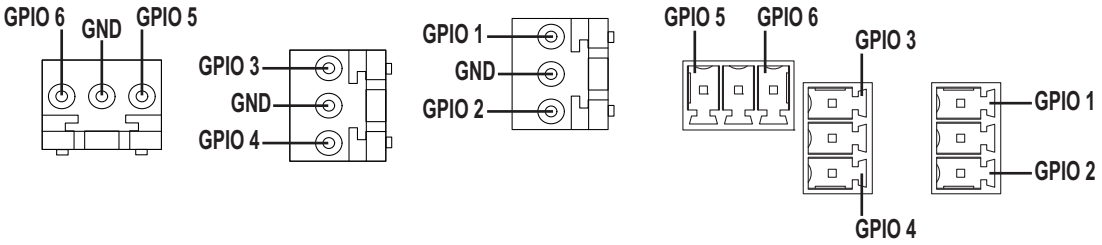



*Figure 27 MC1-UHD-B — GPIOs*

**For More Information on...**

- the GPIO specifications, refer to **Table 74**.
- configuring a GPIO port via DashBoard, refer to "**Configuring the GPI/Tallies**".

# Getting Started

This chapter provides instructions for launching DashBoard, assigning an initial IP address to the MC1, and accessing the MC1 interfaces in DashBoard.

If you have questions pertaining to the operation of MC1, contact us at the numbers listed in "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

## Before You Begin

Ensure that:

- The openGear frame that houses the MC1 displays in the Basic Tree View of DashBoard.
- The MC1 displays as a sub-node in the openGear frame tree.
- Your facility IT Department provided the required network settings to be assigned to the MC1.

## Launching DashBoard

DashBoard must run on a computer that has a physical wired ethernet connection. Wireless connections do not allow device discovery.

**For More Information on...**

- downloading and installing the DashBoard client software, refer to our website.
- the MC1 interfaces in DashBoard, refer to "**DashBoard Interface Overview**".

**To launch DashBoard**

1. Ensure that you are running DashBoard software version 9.15 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.

## Configuring the Initial Network Settings

Once the MC1 is physically installed and cabled to your facility network, you will need to assign it an initial IP address in order to gain full access to the card menus, options, and status fields in DashBoard. Establishing an initial IP address enables DashBoard to communicate with the MC1 and update the Basic Tree View with the MC1 sub-node.

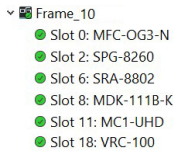
✶ This IP address must be different that the IP address assigned to the Network Controller Card.

✶ This procedure requires a reboot of the card.

**To assign the initial network settings for the MC1**

1. Launch DashBoard.
2. Expand the openGear frame node to display a list of cards installed in that frame.

   In the example below, the MC1 card is installed in Slot 11 of Frame_10.

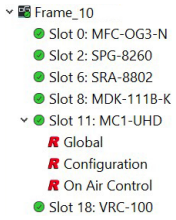



3. Double-click the **MC1** node under the frame node.

The **Network** interface displays in DashBoard.

4. Select the **Network** tab.
5. Use the **Mode** menu to select **Static**.
6. Use the **Static IP Address** field to assign a unique IP Address to the MC1 card.
7. Use the **Subnet Mask** field to assign the subnet mask for the card.
8. Use the **Gateway** field to specify the gateway for communications outside of the local area network (LAN) the card will use.
9. Click **Apply**.

   The card is temporarily taken off-line during the reboot of the card to apply the new settings.
10. Verify the new network settings as follows:
    a. Close the **Network** interface.
    b. Refresh the Basic Tree View.
    c. Expand the openGear frame node to display a list of sub-nodes.
    d. Verify that the MC1 sub-nodes display as seen in Slot 11 of the example below.




## Accessing the MC1 Interfaces in DashBoard

Once you establish the initial network settings for the MC1, you can access the Global, Configuration, and On Air Control interfaces. These interfaces provide options for configuring, monitoring, and operating your MC1 in DashBoard.

**For More Information on...**

- the Global interface tabs, refer to "**Global Interface**".
- the Configuration interface tabs, refer to "**Configuration Interface**".
- the On Air Control interface, refer to "**On Air Control Interfaces**".

**To display the Global interface in DashBoard**

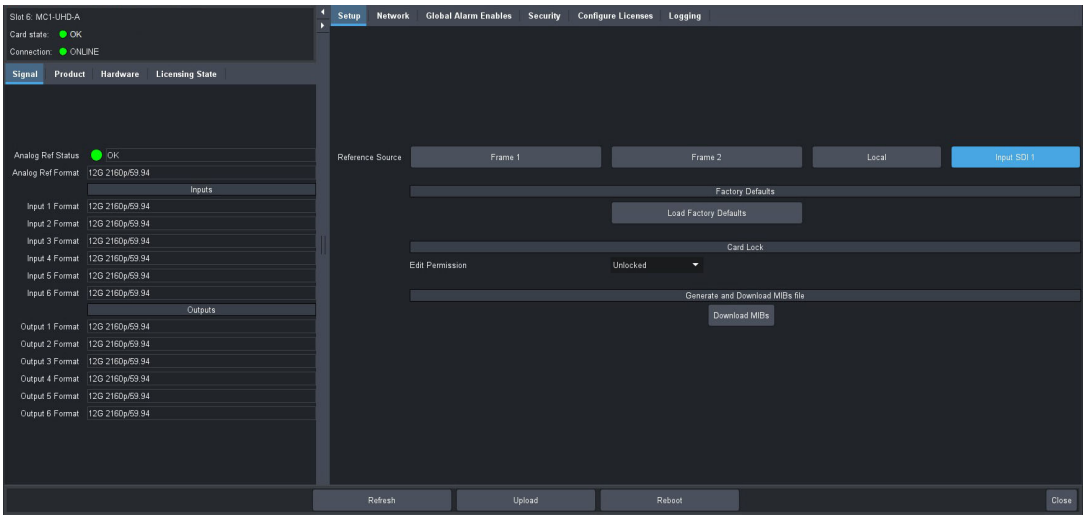
1. Launch DashBoard.
2. In the Basic Tree View of DashBoard, locate the openGear frame the MC1 is installed in.
3. Expand the openGear frame node to display a list of sub-nodes.

   Each sub-node represents a specific card installed in a frame slot.
4. Locate the MC1 sub-node.

✶ Look for the slot number that corresponds to the physical frame slot the MC1 is installed in.

5. Expand the MC1 node to display a list of sub-nodes for the card.
6. Double-click the **Global** sub-node.

   The Global interface opens in the right pane of the DashBoard window. The tabs in the Global interface enable you to monitor the overall status of the MC1 software and hardware, configure the network settings for Ethernet communications, and enable alarms.




**To display the Configuration interface in DashBoard**

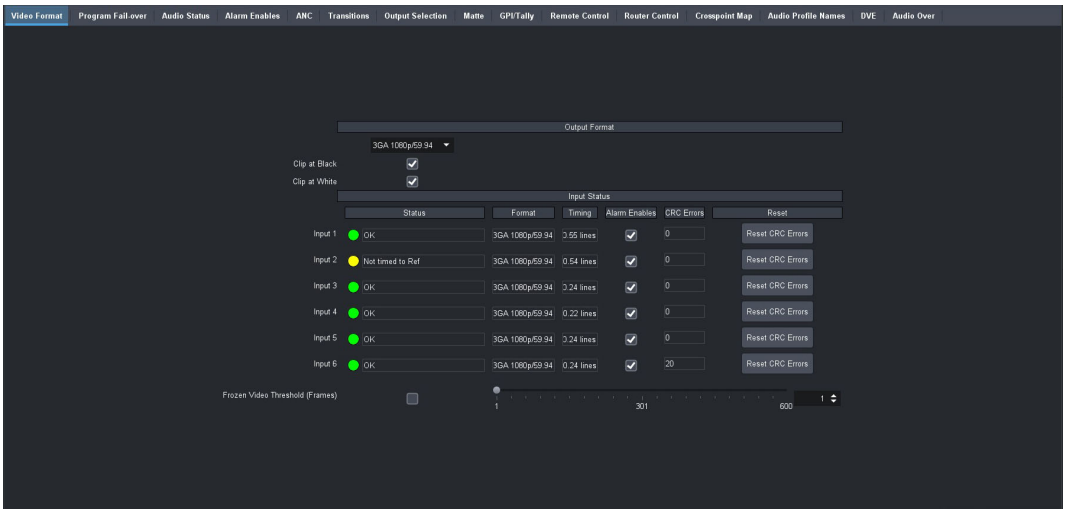
1. Launch DashBoard.
2. In the Basic Tree View of DashBoard, locate the openGear frame the MC1 is installed in.
3. Expand the openGear frame node to display a list of sub-nodes.

   Each sub-node represents a specific card installed in a frame slot.
4. Locate the MC1 node in the frame tree.

✶ Look for the slot number that corresponds to the physical frame slot the MC1 is installed in.

5. Expand the MC1 node to display a list of sub-nodes for the card.
6. Double-click the **Configuration** sub-node.

   The Configuration interface opens in the right pane of the DashBoard window. The tabs in the Configuration interface enable you to configure the outputs, transitions, the matte generators, the box masks, and GPI/Tally communications.




**To display the On Air Control interface in DashBoard**

1. Launch DashBoard.
2. In the Basic Tree View of DashBoard, locate the openGear frame the MC1 is installed in.
3. Expand the openGear frame node to display a list of sub-nodes.

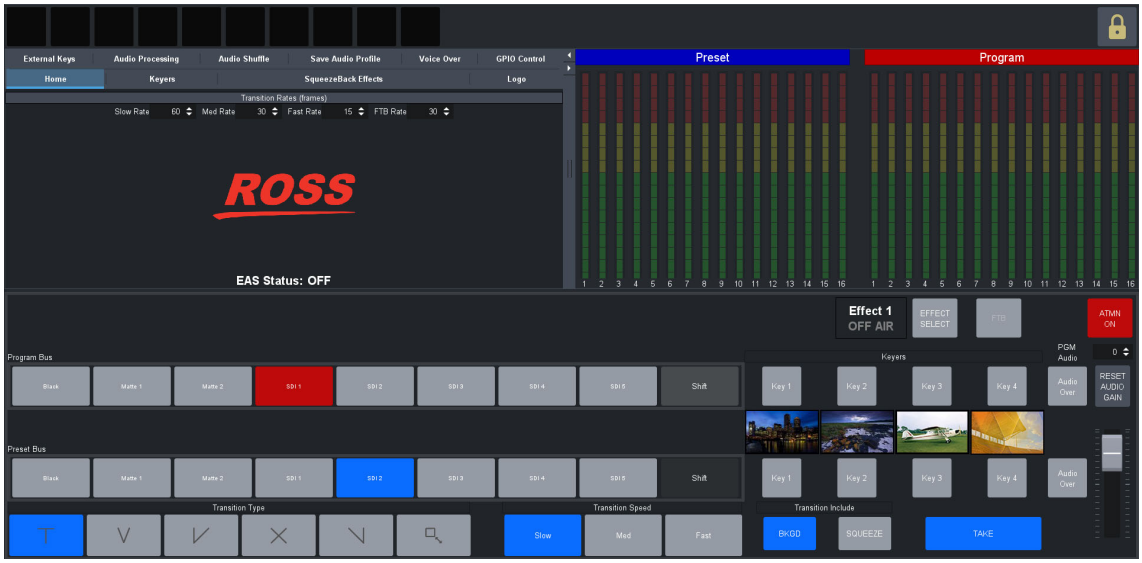
Each sub-node represents a specific card installed in a frame slot.

4. Locate the MC1 node in the frame tree.

✶ Look for the slot number that corresponds to the physical frame slot the MC1 is installed in.

5. Expand the MC1 node to display a list of sub-nodes for the card.
6. Double-click the **On Air Control** sub-node.

   The On Air Control interface opens in the right pane of the DashBoard window. This interface enables you to set up and perform transitions, configure keyers, monitor and control audio levels.




**To lock the MC1 interface**

1. To lock the interface, select  .

✶ This button is located in the upper right corner of the On Air Control interface.

2. To unlock the interface, use the provided Unlock spinner.

## Configuring the Remote Logging Feature

The MC1 enables you to implement a streaming log that captures status information of the system via Port 514. This feature is useful for troubleshooting.

✶ A centralized Syslog server must be installed in your system. Refer to the documentation that accompanied your centralized Syslog server for installation and setup information.

**To configure the remote logging feature**

1. Display the **Global** interface as outlined in "**To display the Global interface in DashBoard**".
2. Select the **Logging** tab.
3. Use the **Remote Logging** field to specify the IP Address of the device that will capture and store the status information of the MC1.

✶ You must press **Enter** after typing the IP Address into the **Remote Logging** field.

4. Reboot the MC1 card as follows:
   a. Click **Reboot**. This button is located on the bottom of the tab.
   b. Monitor the reboot progress.

## Secure Shell Login

Secure Shell (SSH) Login is a client-server protocol used by system administrators to securely log onto remote systems and execute commands over an unsecured network. SSH may also be used by Ross Technical Support for advanced troubleshooting. This service is disabled by default on the MC1.

## Enabling FTP(S)

The MC1 uses an SSL certificate to facilitate encrypted data communications over an FTP connection. The SSL certificate on your MC1 verifies that the FTP connection to it is secure (the SSL certificate is digitally signed by a trusted certificate authority).

Enabling FTP services on the MC1 requires you to validate the SSL certificate in DashBoard, and enable the FTP services on the card. If the SSL certificate is found to be invalid, you will need to upload a new SSL certificate to the MC1.

✶ The MC1 requires TLS/SSL Explicit encryption.

### Validating the SSL Certificate on the MC1

This section outlines how to validate an existing SSL certificate (an *.pem file) on the MC1 to see if it is expired. This can be thought of as a manual refresh button to check if the current SSL certificate on the MC1 is still valid to use FTPS. If it is not, it will disable FTPS and a new *.pem file must be provided to continue using FTPS.

✶ The MC1 automatically validates the *.pem file and updates the SSL Status field after a reboot.

**To validate the SSL certificate on the MC1**

1. Display the **Global** interface as outlined in "**To display the Global interface in DashBoard**".
2. Select the **Security** tab.
3. Locate the **File Transfer Protocol Configuration** area.
4. Click **Scan SSL Certificate & Key**.

   The SSL Status read-only field updates.

   The *.pem file will be validated and then be placed at the appropriate location in the MC1 for it to be used to have the ability to use FTPS. The *.pem file will be kept in the SSL_CK folder as a backup for the card that can be useful during reboots. It is recommended to keep this file.

✶ If there is an error with the file or if the wrong file type is provided, the file will not be used and is automatically deleted. You will then need to upload a new SSL certificate as outlined in the next section and repeat the validation procedure.

### Uploading a new SSL Certificate to the MC1

An SSL certificate is a *.pem file that contains the SSL certificate and key. You add this file to the MC1 directory, then repeat the validation procedure. When replacing an SSL certificate, the new SSL certificate needs to expire later than the certificate it is replacing.

✶ This section is optional if the file was validated in the previous section and no changes are required.

**To upload a new SSL certificate to the MC1**

1. FTP into the MC1 as `user`.
2. Navigate to the SSL_CK folder.

   The SSL_CK folder contains an SSL certificate and key to enable FTPS.

3. Delete the old *.pem file from the SSL_CK folder.
4. Add the new *.pem file to the SSL_CK folder.
5. Exit the FTP session.
6. Repeat the procedure "**To validate the SSL certificate on the MC1**".

## Enabling FTP(S) Services on the MC1

Once the MC1 has a valid SSL certificate in DashBoard, you can proceed to enable the type of FTP service you require. Once the FTP service is enabled on the card, you can access media files as described in "**Connection using FTP**".

✶ Before proceeding, ensure that an FTP or FTPS session is not open while you are editing the FTP(S) services.

**To enable FTP(S) services on the MC1**

1. In DashBoard, navigate to the **Global** > **Security** tab.
2. Locate the **File Transfer Protocol Configuration** area.
3. Choose one of the following:
   - Disable FTP Server — The MC1 does not have access to any FTP server in your network.
   - Enable FTP & FTPS — The MC1 uses the File Transfer Protocol (FTP) and/or FTP with Transport Layer Security (FTPS) for connection to your network. If using FTPS, first ensure the SSL certificate is loaded and validated on the MC1. This mode also enables you to renew the certificate if the current SSL certificate is still valid.
   - Enable FTPS Only — The MC1 uses FTP with Transport Layer Security (FTPS) for connections. Ensure the SSL certificate is loaded and validated on the MC1. This mode also enables you to renew the certificate if the current SSL certificate is still valid.
   - Enable FTP Only — The MC1 uses the File Transfer Protocol (FTP) for connection to your network.
4. Click **Apply**.

# Licensed Features

The MC1 has software licenses for enabling functions and features of the card. This chapter outlines the available software licensed features, and how to install a software key for a licensed feature.

## License Keys Overview

**Table 6** provides a brief summary on the types of licensed features available for the MC1.

***Table 6 List of MC1 Licensed Features***

| License | Description |
|---|---|
| MC1-UHD-12G-LICENSE | Enables the use of UHD 12Gbps SDI signaling on the card |
| MC1-UHD-DVE-1CH-LICENSE | Enables the use of a single channel of 2D DVE[a] |
| MC1-UHD-MASTERCTRL-LICENSE | Enables a single channel of Master Control |

a. The card has 1.5GB of DDR playout memory when the MC1-UHD-DVE-1CH-LICENSE license is enabled.

## Installing a License Key

Ross Video uses license keys to control user access to specific MC1 features. You can obtain a key for a licensed feature from Ross Video Technical Support.

**To install a license key**

1. Display the **Global** interface as outlined in "**To display the Global interface in DashBoard**".
2. Select the **Configure Licenses** tab.
3. Make a note of the character string in the **Request Code** field for the feature you wish to enable.
4. Contact Ross Video using the information found in "**Contacting Technical Support**".
   a. When you speak to your Technical Support representative, tell them your name, your facility name, and the **Request Code** from the **Configure Licenses** tab.
   b. You will be given a License Key that must be entered in the applicable field in the **Licenses** table.
5. Enter the provided License Key in the applicable **Key** field in the **Configure Licenses** tab.
6. Click **Apply** in the row for the License Key you entered in step 5.

## Removing a License Key

Disabling a License Key removes user access to the MC1 features associated with that License Key.

✶ To re-enable the features, contact Ross Technical Support and request a new License Key.

**To remove a license key**

1. Display the **Global** interface as outlined in "**To display the Global interface in DashBoard**".
2. Select the **Configure Licenses** tab.
3. Click in the **Key** field for the licensed feature you want to remove.
4. Type **`remove`**.
5. Click **Apply** to remove the license.

# Reference and Timing Setup

This chapter provides instructions for specifying the reference source for the MC1.

## Specifying a Global Reference Source

The OGX-FR frame supports a distributed frame reference, allowing incoming reference signals to feed timing information to all openGear cards in that frame. Thus, a single signal can be used for multiple cards.

✶ When using a progressive format reference signal to lock an interlaced format video signal, the lock will be Frame Locked but Field indeterminate.

### Frame Rate Compatibility

The card allows you to use any interlaced video format to operate the card in any format of the same frequency; however, the use of 480i or 576i (Composite Sync) reference signals for High Definition (720p, 1080i, 1080p) or UHD (2160p) video formats is not recommended for optimal performance.

The use of composite sync reference formats is recommended for Standard Definition video modes only, and provides stable outputs with jitter performance in compliance with ***SMPTE-259M*** specifications.

**Table 7** outlines the MC1 frame rate compatibility.

***Table 7 Output/Reference Compatibility***

| Video Format | Reference Format | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 480i 59.94 | 1080i 59.94Hz | 720p 59.94Hz | 576i 50Hz | 1080i 50Hz | 720p 50Hz | 1080pSF 23.98Hz | 1080pSF 24Hz |
| 480i 59.94Hz | ✓ | ✓ | ✓ | | | | | |
| 720p 59.94Hz | ✓ | ✓ | ✓ | | | | | |
| 1080i 59.94Hz | ✓ | ✓ | O | | | | | |
| 1080p 59.94Hz | ✓ | ✓ | ✓ | | | | | |
| 576i 50Hz | | | | ✓ | ✓ | ✓ | | |
| 720p 50Hz | | | | ✓ | ✓ | ✓ | | |
| 1080i 50Hz | | | | ✓ | ✓ | O | | |
| 1080p 50Hz | | | | ✓ | ✓ | ✓ | | |
| 1080pSF 23.98Hz | | | | | | | ✓ | ✓ |
| 1080pSF 24Hz | | | | | | | ✓ | ✓ |
| 2160p[a] 50Hz | | | | ✓ | ✓ | ✓ | | |
| 2160p[a] 59.94Hz | ✓ | ✓ | ✓ | | | | | |

a.Requires the MC1-UHD-12G-LICENSE.

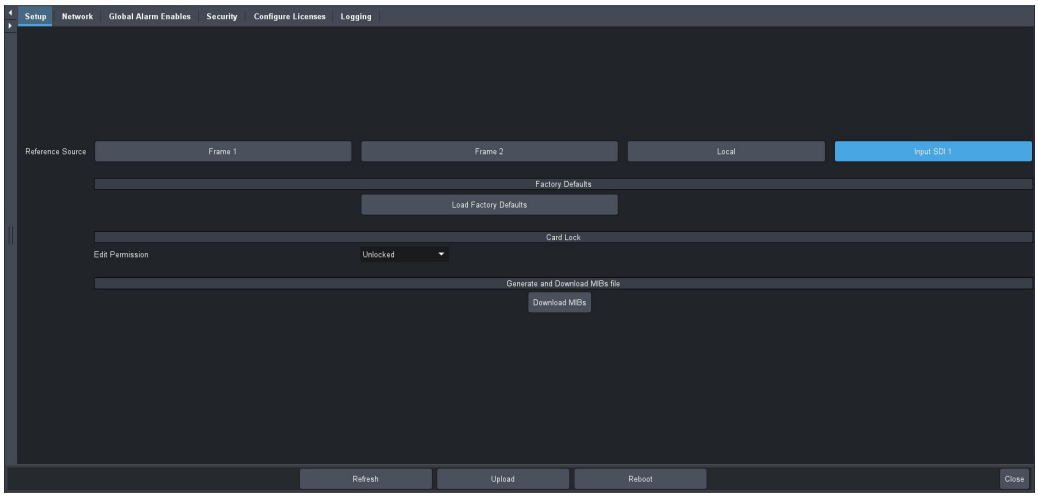
O = field indeterminate

**For More Information on…**

- the options in the Analog Reference Status menu, refer to **Table 28**.

**To specify a global analog reference source for the MC1**

1. Display the **Global** interface as outlined in "**To display the Global interface in DashBoard**".
2. Select the **Setup** tab.




3. Use the **Analog Reference Source** options to specify the source for the reference input signal. Choose from the following:
   - **Frame 1** — assigns the source connected to the **REF 1** port on the openGear frame.
   - **Frame 2** — assigns the source connected to the **REF 2** port on the openGear frame.
   - **Local** — assigns the external reference source connected to **REF IN** port on the rear module.
   - **Input SDI 1** — assigns the signal connected to the **SDI IN 1** port on the rear module.

✶ Ensure the input video frame rate matches the reference frame rate.

## Monitoring the Reference Signal via DashBoard

The section outlines how to enable the Card state status field, located in the top left corner of the Global interface, to report when the MC1 does not detect an analog reference signal.

**To configure the reference alarm for the MC1**

1. Display the **Global** interface as outlined in "**To display the Global interface in DashBoard**".
2. Select the **Global Alarm Enables** tab.
3. Select the **Alarm Enable** box in the **Reference Format** row of the tab.

## Configuring the Time Source

The Frame Network Controller card in the openGear frame can use an NTP server as a time source. The time data is then made available to any openGear card installed in the same frame. You must manually enable the MC1 to access this time data by selecting an option on its Global > Network tab.

**For More Information on...**

- communicating with an NTP server, refer to the ***MFC-OG3-N and MFC-8322-S User Manual***.

**To enable the MC1 to access the time data from the Frame Network Controller card**

1. Display the **Global** interface as outlined in "**To display the Global interface in DashBoard**".
2. Select the **Network** tab.

3. Locate the **Network Time** area of the tab.
4. Select the **Use time from Frame Controller** box.
5. Click **Apply**.

**To enable monitoring of the time data**

1. From the **Global** interface, select the **Global Alarm Enables** tab.
2. Locate the **Network Alarm** area of the tab.
3. Select the **Alarm Enable** check box.

   The **Network time** field will report the status of the time data.

# Configuring the SDI Outputs

This chapter provides instructions for configuring the card output video.

**For More Information on…**

- enabling voice over on an SDI output, refer to "**Enabling Voice Over on an Output**".
- configuring EAS voice over, refer to "**Enabling EAS Voice Over on an Output**".

## Before You Begin

Keep the following in mind when configuring your SDI signals:

- The SDI output timing is fixed on the MC1 and is set to approximately 0.5 lines after the reference.
- Each video input has a line sync that can support a full line of HD video including horizontal blanking.
- All video inputs must be timed with the reference. The input tolerance is approximately +/- 0.5 line. Exceeding this tolerance will result in the output shifting of 1 line. The status fields in the Configuration > Video Format tab displays a Yellow indicator when operating outside the range of the line sync. In such cases, a vertical shift of 1 line or more may occur.
- All of the video inputs must be the same video format as specified in the Configuration > Video Format tab in DashBoard. If the formats do not match, the card reports an error in the DashBoard Signal Status area and on the card-edge LEDs.

## Specifying the Output Video Format

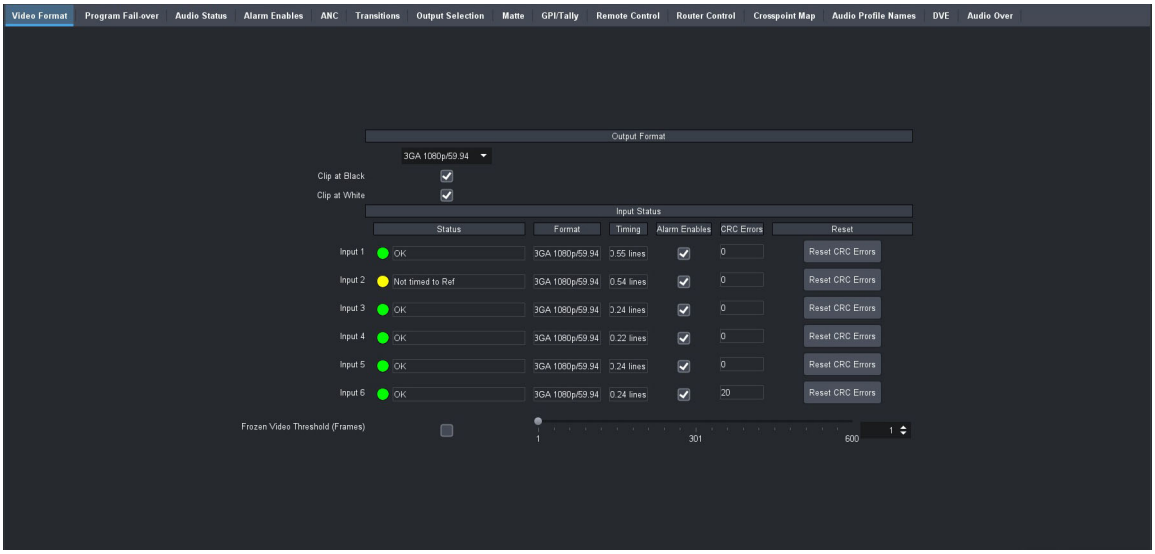
When setting the card output video format, ensure to that all SDI inputs match the specified format.

**For More Information on…**

- the options in the Output Format menu, refer to **Table 34**.

**To specify the output video format**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Video Format** tab.



3. Locate the **Output Format** area of the tab.
4. Use the **Format** menu to specify the card output video format.

✶ Ensure that the specified output format matches the input video format.

5. Select the **Clip at Black** to enable the MC1 to clip at 0x40 on all outputs.
6. Select the **Clip at White** box to enable the MC1 to clip at 0x3AC on all outputs.

## Configuring the Outputs

Each of the six SDI outputs (on the rear module) can be configured as Program, Preview, one of four Clean Feeds, or a Logo channel.

**To configure your video outputs**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Output Selection** tab.
3. Use the **Output** (1-6) options to specify the signal to assign to a specific SDI output. Choose from the following:
   - **Black** — the specified output displays black.
   - **Program** — the specified output displays the Program output.
   - **Preview** — the specified output displays the Preview output.
   - **Clean #** — the specified output displays the selected clean feed output.
   - **Logo #** — the specified logo channel to the output.

# Program Failover Setup

The Program Failover feature enables the MC1 to monitor the Program input and should an error occur, perform a specified action. You specify what types of event triggers the failover, how long to wait until going into failover mode, and what action to take when the failover is triggered. If the Auto Return option is also enabled, and the MC1 determines that the Program input is stable again (valid and locked), the output is switched back to the signal assigned to the Program input. You also have the option to force an automatic failover, or to reset the failover by toggling the Override button.

This chapter outlines how to configure the Program Failover feature, monitor the failover status, and if required, force an automatic failover.

**For More Information on…**

- assigning the Program and Preset outputs to physical BNCs on the rear module, refer to "**Configuring the Outputs**".
- configuring a Logo channel, refer to "**To load a media file into a Logo channel**".

## Configuring the Frozen Video Threshold

During a loss of input, the MC1 can report an alarm after a specified time has passed since the last valid video frame. Once this threshold is met, the Program Failover feature is triggered.

**To configure the frozen video threshold**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Video Format** tab.
3. Locate the **Frozen Video Threshold** options.

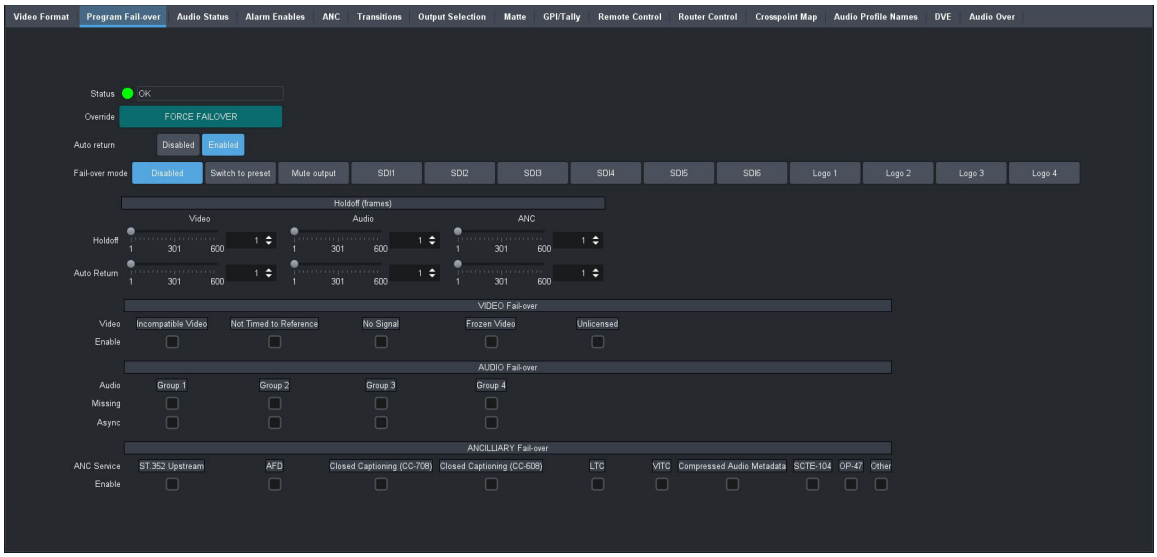

4. Select the **Frozen Video Threshold** box to enable the feature.
5. Use the slider to specify the number of frames the video signal must be frozen before an alarm is raised.

## Defining the Program Failover Feature

This section outlines how to enable the Program Failover feature, define its trigger, determine how long to wait until the failover mode is triggered, and specify the action to take during the failover.

**To define the Program Failover feature**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Program Fail-over** tab.




3. Use the **Auto return** options to specify whether the MC1 automatically returns to the original Program input signal once it is valid again. Choose from the following:
   - **Disabled** — disables this feature. The Program input continues to be the **Fail-over Mode** setting (step 4) even if a valid signal is detected on the original Program input signal.
   - **Enabled** — the MC1 automatically switches back to the original signal when a valid signal is detected.
4. From the **Fail-over mode** row, select the MC1 behavior when the Program Failover is triggered (as defined in the following steps). Choose from the following:

✶ When assigning a failover source, ensure to select an SDI input that has not been assigned as a router source.

- **Disabled** — the MC1 ignores the video, audio, and ANC trigger(s). The Program Failover feature is disabled.
- **Switch to preset** — the MC1 switches the Program output to the Preset output.
- **Mute output** — the MC1 mutes the signal on the Program output.
- **SDI #** — the MC1 assigns the specified SDI input to the Program output.
- **Logo #** — the MC1 assigns the specified logo channel to the Program output.

**To trigger the failover on a detected video error**

1. From the **Video Failover** area, select the video error(s) that will trigger a Program Failover. Choose from the following:
   - **Incompatible Video** — a failover is triggered when the Program input is a video format that is not compatible with the value selected in "**Specifying the Output Video Format**".
   - **Not Timed to Reference** — a failover is triggered when the Program input format does not match the reference source for the MC1-UHD. Refer to "**Specifying a Global Reference Source**".
   - **No Signal** — a failover is triggered when the MC1 detects a loss of the video signal for the Program input.
   - **Frozen Video** — if the Frozen Video Threshold feature is enabled, a failover is triggered after the Program input is frozen for the specified number of frames. Refer to "**Configuring the Frozen Video Threshold**" for details on this feature.
   - **Unlicensed** — a failover is triggered when the Program input is not supported and requires a license key. Refer to "**Licensed Features**".

2. Use the **Video** > **Holdoff** slider to specify the number of frames of consistent video signal error that must occur before a failover is triggered.
3. Use the **Video** > **Auto Return** slider to specify the number of frames that the MC1 will wait once a valid video signal is detected before automatically switching the Program input to it.

**To trigger the failover on a detected audio error**

1. From the **Audio Failover** area, select the audio error(s) that will trigger a Program Failover for each audio group. Choose from the following:
   - **Missing** — a failover is triggered an audio signal is not detected on the Program input.
   - **Async** — a failover is triggered when the audio signal is mistimed with the video on the Program input.
2. Use the **Audio** > **Holdoff** slider to specify the number of frames of consistent audio signal error that must occur before a failover is triggered.
3. Use the **Audio** > **Auto Return** slider to specify the number of frames that the MC1 will wait once a valid audio signal is detected before automatically switching the Program input back to it.

**To trigger the failover on a detected ANC error**

1. From the **Ancillary Failover** area, select the ancillary service error(s) that will trigger a Program Failover. Choose from the following:
   - **ST.352 Upstream** — a failover is triggered when the incoming SMPTE ST-352 packets are not detected on the Program input.
   - **AFD** — a failover is triggered when Active Format Description (AFD) data is not embedded in the ancillary area of the Program input.
   - **Closed Captioning (CC-708)** — a failover is triggered when the CEA-708 data is not detected on the Program input.
   - **Closed Captioning (CC-608)** — a failover is triggered when the CEA-608 data is not detected on the Program input.
   - **LTC** — a failover is triggered when the Linear Timecode packet is missing from the Program input.
   - **VITC** — a failover is triggered when the Vertical Interval Timecode packet is missing from Program input.
   - **Compressed Audio Metadata** — a failover is triggered when the audio metadata of the input is not synchronous to the Program input.
   - **SCTE-104** — a failover is triggered when the SCTE-104 packet is not detected in the baseband SDI video signal of the Program input.
   - **OP-47** — a failover is triggered when the embedded OP-47 VANC packets are not detected on the Program input.
   - **Other** — a failover is triggered when other data types (not listed above) are absent in the VANC of the Program input.
2. Use the **ANC** > **Holdoff** slider to specify the number of frames the MC1 encounters video errors before a failover is triggered. The default is 1.
3. Use the **ANC** > **Auto Return** slider to specify the number of frames that the MC1 will wait once the valid ANC data is detected in the signal before automatically switching the Program input to it.

## Forcing the Failover

The **Override** button enables you to automatically trigger a Program Failover or stop the current failover switch.

✶ The failover mode is determined using the procedures in "**Defining the Program Failover Feature**".

**To manually trigger a failover**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Program Fail-over** tab.
3. Ensure the Program Failover is configured. Refer to "**Defining the Program Failover Feature**".
4. Locate the **Override** button.


5. Click **FORCE FAILOVER**.
   - The Program Failover feature is triggered and switches to the signal as defined by the Fail-over Mode setting.
   - The button label now displays RESET FAILOVER.

**To manually stop the failover switch**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Ensure the Program Failover is configured. Refer to "**Defining the Program Failover Feature**".
3. Verify that the **Status** field reports "`Manual Reset Required`".
4. Locate the **Override** button.
5. Click **RESET FAILOVER**.
   - The Program Failover is canceled.
   - If the Auto Return setting is selected, the Program input returns to the signal used previous to the failover switch.
   - The button label now displays FORCE FAILOVER.

# Router Setup

The Ross Ultrix router and third-party routers communicate with the MC1 using the GVG Series 7000 ethernet protocol. This chapter provides instructions for the basic physical installation and communications setup of your Ultrix router to the MC1. Note that your facility requirements may differ from what is presented.

✶ Router control requires the MC1-MASTERCTRL-LICENSE. Refer to "**Licensed Features**".

**For More Information on...**

- setting up your Ultrix, refer to the ***Ultrix User Guide*** for your router.

## Ultrix Setup Overview

Before proceeding, ensure the Ultrix router:

- is set up for third-party communications as outlined in the Ultrix user documentation.
- is connected to your facility network and displays in the Tree View of your DashBoard client
- is running the following software versions (**Table 8**)

***Table 8 Recommended Software Versions***

| Product | Min. Software Version |
|---|---|
| Ultrix router | v4.0 |
| Ultricore Central Controller (optional) | v4.0 |

**Figure 28** illustrates the physical connections in a simple routing system that includes an Ultrix and an MC1. Ross Video does not supply these cables.

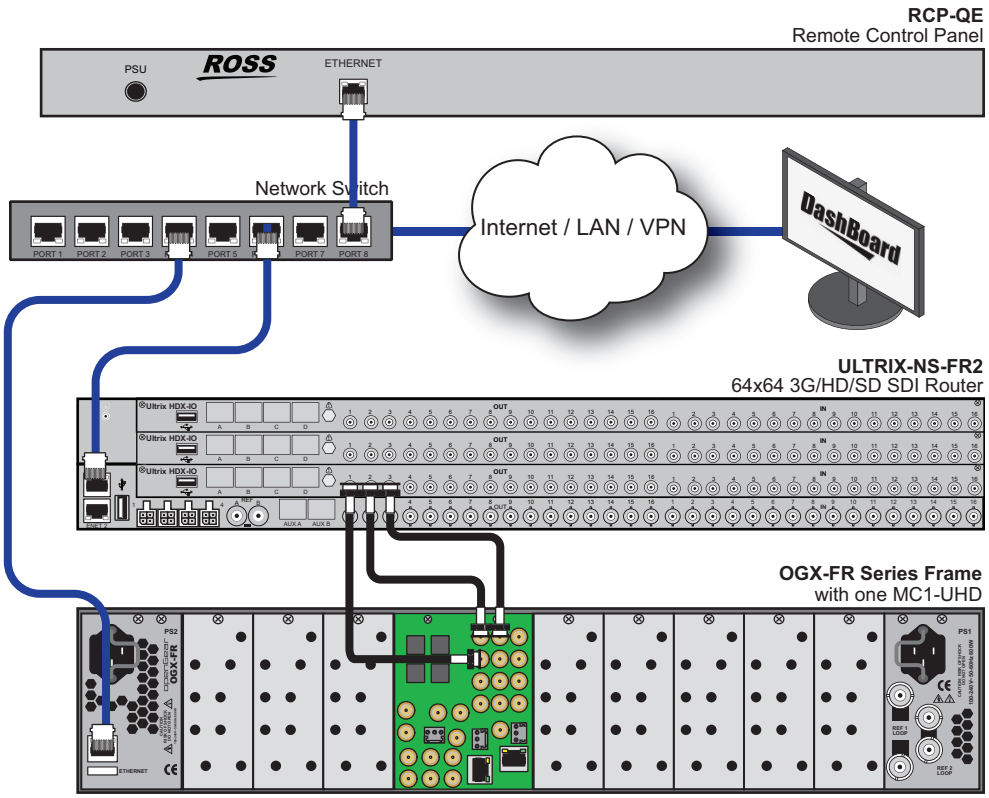



*Figure 28 Simple Routing System with a Ross Ultrix Router and an MC1*

## Communications Setup

This section outlines how to configure the MC1 to communicate with the Ultrix router via the GVG Series 7000 Ethernet protocol.

Before proceeding, ensure that:

- the router is set up for ethernet communications by referring to its user guide.
- the license key for router control is installed on the MC1. Refer to "**Licensed Features**".

**For More Information on...**

- the Remote Control tab, refer to "**Remote Control Tab**".
- the Router Control tab, refer to "**Router Control Tab**".
- specifying a delay or a retry value, refer to "**Specifying the Router Switch Retries**".

**To specify the GVG Series 7000 protocol for the MC1**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **Ultrix Router (GVG Series 7000)** area of the tab.
4. Select the box in the **Ultrix Router (GVG Series 7000)** area.
5. From the **Connection** menu, select **Network Client**.
6. Click **Network Setup**.

   The **Configure the Network Connection** dialog opens.
7. From the **Packet Type** menu, select **TCP**.
8. From the **Port** menu, specify the port number of the router.

✶ The default port number is 12345 for the Ultrix router.

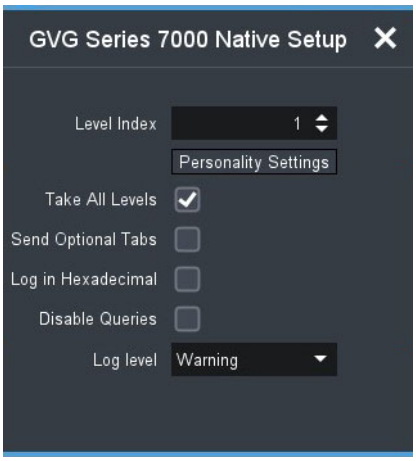
9. From the **Remote IP** menu, specify the IP address of the router.
10. Use the **Timeout (sec)** field to specify the number of seconds the MC1 will wait after a loss of router connection before reporting an error.
11. Select the **Monitor Connection** box to enable the monitoring of the router connection; the status indicator in the top right corner of the RossTalk area will report the advanced settings enabled for monitoring.
12. Use the **Idle Time** field to specify the number of seconds to wait before the status indicator reports an error when the MC1 does not detect active communication on the router connection.
13. Use the **Retries** field to specify the number of attempts the MC1 will make to re-establish the router connection.
14. Close the **Configure the Network Connection** dialog.

    The new settings are automatically applied.

**To define the communication options to the router**

1. In the **Ultrix Router (GVG Series 7000)** area, click **Device Setup**.

   The **GVG Series 7000 Native Setup** dialog opens.




2. Use the **Level Index** field to specify the level that the router will perform crosspoint switches on.
3. Select the **Take All Levels** box to enable all transitions to take effect on all router levels.

✶ When using an Ultrix router, leave the **Send Optional Tabs** box unselected (no check-mark).

4. Use the **Log Level** options to specify what type of messages are in the log report.
5. If the **SEND** and **RECV Enable Log Messages** boxes were selected in step 4, select the **Log in Hexadecimal** box to display these log messages in hexadecimal.
6. If you are connecting to an NV9000, select the **Disable Queries** box.
7. Close the **GVG Series 7000 Native Setup** dialog.

   The new settings are automatically applied.

**To verify a connection on the Ultrix router**

1. Display the **Connections** tab for the Ultrix router as follows:
   a. Locate the **Ultrix** in the Tree View of DashBoard.
   b. Expand the **Ultrix** node to display a list of sub-nodes in the Tree View.
   c. Expand the **Database** sub-node.
   d. Select the **Connections** sub-node.
   e. Double-click the **Connections** node to display the Connections tab.
2. Locate the MC1 in the Connections table.

✶ After reboot, the MC1 will check the router status and report the current router connection status on the On Air Control interface.

## Third-Party Router Setup

When setting up communication between the MC1 and a third-party router, optional licenses and/or protocol translator hardware may be required to enable GVG Series 7000 Native protocol on your router. Refer to your third-party router documentation to configure a remote interface.

## Specifying the Router Switch Retries

The MC1 provides options for delaying transitions to wait for the router switch to complete. You can also specify a re-try value when the router switch has not completed within a specified length of

time. Once the maximum number of re-tries is reached, the MC1 pushes back the crosspoints to the previous state.

**To configure the router switch command retries**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Router Control** tab.

✶ The measured min / max response time is displayed on this tab. It can be used as a good starting point in specifying the Minimum Delay value.

3. Use the **Minimum Delay** slider to specify the number of frames the MC1 waits between sending the next switch command to the router.
4. Use the **Retry Interval** slider to specify the number of frames the MC1 waits before re-sending the same switch command to the router.
5. Use the **Max Retries** slider to specify the maximum number of times the MC1 will send the same switch command to the router before the switch is abandoned and an error condition is raised.

**For More Information on...**

- the read-only fields in the **Router Control** tab, refer to "**Router Control Tab**".

## Assigning a Router Output to an SDI Input on the MC1

You can choose to manually assign a router destination to an SDI input.

**To assign a router output to an SDI input on the MC1**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Router Control** tab.
3. Locate the row for the SDI input you want to assign to the router output.
4. Use the menu in the **Destination** column to select the router destination.

## Using Parked Sources

If your routing system is using resource management, assigning a Parked Source will allow the user to disconnect the current destination (switch the same source number to the destination). The specified output is parked when the crosspoint selected was not a router source.

**To assign a parked source**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Router Control** tab.
3. Locate the row for the SDI input you want to specify the parked source.
4. Use the menu in the **Parked Source** column to specify the source to use when the router destination is parked.

✶ It is recommended to select a Parked Source with the same video format as the program video.

# Crosspoint Mapping

This chapter outlines how to specify the number of available crosspoints, and assign sources to each crosspoint.

**For More Information on...**

- the menu items in the **Crosspoint Map** tab, refer to **Table 53**.

## Default Crosspoint Mapping

The MC1 is shipped with a factory default mapping for the available inputs to the crosspoint buttons on the DashBoard control panel. However, you can also change the sources assigned to the router destinations that are associated with the MC1 using the options in the **Crosspoint Map** tab.

**Table 9** outlines the default crosspoint mapping for the MC1.

***Table 9 Default Crosspoint Mapping***

| Crosspoint Button | Unshifted | | Shifted | |
|---|---|---|---|---|
| | Source Type | Selection | Source Type | Selection |
| 1 | Black | | Matte | White |
| 2 | Matte | Matte 1 | Router | |
| 3 | Matte | Matte 2 | Router | |
| 4 | SDI Input | SDI 1 | Router | |
| 5 | SDI Input | SDI 2 | Router | |
| 6 | SDI Input | SDI 3 | Router | |
| 7 | SDI Input | SDI 4 | Router | |
| 8 | SDI Input | SDI 5 | Router | |
| 9 | SDI Input | SDI 6 | Router | |
| 10 | Logo | Logo 1 | Router | |
| 11 | Logo | Logo 2 | Router | |
| 12 | Router | Source 1 | Router | RTR Extra 1 |
| 13 | Router | Source 2 | Router | RTR Extra 2 |
| 14 | Router | Source 3 | Logo | Logo 3 |
| 15 | Router | Source 4 | Logo | Logo 4 |
| 16 | SHIFT | SHIFT | SHIFT | SHIFT |

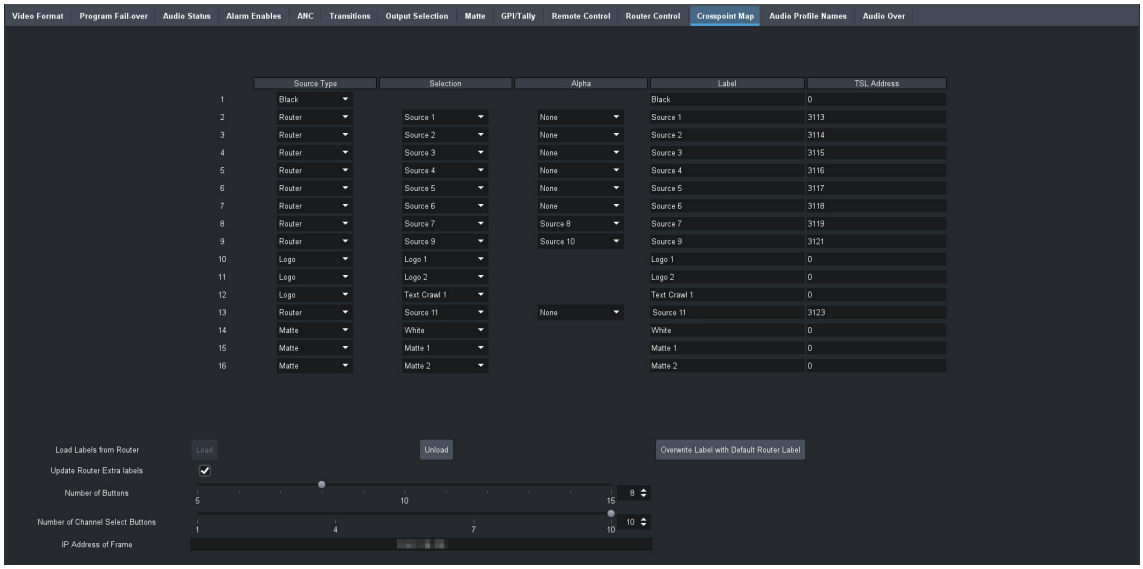
## Specifying the Number of Available Crosspoints

By default, the Program and Preset buses include 16 buttons each. You can change the number of buttons per bus as required.

✶ This number is in addition to the **Shift** button.

**To specify the number of available crosspoints**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.




3. Use the **Number of Buttons** slider to specify the number of crosspoint buttons to display in the Active Channel On Air Control interface.

## Mapping the Program and Preset Crosspoints

Each crosspoint button can have two inputs assigned: the video source and an optional alpha source. The alpha source is used only when selecting an external key.

✶ If you change the Alpha assigned to a crosspoint already selected on an external key, you will also need to send another router request (navigate to the On Air Control > External Keys tab, select another crosspoint on the External Key bus and then select the re-configured crosspoint).

**For More Information on...**

- assigning the Router Extra function for automation control, refer to "**Reserving Crosspoints for Automation Use**".

**To map a matte generator to a crosspoint**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Locate the row for the router button you wish to map.
4. Use the **Source Type** menu to select **Matte**.
5. Use the **Selection** menu to assign a specific matte generator.
6. Use the **Label** field to specify the text that will display on the button.
7. Proceed to the chapter "**Mattes**" to set up the matte generators for the MC1.

**To map an SDI input to a crosspoint**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Use the **Source Type** menu to select **SDI Input**.
4. Use the **Selection** menu to assign one of the SDI inputs available on the MC1 rear module.
5. Use the **Alpha** menu to assign a source for the alpha channel of the crosspoint.
6. Use the **Label** field to specify the text that will display on the button.

**To map a router source to a crosspoint**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Locate the row for the router source you wish to map.
4. Use the **Source Type** menu to select **Router**.
5. Use the **Selection** menu to assign a router source to the button.
6. Use the **Alpha** menu to assign a source for the alpha channel of the crosspoint.
7. Use the **Label** field to specify the text that will display on the button.

✶ Leave the Label field to its default value to use the auto-populated labels supplied by the router.

**To map a logo channel to a crosspoint**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Locate the row for the button you wish to map.
4. Use the **Source Type** menu to **Logo**.
5. Use the **Selection** menu to assign a specific logo channel.
6. Use the **Label** field to specify the text that will display on the button.
7. Proceed to "**Media File Management**" to set up the logo channels for the MC1.

## Reserving Crosspoints for Automation Use

Under Automation control with the **Remote Control** > **Device Setup** > **Switch Request** set to **Router Crosspoint**, the MC1 will use the first crosspoint with its Type set to Router that matches the desired crosspoint source. When the desired crosspoint source is not permanently mapped to a crosspoint button, the first available RTR Extra button will be temporarily mapped to the desired crosspoint source. If all RTR Extra buttons are in use, or there are none assigned, the automated switch request will fail.

By default, there are two RTR Extra buttons, with one mapped to each row. If you are not using an Automation system, or have a small number of router sources to switch, you may wish to re-map these buttons to other functions. Otherwise it is recommended to keep the default mapping of one RTR Extra button per crosspoint row.

**For More Information on...**

- configuring the Switch Request feature, refer to "**Automation Switch Request**".

## Applying Labels to the Crosspoint Buttons

This section outlines how to apply the button labels from the router, use the MC1 default text, or overwrite the user labels with the router labels.

**To apply the labels from the connected router**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Locate the **Load Labels from Router** area.
4. Click **Load**.

   The **Label** fields on the tab update to report the labels imported from the connected router.

   The **Load** button is now disabled.

✶ Click **Overwrite Label with Default Router Label** to overwrite user-defined labels with the label imported from the connected router.

**To return all crosspoint button labels to the default text**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Locate the **Load Labels from Router** area.
4. Click **Unload**.

   The **Label** fields on the tab update to report the default text set by the MC1.

**To update the RTR Extra labels**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Select the **Update Router Extra** labels box.
   - When the Source Type is set to Router Extra, the button label on the On Air Control interface reports the last used router source.
   - When automation requests a router source not listed in the crosspoints, and instead uses a Router Extra crosspoint, the label is updated to show the router source that was requested.

# Channel Ganging

The **Channel Ganging** feature enables one primary MC1 to control up to two remote (secondary) MC1 over an ethernet connection. This creates a workflow system where the primary MC1 is configured as a Server and each remote MC1 is configured as a Client.

## Before You Begin

Ensure that each MC1:

- is connected to your facility network and configured for ethernet communications. Refer to "**Cabling**" and "**Configuring the Initial Network Settings**".
- is communicating with the same Ultrix router. Refer to "**Router Setup**" for details on connecting to an Ultrix router.
- Remote Control > Router Control > Minimum Delay set to the recommended value of 13.
- Remote Control > Router Control > Retry Interval set to the recommended value of 16.
- consistently uses the same crosspoint mapping. Refer to "**Crosspoint Mapping**" for details on specifying the number of available crosspoints, mapping the Program and Preset crosspoints, and applying labels to the crosspoint buttons.

## Assigning a Role to the MC1

Operation is determined by the role assigned to the MC1 in its **Remote Control** tab.

**To configure an MC1 as the primary**

1. From the **Tree View**, expand the node for the MC1 you want to configure as the primary.
2. Double-click the **Configuration** node to display the interface in the right-half of DashBoard.
3. Select the **Remote Control** tab.
4. Locate the **Channel Gang** row. You may need to scroll down to the bottom of the tab.
5. Select **Server** from the **Role** drop-down menu (located above the Network Setup button).
6. Click **Network Setup**.

   The Network Setup dialog opens.
7. Use the **Packet Type** menu to specify the Transmission Control Protocol (**TCP**).
8. Use the **Port** menu to specify the TCP port number that this MC1 will listen on.

✶ Do not edit the Remote IP field. This field is only applicable when the MC1 will be configured as a Client.

9. Close the **Network Setup** dialog.
10. Select the gray **Enabled** box, located under the Channel Gang heading to apply your changes.

    The channel ganging communications is now enabled on the **primary** MC1.


**To configure an MC1 as a secondary**

1. From the **Tree View**, expand the node for the MC1 you want to configure.
2. Double-click the **Configuration** node to display the interface in the right-half of DashBoard.

3. Select the **Remote Control** tab.
4. Locate the **Channel Gang** row. You may need to scroll down to the bottom of the tab.
5. Select **Client** from the **Role** drop-down menu (located above the Network Setup button).
6. Click **Network Setup**.

   The Network Setup dialog opens.
7. Use the **Packet Type** menu to specify the MC1 uses the Transmission Control Protocol (TCP).
8. Use the **Port** menu to specify the port number to which this (secondary) MC1 will try to connect to the primary MC1.
9. Use the **Remote IP** field to specify the IP address of the primary MC1 that this card will connect to.
10. Close the **Network Setup** dialog.
11. Select the gray **Enabled** box, located under the Channel Gang heading to apply your changes.
    - The channel ganging communications is now enabled on the **secondary** MC1.
    - The IP address of the primary MC1, and the Port for this secondary MC1 are reported in the field next to the **Enabled** box.


12. Repeat the procedure for each MC1 you want to configure as a secondary.

# Channel Ganging Status

The primary MC1 passes all commands to each secondary MC1 in the channel gang. Each secondary MC1 responds back to the primary in minute intervals.

## Primary Status

If the MC1 is configured as a primary, the **Configuration** > **Channel Gang** tab reports on the communications between it and each secondary MC1 connected to it. Each secondary is listed on the tab, with the most recently connected MC1 displayed at the bottom of this list. The overall status of the primary MC1, including the number of secondary cards currently ganged to it, is reported in a black field above the secondary MC1 status fields. (**Figure 29**)

Should a secondary MC1 become out of sync with the primary MC1, use the **Push** Setting buttons to update the set of commands sent to the specified secondary MC1 or to all secondary MC1s currently connected.

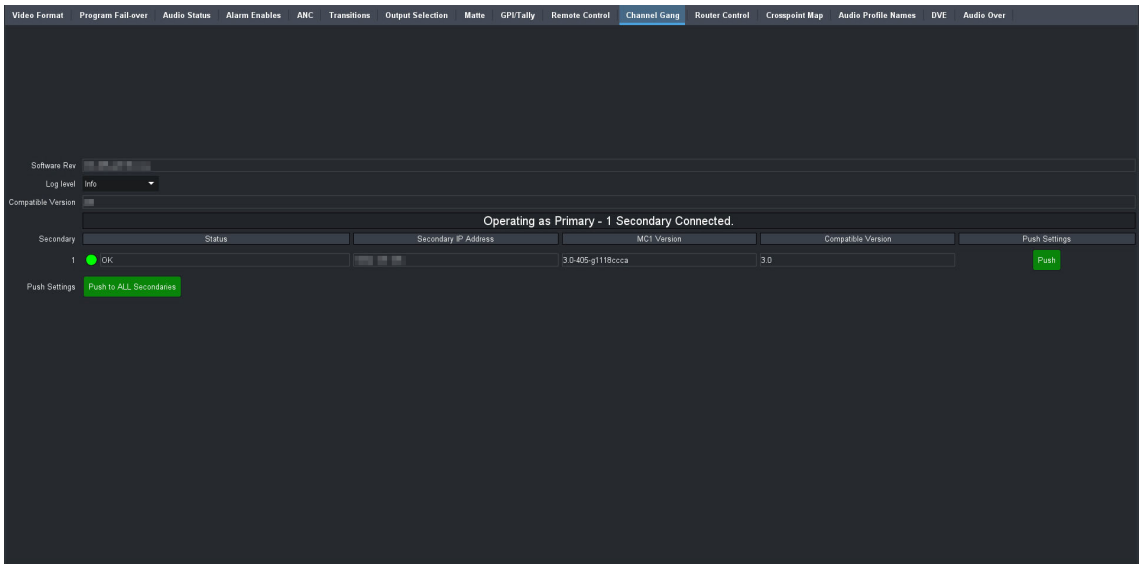



*Figure 29 Channel Gang Tab — Reports the Channel Gang Status for the Primary*

The **On Air Control** > **Home** tab also reports if the current MC1 is a primary and the connection status to the secondary MC1 card(s). (**Figure 30**)

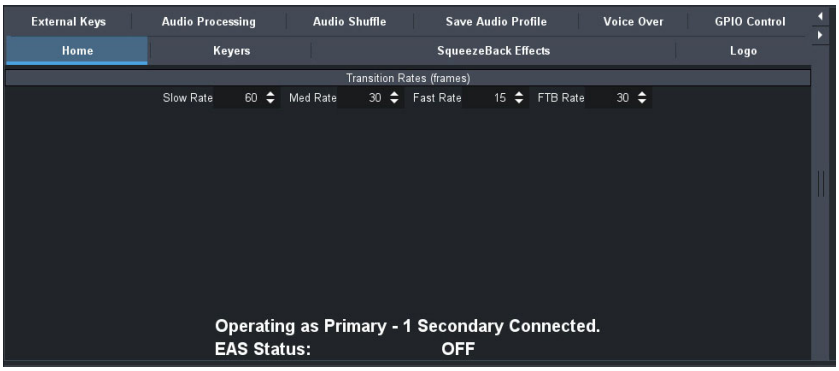



*Figure 30 On Air Control — Home Tab Reports the Channel Gang Status for the Primary*

## Secondary Status

If the MC1 is a secondary, the **Channel Gang** tab reports on the communications between it and the primary MC1. (**Figure 31**)

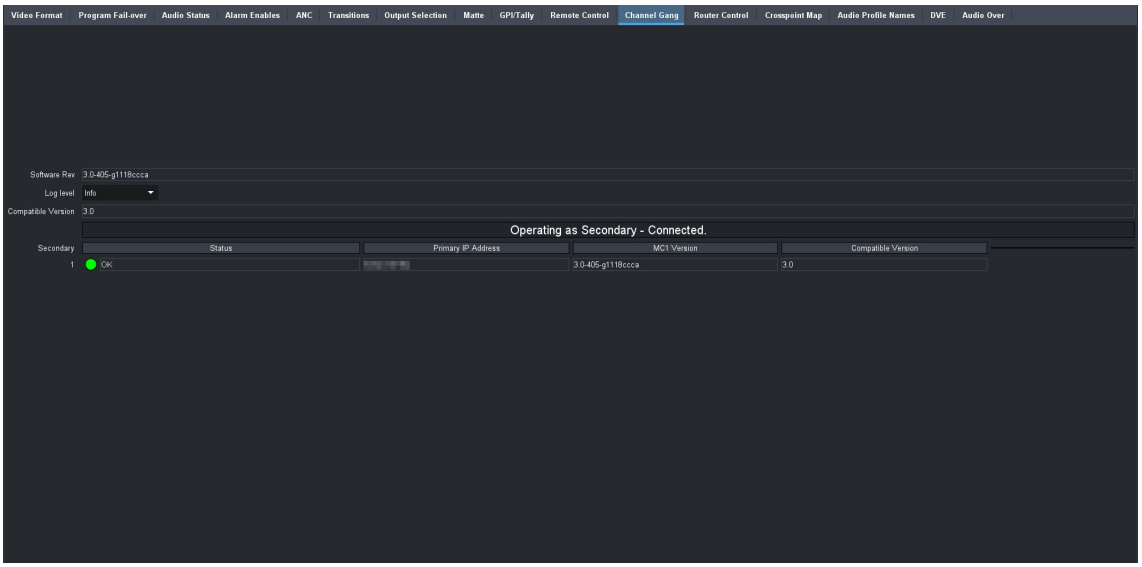



*Figure 31 Channel Gang Tab — Reports the Status when an MC1 is a Secondary*

The **On Air Control** > **Home** tab also reports if the current MC1 is a secondary and the connection status to the primary MC1. (**Figure 32**)

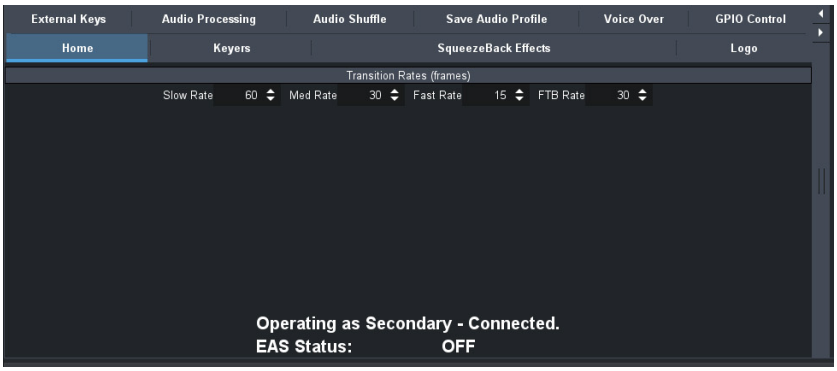



*Figure 32 On Air Control — Home Tab Reports the Status for a Client*

# Operation

**Table 10** summarizes the commands a primary MC1 passes to each secondary MC1 with a valid connection to it.

***Table 10 Commands Sent to each Secondary MC1***

| Command Type | Notes |
|---|---|
| Effect Select | Copies the same selected effect number to all secondary MC1. |
| Fade to Black (FTB) | Sets the fade to black state of each secondary MC1 to match the primary MC1 state. |
| Program Bus | All crosspoint selections are supported including hot-punch on the Program bus, arming/disarming the Preset bus and selecting the source for External Key. |
| Preset Bus | |
| External Sources | |
| Key # | The user hot-punched any key on the Program bus of the primary MC1. |
| | The user armed/disarmed a key on Preset bus. |

*Table 10 Commands Sent to each Secondary MC1 (Continued)*

| Command Type | Notes |
|---|---|
| Audio Over | The user hot-punched the **AUDIO OVER** button on the primary MC1. |
| | The user armed/disarmed the Audio Over state on the primary MC1. |
| Audio Gain | The user reset the Audio Gain fader value to 0 on the primary MC1.<br>The user adjusted the Master Audio gain value. |
| Transition Type | Sets the transition type of each secondary MC1 to match the primary MC1. |
| Transition Rates | The total time expected for the transition is sent to each secondary MC1, permitting them to convert to the appropriate number of frames (based on the video format they are using). |
| | The On Air Control interface, of each secondary MC1, does not report the actual transition rate. |
| BKGD Include | Sets the state of Transition Include buttons of each secondary MC1 to match the primary MC1 state. |
| SQUEEZE Include | |
| TAKE | Sets the **TAKE** button state (MC1-PANEL-16 and the On Air Control interface). |
| | Sets the Automation **TAKE** state (using the Automation transition rate). |
| EAS Audio Duck Level | Sets the EAS audio levels during a voice over of each secondary MC1 to match the primary MC1 state. |
| EAS Audio Gain Level | |
| Voice Over Duck Level | Sets the Voice Over audio levels during a voice over of each secondary MC1 to match the primary MC1 state. |
| Voice Over Gain Level | |

# DashBoard Menus

This section outlines the options for configuring channel ganging that are provided on the **Configuration** >**Channel Gang** tab.

## Menus for the Primary MC1

**Table 11** summarizes the fields displayed in the **Configuration** > **Channel Gang** tab for the primary MC1.

*Table 11 Configuration — Channel Gang Tab for a Primary*

| Item | Parameters | Description |
|---|---|---|
| Software Rev (read-only) | # | Reports the software and build versions of this primary MC1 |
| Log level | | |
| Compatible Version | # | Reports the oldest backwards-compatible software versions for the secondary MC1s |

***Table 11 Configuration — Channel Gang Tab for a Primary (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Operating as Primary - Not Connected | | Communication was lost between this MC1 and one of the secondary MC1 that it controls.<br>The primary MC1 is attempting to re-establish communications with the secondary card(s). |
| Operating as Primary - # Secondary Connected | | Communication is valid between this primary MC1 and the indicated number of secondary card(s) it controls |
| **Secondary #** | | |
| Status | OK (Green) | Communication is valid between the primary MC1 and the indicated secondary MC1 |
| | Negotiating Connection (Yellow) | The primary MC1 is attempting to establish communications with this secondary MC1 |
| | Remote MC1 is out of date (Yellow) | One or more of the following has occurred:<br>• A button was selected on the hard panel of the secondary MC1<br>• A button was selected on the On Air Control interface of the secondary MC1 |
| Secondary IP Address | N/A | Communication was lost between the indicated secondary MC1 and the primary MC1, or this secondary MC1 is not configured for channel ganging |
| | #.#.#.# | This field reports the IP address of the specified secondary MC1 |
| MC1 Version | N/A | Communication was lost between the secondary MC1 and the primary MC1 or this MC1 is not configured for channel ganging |
| | # | Specifies the software and build version this secondary MC1 is running |
| Compatible Version | N/A | Communication was lost between the secondary MC1 and the primary MC1 or the secondary MC1 is not configured for channel ganging |
| | # | Specifies the minimum compatible software version for a primary MC1.<br>The software and build versions of the primary and each secondary MC1 must be compatible. |

*Table 11 Configuration — Channel Gang Tab for a Primary (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Push Settings | Push | Re-sends the commands to the specified secondary MC1 to re-sync the communication queue between the primary and this secondary |
| | Push to ALL Secondaries | Re-sends the commands to all secondary MC1 to re-sync the communication queue between the primary and all secondary channels currently connected to it.<br>If a secondary MC1 has fewer external sources than are currently selected on the primary MC1, the secondary will report an error in its Status field. |

## Menus for a Secondary MC1

**Table 12** summarizes the fields displayed in the **Channel Gang** tab for a secondary MC1.

*Table 12 Configuration — Channel Gang Tab for a Secondary*

| Item | Parameters | Description |
|---|---|---|
| Software Rev | # | Reports the software and build versions of this secondary MC1 |
| Compatible Version | # | Reports the oldest backwards-compatible software versions for a primary MC1 to communicate with this secondary MC1 |
| Operating as client - Not Connected to Primary. | | Communication was lost between this MC1 and the primary MC1 controlling it. The primary MC1 is attempting to re-establish connection with this MC1. |
| Operating as client - Connected to Primary. | | Communication is valid between this MC1 and the primary MC1 controlling it |
| Status | OK (Green) | • If the MC1 is configured as a secondary, communication is valid between it and the primary MC1<br>• The MC1 is not configured for channel ganging |
| | Negotiating Connection (Yellow) | The primary MC1 is attempting to establish communications with this MC1 |
| | Primary MC1 is out of date (Yellow) | One or more of the following has occurred:<br>• A loss of power<br>• A button was selected on the hard panel of the primary MC1<br>• A button was selected on the On Air Control interface of the primary MC1 |
| Status | Buffer Overrun (Red) | The secondary MC1 was unable to keep pace with the primary MC1 and commands were lost. |

*Table 12 Configuration — Channel Gang Tab for a Secondary (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Remote IP Address | N/A | Communication was lost or not configured correctly between this MC1 and the primary MC1.<br>Verify that this MC1 is configured for channel ganging. |
| | #.#.#.# | Specifies the IP address of the primary MC1 currently controlling this MC1 |
| MC1 Version | N/A | Communication was lost or not configured correctly between this MC1 and the primary MC1.<br>Verify that this MC1 is configured for channel ganging |
| | # | Specifies the software and build version the current card is running |
| Compatible Version | N/A | Communication was lost between this MC1 and the primary MC1.<br>Verify that this MC1 is configured for channel ganging |
| | # | Specifies the minimum software and build version that is compatible with the current card.<br>The software and build versions of the primary and secondary MC1 must be compatible. |

## Troubleshooting

If you have lost communications between the primary MC1 and its secondary cards:

1. Verify that each MC1 card is securely installed in its openGear frame. Refer to "**Physical Installation**"
2. Verify that each MC1 is installed with a network connection to your facility. Refer to "**Cabling**".
3. Verify the ethernet settings for each MC1 card are valid. Refer to "**Getting Started**".
4. Verify that the primary MC1:
   - is configured as a Server in its Remote Control tab. Refer to "**To configure an MC1 as the primary**".
   - displays the **Channel Gang** tab and reports a valid connection to the secondary MC1 card(s).
5. Verify that each secondary MC1:
   - is configured as a Client in its Remote Control tab. Refer to "**To configure an MC1 as a secondary**".
   - displays the **Channel Gang** tab and reports a valid connection to the primary MC1.
   - is running software that is compatible to the primary MC1.
6. Synchronize the secondary MC1 card(s) to the primary MC1 by choosing one of the following:
   - Select the **Push** button on the primary MC1 for the affected secondary MC1; or
   - Select the **Push to ALL Remotes** button to send the commands to all the secondary MC1 cards.

# Using RossTalk

The MC1 can be controlled from a remote editor or computer via RossTalk commands. These commands can be sent to the MC1 over an ethernet or serial connection. This chapter outlines how to establish a connection point between the MC1 and an external device using the RossTalk protocol.

## Using an Ethernet Connection

Contact your IT Department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP address, subnet mask, and gateway for the external device communicating with the MC1.

### Cabling Requirements

You will require a standard network CAT-5 cable to connect the MC1 to your facility network. Refer to "**Cabling the Ethernet Port on the OGX-FR Frame**" for more information.

### Configuring the MC1 for RossTalk Communications

This section outlines how to configure the MC1 to communicate with a device via RossTalk over an ethernet connection.

**For More Information on...**

- the RossTalk settings on the Remote Control tab, refer to **Table 46**.

**To enable the RossTalk protocol for ethernet communications**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **RossTalk** area in the tab.
4. Select the box in the **RossTalk** area.
5. From the **Connection** menu, select one of the following:
   - Network Client — The MC1 functions as a service requester that initiates communications with a server on the network.
   - Network Server — The MC1 functions as a host, or socket listener, on the network. This is the default.
6. Click **Network Setup**.

   The **Network Setup** dialog opens.
7. Use the **Packet Type** menu to specify the ethernet protocol your external device will use to communicate with the MC1.
8. Ensure the **Port** field is set to **7788**.
9. If you selected **Network Client** in step 5, use the **Remote IP** field to specify the IP address of the MC1 on the network to be used for RossTalk communications.
10. Close the **Network Setup** dialog.

    The new settings are automatically applied.

# Using a Serial Connection

RossTalk commands can be sent to the MC1 via the **SERIAL** port (RS-232/RS-422) on the card's rear module.

### Cabling Requirements

Refer to "**Serial Cabling**" for details on connecting a serial device to the MC1 rear module. Refer to the documentation for your external device for specific cabling requirements.

## Configuring the MC1 for Serial RossTalk Communications

This section outlines how to configure the MC1 to communicate with a device via RossTalk over a serial connection.

**To enable the RossTalk protocol for serial communications**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **RossTalk** row in the tab.
4. Select the box in the **RossTalk** area.
5. From the **Connection** menu, select **Serial Port**.
6. Click **Serial Port Setup**.

   The **Configure the serial connection** dialog opens.
7. Use the **Port Type** menu to specify transmission standard the external device uses. The default is RS 422.
8. Use the **Bit rate** menu to select the bit rate for the external device connected to the Serial port of the MC1. The default is 115200.
9. Use the **Data Bits** menu to set the number of data bits transmission (character length). The default is 8.
10. Use the **Parity** menu to set the parity type for the external device. The default is None.
11. Use the **Stop Bits** menu to set the number of stop bits transmission. The default is 1.
12. Use the **Flow Control** menu to enable the MC1 notify the serial device when it is experiencing a data overflow and stop sending data (SW) or to allow continuous data flow between the MC1 and the device (None). The default is None.
13. Close the **Configure the serial connection** dialog.

    The new settings are automatically applied.

# Using the RossTalk Protocol

RossTalk is a plain text based protocol that allows control of Ross Video equipment. This section briefly outlines how to send RossTalk commands, and lists the supported commands.

## Sending RossTalk Commands

RossTalk commands are generally case-sensitive, and must be terminated with carriage return and linefeed (CR+LF). When using with the MC1, the command can be uppercase or lowercase, and the terminator can by simply linefeed.

For example,

```
MSPATH 1:0:ColorRamp.tga
MSPATH 1:0:directory/filename.png
```

**To send RossTalk Commands**

1. Verify that you have created a network connection to the MC1.
2. Enter the commands you want to send to the MC1.

## Supported RossTalk Commands

**Table 13** lists the RossTalk commands that the MC1 supports.

***Table 13 Supported RossTalk Commands***

| Command | Description |
|---|---|
| FTB | Performs a fade-to-black transition |
| FTB level | • Level 0 = always clears FTB. No impact if already FTB.<br>• Level 1 = always sets FTB state. |
| GPI xx | Triggers action associated with the specified GPI number (xx) |
| GPI xx:level | Triggers GPI number xx where:<br>• Level 0 = logically OFF<br>• Level 1 = logically ON |
| KEYAUTO 1:keyer | Fades a key on/off air. The keyer value is 1 to 6. |
| KEYAUTO 1:keyer:level | • Level 0 = always take key off air; no change if key is already off air<br>• Level 1 = always take key on air; no change if key is already on air |
| KEYCUT 1:keyer | Cuts a key on/off air. The keyer value is 1 to 4. |
| KEYCUT 1:keyer:level | • Level 0 = always take key off air; no change if key is already off air<br>• Level 1 = always take key on air; no change if key is already on air |
| MSPATH CHAN:0:FILENAME | Load a still or animation from the Micro SD card where:<br>• **CHAN** is logo channel (1 to 2)<br>• **FILENAME** is the directory/filename to be loaded. There is a maximum filename length of 256bytes.<br>✶While the **FILENAME** does not need to be complete, it still requires enough characters to uniquely identify the file in the directory. |
| REVEAL **dve:reveal** | • **dve** is the effect number 0 through 3<br>• **reveal** is the reveal source where:<br>- EXTERNAL is 1 or 2<br>- LOGO is logo channel (1 through 4) |
| TAKE | Takes all armed except for background video |
| TAKE ALL | Takes all including background video (if BKGD INCL is set) |
| VGPIARM **vgpi:arm** | Arms the specified effect defined for the vgpi number on preset where:<br>• **vgpi** is between 0-17<br>• **arm** = 0; disarm the effect<br>• **arm** = 1; arm the effect on the Preset bus<br>• **arm** = 2; disarms the effect |

***Table 13 Supported RossTalk Commands (Continued)***

| Command | Description |
|---|---|
| VGPISTATE **vgpi:state** | Activates the specified effect defined for the vgpi number on air where:<br>• **vgpi** is between 0-17<br>• **state** = 0; takes the effect off air<br>• **state** = 1; takes the effect on air |
| VOARM **vo:state** | Arms the EAS voice over state on the Preset bus for the next Take All command where:<br>• **vo** = 1 is Audio Over<br>• **vo** = 2 is EAS voice over<br>• **state** = 0; off air<br>• **state** = 1; on air |
| VOCUT **vo:state** | Cuts the EAS voice over on Program where:<br>• **vo** = 1 is Audio Over<br>• **vo** = 2 is EAS voice over<br>• **state** = 0; off air<br>• **state** = 1; on air |
| VODUCK **vo:gain** | Sets the voice over duck level where:<br>• **vo** = 1 is the Audio Over duck level<br>• **vo** = 2 is the EAS duck level<br>• **gain** is expressed in 1/10 dB steps; allowable range is -30 to 0 |
| VOGAIN **vo:gain** | Sets the voice over gain level where:<br>• **vo** = 1 is the Audio Over gain level<br>• **vo** = 2 is the EAS gain level<br>• **gain** is expressed in 1/10 dB steps; allowable range is -30 to 10 |
| XPT **bus:shift:xpt** | Hot punches on a specified bus where:<br>• **bus** = 0; Program<br>• **bus** = 1; Preset<br>• **bus** = 2; External 1<br>• **bus** = 3; External 2<br>• **shift** = 0 or 1<br>• **xpt =** is the crosspoint number (zero based) |

# Comtrol® DeviceMaster® Setup

The Comtrol® DeviceMaster® connects to the MC1 over ethernet and provides a number of RS-232/422/485 serial ports. This chapter describes how to set up the MC1 and the DeviceMaster to work together.

## Cabling Requirements

You will need a Comtrol® DeviceMaster® Port Expander, and Ethernet interface cables. Refer to **Table 14** for pin-outs on the Port Expander.

***Table 14 Pinouts on the Port Expander***

| Pin | RS-232 | RS-422 |
|---|---|---|
| 1 | CD | n/c |
| 2 | Rx | RxA (Rx-) |
| 3 | Tx | TxA (Tx-) |
| 4 | DTR | n/c |
| 5 | Ground | n/c |
| 6 | DSR | n/c |
| 7 | RTS | TxB (Tx+) |
| 8 | CTS | RxB (Rx+) |
| 9 | RI | n/c |

## DeviceMaster Setup

This procedure assumes that a DeviceMaster is already installed in your facility. If not, or if you are encountering difficulties configuring your DeviceMaster via a web browser, it is recommended to use the Comtrol® PortVision® software to set up your DeviceMaster. Refer to your DeviceMaster documentation for details on using this software or for troubleshooting your installation.

**To set up a DeviceMaster**

1. On your computer:
   a. Open your web browser
   b. In the address bar, enter the IP address of your DeviceMaster. The default address is 192.168.250.250.
   c. Press **Enter**.
2. Click **Configure Network**.
3. Click **Use static configuration below:** and enter the IP Address, Netmask, and Gateway you want to use.

✶ A static IP Address is recommended for the DeviceMaster to communicate with the MC1

4. Click **Save**.

Changes do not take effect until the DeviceMaster is rebooted.

5. Click **Port *x***, where ***x*** is the port on the DeviceMaster you are connecting a device to.
6. Enter the Serial Configuration information for your device.
7. Enter the TCP Connection Configuration information for your device:
   - **Enable** — selected
   - **Listen** — selected
   - **Port** — Ross Video suggests that you start numbering the ports at 8701.
   - Leave all other settings at their default values.
8. Click **Save**.

   Changes do not take effect until the DeviceMaster is rebooted.
9. Reboot the DeviceMaster.

## MC1 Setup

This section outlines how to configure the MC1 to communicate with the Comtrol® DeviceMaster® via an ethernet protocol. In this section, we use the Presmaster protocol as an example.

**To set up communications**

1. Display the **Configuration** interface for the MC1 as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **Presmaster Control** area of the tab.
4. Select the box in the **Presmaster Control** area.
5. From the **Connection** menu, select **Network Client**.

   The MC1 will function as a service requester that initiates communications with a server on the network
6. Click **Network Setup**.

   The **Network Setup** dialog opens.
7. From the **Packet Type** menu, select **TCP**.
8. Use the **Port** field to specify the port number for the DeviceMaster.
9. Use the **Remote IP** field to specify the IP Address of the DeviceMaster on the network to be used for communications.
10. Close the **Network Setup** dialog.

    The new settings are automatically applied.

# Using the TSL UMD v3.1 Protocol

A third-party router, Multiviewer, or Ultrix router can communicate with the MC1 via the Tally Systems Ltd. Under Monitor Display (TSL UMD) v3.1 protocol over a serial or ethernet connection.

✶ TSL UMD control requires the MC1-MASTERCTRL-LICENSE. Refer to "**Licensed Features**".

## Using a Serial Connection

The external device connects to the MC1 via the **SERIAL** port on the MC1 rear module. Ross Video does not supply this cable.

**For More Information on...**

- the pinouts for the **SERIAL** port, refer to "**Serial Port Specifications**".
- the specific cabling requirements of your external device, refer to the device user guide.

### Configuring the MC1 for Serial TSL UMD Communications

This section outlines how to configure the MC1 to communicate with a device via a serial connection and the TSL UMD v3.1 protocol.

**To configure the MC1 for serial TSL UMD v3.1 communications**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **Tally Protocol Control** area in the tab.


4. Select the box in the **Tally Protocol Control** area.
5. From the **Connection** menu, select **Serial Port**.
6. Click **Serial Port Setup**.

   The **Configure the serial connection** dialog opens.
7. Use the **Port Type** menu to specify transmission standard the external device uses. The default is RS 422.
8. Use the **Bit rate** menu to select the bit rate for the external device connected to the Serial port of the MC1. The default is 115200.
9. Use the **Data Bits** menu to set the number of data bits transmission (character length). The default is 8.
10. Use the **Parity** menu to set the parity type for the external device. The default is None.
11. Use the **Stop Bits** menu to set the number of stop bits transmission. The default is 1.
12. Use the **Flow Control** menu to enable the MC1 notify the serial device when it is experiencing a data overflow and stop sending data (SW) or to allow continuous data flow between the MC1 and the device (None). The default is None.
13. Close the **Configure the serial connection** dialog.

    The new settings are automatically applied.

## Using an Ethernet Connection

Contact your IT Department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP address, subnet mask, and gateway for the MC1 and your external device.

### Cabling Requirements

Use a standard network CAT-5 cable to connect the MC1 to your facility network. Refer to "**Cabling the Ethernet Port on the OGX-FR Frame**" for more information. Ross Video does not supply this cable.

### Configuring the MC1 for Ethernet TSL UMD Communications

This section outlines how to configure the MC1 to communicate with an external device via an ethernet connection and the TSL UMD v3.1 protocol.

**To enable the TSL UMD v3.1 protocol for ethernet communications**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **Tally Protocol Control** area in the tab.
4. Select the box in the **Tally Protocol Control** area.
5. From the **Connection** menu, select **Network Client**.

   The MC1 functions as a service requester that initiates communications with a server on the network.
6. Click **Network Setup**.

   The **Network Setup** dialog opens.
7. Use the **Packet Type** menu to specify the ethernet protocol your external device will use to communicate with the MC1.
8. Ensure the **Port** field is set to **7788**.
9. If you selected **Network Client** in step 5, use the **Remote IP** field to specify the IP Address of the MC1 on the network to be used for RossTalk communications.
10. Close the **Network Setup** dialog.

    The new settings are automatically applied.

## Tally Label Settings

Tally label text is determined by the external device (the source of the tally). Refer to "**Crosspoint Mapping**" for information on router crosspoint mapping and label definition.

## Protocol Implementation

MC1 implements the protocol with the following structure: **`DisplayID|Control|DisplayData`**.

**Table 15** lists the TSL UMD Protocol v3.1 commands the MC1 supports.

***Table 15 TSL UMD Protocol v3.1 Commands***

| Command | Description |
|---|---|
| Display Address | 0 - 126 display identification enumeration |
| **Control Byte** | |
| Bit 0 | Tally 1 status (1=on, 0=off) |
| Bit 1 | Tally 2 status |
| Bit 2 | Tally 3 status |
| Bit 3 | Tally 4 status |
| Bits 4-5 | Brightness value |
| Bit 6 | Reserved |
| Bit 7 | 0 |
| Display Data | 16 ASCII display characters (20h-3Eh) |

# Using the Presmaster Protocol

The MC1 supports a subset of Miranda™ Presmaster Control System automation commands and automation tallies. This chapter outlines how to set up communications with a third-party device using the Presmaster protocol.

**For More Information on…**

- the Miranda™ Presmaster protocol, refer to the ***Miranda Presmaster Automation Protocol Manual***.
- configuring a Comtrol DeviceMaster, refer to "**Comtrol® DeviceMaster® Setup**".
- the location of the **ATMN** button on the **On Air Control** interface, refer to "**Menu System Basics**".

## Configuring an Ethernet Connection for Presmaster

Before you proceed, ensure that the MC1 is connected to your facility network and assigned a valid IP address.

**For More Information on…**

- network cabling requirements, refer to "**Cabling the Ethernet Port on the OGX-FR Frame**".
- assigning an IP address, refer to "**Configuring the Initial Network Settings**".

### Configuring the MC1 for Ethernet Presmaster Communications

This section outlines how to configure the MC1 to communicate with the Presmaster ethernet protocol.

**To enable the Presmaster protocol for ethernet communications**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Select the box in the **Presmaster Control** area.
4. From the **Connection** menu, select one of the following:
   - Network Client — The MC1 functions as a service requester that initiates communications with a server on the network.
   - Network Server — The MC1 functions as a host, or socket listener, on the network. This is the default.
5. Click **Network Setup**.

   The **Network Setup** dialog opens.
6. Use the **Packet Type** menu to specify the ethernet protocol your external device will use to communicate with the MC1. The default is TCP.
7. Use the **Port** field to specify the port that the MC1 will listen on. The default is 9001.
8. If you selected **Network Client** in step 4, use the **Remote IP** field to specify the IP Address of the MC1 on the network to be used for Presmaster communications.

✶ The **Remote IP** field value is ignored when the **Connection** is set to **Network Server**.

9. Close the **Network Setup** dialog.

   The new settings are automatically applied.

# Configuring a Serial Connection for Presmaster

Presmaster commands can be sent to the MC1 via the **SERIAL** port (RS-232/RS-422) on the card's rear module.

✶ Refer to the documentation for your external device for specific cabling requirements.

## Cabling Requirements

Refer to "**Serial Cabling**" for details on connecting a serial device to the MC1 rear module.

## Configuring the MC1 for Serial Presmaster Communications

This section outlines how to configure the MC1 to communicate with the Presmaster serial protocol.

**To enable the Presmaster protocol for serial communications**

1. From the Tree View in DashBoard, expand the node for the MC1 you want to access.
2. Select the **Configuration** node to display the interface in the right-half of DashBoard.
3. Select the **Remote Control** tab.
4. Select the box in the **Presmaster Control** area.
5. From the **Connection** menu, select **Serial Port**.
6. Click **Serial Port Setup**.

   The **Configure the serial connection** dialog opens.
7. Select the electrical standard from the **Port Type** menu. This must match the serial cable type that connects the MC1 to the external serial device.

✶ The Bit Rate, Data Bits, Parity, and Stop Bits values are reset to their default values when a different type is selected.

8. Use **Table 16** to set the required parameters for the Presmaster.

***Table 16 Setup Parameters***

| Parameter | Setting |
|---|---|
| Bit Rate | 38400 |
| Data Bit | 8 |
| Parity | Even |
| Stop Bit | 1 |

9. Use the **Flow Control** menu to enable the MC1 notify the serial device when it is experiencing a data overflow and stop sending data (SW) or to allow continuous data flow between the MC1 and the device (None). The default is None.
10. Close the **Configure the serial connection** dialog.

    The new settings are automatically applied.

# Reserving Crosspoints for Automation Use

Under Automation control with the MC1 **Switch Request** feature set to **Router Crosspoint**, the MC1 will use the first crosspoint with its **Type** set to **Router** that matches the desired crosspoint source. When the desired crosspoint source is not permanently mapped to a crosspoint button, the first available **Router Extra** button will be temporarily mapped to the desired crosspoint source. If

all **Router Extra** buttons are in use, or there are none assigned, the automated switch request will fail.

**To reserve crosspoints for Automation Use**

1. In the **Presmaster Control** area of the **Remote Control** tab, click **Device Setup**.

   The **Device Setup** dialog opens.

2. From the **Automation Switch Request** area, select how a crosspoint switch is defined:
   - **Router Crosspoint** — The received value refers to a physical or virtual router crosspoint. This is the default setting.
   - **Button Number** — The received value refers to a specific MC1 crosspoint button on the DashBoard control panel. Note that these crosspoint buttons are defined in the Crosspoint Map tab.
3. Close the **Presmaster Control** dialog.

   The new settings are automatically applied.

**To assign a crosspoint as an Router Extra source**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Locate the row for the router source you wish to map.
4. Use the **Source Type** menu to select **Router**.
5. Use the **Selection** menu to select **Router Extra**.
6. Use the **Alpha** menu to select **None**.
7. Select the **Update Router Extra Labels** box to enable the crosspoint button label (on the On Air Control interface) to update with the currently selected router source.

## Supported Commands

**Table 17** summarizes the automation commands supported by the MC1.

***Table 17 Supported Commands***

| Command | Code | Supported | Notes |
|---|---|---|---|
| **Simple Commands** | | | |
| SET_TRANS_TYPE | 0x01 | ✓ | • Transition type 00 is a protocol extension used to deactivate BKGD INCL. It does not affect the transition type.<br>• Transition types 01-05 are supported<br>• Transition types 06-19 are used to select the SqueezeBack transition type |
| ENQ_STAT | 0x02 | ✓ | Results in the return of the following tallies: current crosspoint state on the Program and Preset buses, voice over states, and the current transition type.<br>The following tallies are not returned: DSK states, transition rate, auxiliary bus source. |
| SET_TRANS_RATE | 0x03 | ✓ | • Sets the transition rate in frames.<br>• Range is between 1 and 99 inclusive.<br>• Default rate is set to 60 frames.<br>• Upon setting a rate a tally is also sent. |

***Table 17 Supported Commands (Continued)***

| Command | Code | Supported | Notes |
|---|---|---|---|
| SET_DSK1_STATE | 0x06 | | |
| SET_DSK2_STATE | 0x07 | | |
| SET_PRG_VID_SRC | 0x09 | ✓ | Refer to "**Automation Switch Request**". |
| SET_PRG_AUD_SRC | 0x0A | | Audio follows video |
| SET_PRESET_VID_SRC | 0x0B | ✓ | Activates BKGD INCL.<br>Refer to "**Automation Switch Request**". |
| SET_PRESET_AUD_SRC | 0x0C | | Audio follows video |
| SET_AUX_VID_SRC | 0x0D | ✓ | Refer to "**Automation Switch Request**". |
| SET_AUX_AUD_SRC | 0x0E | | Audio follows video |
| TAKE_ALL | 0x0F | ✓ | |
| TAKE_AUDIO | 0x10 | | |
| AO_STATE | 0x13 | | |
| AO_SRC | 0x14 | | |
| SRC_TABLE_SET | 0x1A | | |
| MIXER_POLL | 0x1E | ✓ | Always returns 0xFF 0x1E |
| AO_LEVEL | 0x24 | | |
| PRG_LEVEL | 0x25 | | |
| SRC_CHN_LEVEL | 0x26 | | |
| DSK_CLIP_LEVEL | 0x27 | | |
| DSK_GAIN_LEVEL | 0x28 | | |
| SRC_GAIN | 0x29 | | |
| SET_AUTO_STATE | 0x2B | | |
| START_AUDIO_LEAD | 0x2C | | Audio leading fixed at 1 frame |
| ABORT_AUDIO_LEAD | 0x2E | | |
| START_AUDIO_LAG | 0x2F | | |
| ABORT_AUDIO_LAG | 0x31 | | |
| DSK1_SETTING | 0x32 | | |
| DSK2_SETTING | 0x33 | | |

*Table 17 Supported Commands (Continued)*

| Command | Code | Supported | Notes |
|---|---|---|---|
| SET_AUDIO_MODE | 0x34 | ✓ | • Supports 4 pairs, plus mute and phase inversion<br>• Select from any of the 8 possible input pairs (and of the 16 embedded channels)<br>• Mute bits apply to both channels of an audio pair<br>• Phase Reverse bits apply to the second channel of the pair only<br>• Crosspoint selection applies to either a crosspoint number or to a router input, as defined by the Automation Switch Request. Refer to "**Automation Switch Request**".<br>› When using a router input, the Audio Mode applies to all crosspoints mapped to the specified router input.<br>› When the specified router input is not mapped to any crosspoint, the command is ignored.<br>• Takes effect the next time the specified crosspoint is selected on a TAKE or hot-punch transition. |
| SET_AO_RATE | 0x38 | | |
| SET_U_FADE_TIMES | 0x3C | | |
| **Extended Commands** | | | |
| IS2_TUNNEL | 0x0001 | | |
| TAKE_VIDEO | 0x0010 | | Video and audio are switched together. |
| DSK_ARM | 0x0006 | ✓ | |
| DSK_STATE | 0x0007 | ✓ | • Enables you to activate/deactivate a specified key using a fade or a cut transition on the Program bus.<br>• The transition rate used will always be determined by the automation rate, as specified by the Simple Command 0x03. |
| LOAD_PREV_IMG | 0x0032 | | |
| LOAD_IMG | 0x0033 | ✓ | Load file into specified DSK. DSK 0 to 1 load specified file into DDR for Logo 1 to 2 respectively. DSK 127 (7Fh) pre-loads file into the DDR only for fast recall into usable Logo 1 to 2, when needed.<br>✶ Ensure the **FILENAME** contains the directory name and the file name. While the **FILENAME** does not need to be complete, it still requires enough characters to uniquely identify the file in the directory.<br>A tally is sent regardless of the outcome. The expected tally is now returned if the file is already loaded. On a failure to load a file, a tally is returned with a zero-length filename. |
| VO_ARM | 0x0013 | | |
| VO_STATE | 0x0014 | | |
| VO_PRESET | 0x0024 | | |
| VO_DUCK | 0x0025 | | |
| ENQ_DSK_IMG | 0x0034 | ✓ | Inquire DSK image exists; causes return of four tallies (one for each logo).<br>Includes a tally for DSK 127. |
| VO_RATE | 0x0038 | | |

*Table 17 Supported Commands (Continued)*

| Command | Code | Supported | Notes |
|---|---|---|---|
| VO_SHUFFLE | 0x0026 | | |
| VGPI_ARM | 0x0130 | ✓ | • Supports a maximum of sixteen VGPIs (VGPI 0 to VGPI 17)<br>• This command will be ignored when the specified SqueezeBack Preset is on Program<br>• When in Arm Up state, the command includes the specified SqueezeBack Preset in the transition (the **SQUEEZE** button is lit on the On Air Control interface)<br>• When in Arm down/Disarm state, the command excludes the specified SqueezeBack Preset in the transition (the **SQUEEZE** button is unlit on the On Air Control interface) |
| VGPI_STATE | 0x0140 | ✓ | • When no SqueezeBack Preset is on Program and this command is in the Up state, selects the effect type of VGPI and transitions the selected effect on Program.<br>• When a SqueezeBack Preset is on Program and this command is in the Down state, the VGPI which has the same effect as the current one will be handled and the current effect will be off air or on Preview.<br>• In other cases, the command will be ignored. |
| SET_PCS_CHN | 0x0040 | | |
| GET_PCS_CHN | 0x0041 | | |
| AUTO_TALLY_ENA | 0x0042 | ✓ | • Enables the periodic sending of the automation status tally (0842) every # seconds (the rate is set by command).<br>• Reports to the automation system the current state of the ATMN button |
| SET_PAN_SHOTBOX | 0x0043 | | |
| GET_PAN_SHOTBOX | 0x0044 | | |
| CHECK_MEDIA | 0x0047 | | |
| DISCONN_PAN | 0x0048 | | |

## Supported Presmaster Tallies

**Table 18** summarizes the automation tallies supported by the MC1.

*Table 18 Supported Presmaster Tallies*

| Name | Tally ID | Supported | Notes | Included in ENQ_STAT (0x02) |
|---|---|---|---|---|
| Program Video Source | 49 | ✓ | Refer to "**Automation Switch Request**" | ✓ |
| Program Audio Source | 4A | ✓ | **Audio** follows video | ✓ |
| Preset Video Source | 4B | ✓ | Refer to "**Automation Switch Request**" | ✓ |
| Preset Audio Source | 4C | ✓ | Audio follows video | ✓ |
| Aux Video Source | 4D | ✓ | Refer to "**Automation Switch Request**" | ✓ |
| Aux Audio Source | 4E | | Audio follows video | |
| Take Complete | 4F | ✓ | | |
| Take Audio | 50 | | | |

***Table 18 Supported Presmaster Tallies (Continued)***

| Name | Tally ID | Supported | Notes | Included in ENQ_STAT (0x02) |
|---|---|---|---|---|
| V/O State | 53 | ✓ | Sent on change in voice over state | ✓ |
| U-Fade Rate | 7C | | | |
| Transition Type | 41 | ✓ | | ✓ |
| Transition Rate | 43 | ✓ | | ✓ |
| Mixer Poll | 5E | ✓ | Always returns 0xFF, 0x5E | |
| Source Audio Parameters | 6E | | | |
| DSK Clip Value | 67 | | | |
| DSK Gain | 68 | | | |
| DSK State | Ext 0x0806 | | | |
| VO Arm State | Ext 0x0813 | | | |
| VO Parameters | Ext 0x0826 | | | |
| Image Load State | Ext 0x0833 | ✓ | Sent whenever a new image file has loaded, via automation or otherwise. Reports DSK 0 to 1 when loaded file into DDR for Logo 1 to 2, respectively. Reports DSK 127 (7Fh) when file is pre-loaded into DDR only (this can only originate via automation). | |
| DSK Image Existence | Ext 0x0834 | ✓ | Response to the "ENQ_DSK_IMG" command. Includes DSK 0 to 1, Logo 1 to 2 respectively, a flag byte set if specified file is loaded on the corresponding logo and the filename. | |
| Current VGPI State | Ext 0x0940 | | | |
| Set Panel to Channel on PCS | Ext 0x0840 | | | |
| Get Which Channel a Panel is connected to | Ext 0x0841 | | | |
| Automation Control Status | Ext 0x0842 | ✓ | | |
| Current Shot Box Selected on Panel | Ext 0x0843 | | | |
| Tally Sent when a Panel Acquires a Channel | Ext 0x0845 | | | |
| Tally Sent when a Panel Drops a Channel | Ext 0x0846 | | | |
| Tally Sent Back from Intuition to Show which Files, if any, are Missing in a Template | Ext 0x0847 | | | |
| Automation Assist Command | Ext 0x0928 | | | |

## Automation Switch Request

The Automation Switch Request feature uses Simple Commands 0x09, 0x0B, and 0x0D and is applicable when operating with an Automation system. This feature defines the crosspoint switch as a router crosspoint number or as an MC1 button map number.

In order to access button 20, an extended message must be provided as specified in the Presmaster protocol specification. For example, `FF 09 7F 00 14` would be sent for the Program bus.

# Using the APC Protocol

This chapter outlines how to setup MC1 communications with a third-party device via the APC protocol.

**For More Information on...**

- the APC protocol, refer to the documentation that came with your device.

## Configuring an Ethernet Connection for APC

Before you proceed, ensure that the MC1 is connected to your facility network and assigned a valid IP Address.

**For More Information on...**

- network cabling requirements, refer to "**Cabling the Ethernet Port on the OGX-FR Frame**".
- assigning an IP Address, refer to "**Configuring the Initial Network Settings**".

### Configuring the MC1 for Ethernet APC Communications

This section outlines how to configure the MC1 to communicate with the APC Ethernet protocol.

**To enable the APC protocol for ethernet communications**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Select the box in the **APC Control** area.
4. From the **Connection** menu, select one of the following:
   - Network Client — The MC1 functions as a service requester that initiates communications with a server on the network.
   - Network Server — The MC1 functions as a host, or socket listener, on the network. This is the default.
5. Click **Network Setup**.

   The **Network Setup** dialog opens.
6. Use the **Packet Type** menu to specify the Ethernet protocol your external device will use to communicate with the MC1. The default is TCP.
7. Use the **Port** field to specify the port that the MC1 will listen on. The default is 9003.
8. If you selected **Network Client** in step 4, use the **Remote IP** field to specify the IP Address of the MC1 on the network to be used for APC communications.

✶ The **Remote IP** field value is ignored when the **Connection** is set to **Network Server**.

9. Use the **Timeout (sec)** field to specify the number of seconds the MC1 will wait after a loss of APC connection before reporting an error.
10. Select the **Monitor Connection** box to enable the monitoring of the APC connection; the status indicator in the top right corner of the RossTalk area will report the advanced settings enabled for monitoring.
11. Use the **Idle Time** field to specify the number of seconds to wait before the status indicator reports an error when the MC1 does not detect active communication on the APC connection.

12. Use the **Retries** field to specify the number of attempts the MC1 will make to re-establish the APC connection.
13. Close the **Network Setup** dialog.

    The new settings are automatically applied.

# Configuring a Serial Connection for APC

APC commands can be sent to the MC1 via the **SERIAL** port (RS-422) on the card's rear module.

✶ Refer to the documentation for your external device for specific cabling requirements.

## Cabling Requirements

Refer to "**Serial Cabling**" for details on connecting an RS-422 serial device to the MC1 rear module.

## Configuring the MC1 for Serial APC Communications

This section outlines how to configure the MC1 to communicate with the APC Serial protocol.

**To enable the APC protocol for Serial communications**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Select the box in the **APC Control** area.
4. From the **Connection** menu, select **Serial Port**.
5. Click **Serial Port Setup**.

   The **Configure the serial connection** dialog opens.
6. Set the **Port Type** to **RS-422**. This must match the serial cable type that connects the MC1 to the external serial device.

✶ The Bit Rate, Data Bits, Parity, and Stop Bits values are reset to their default values when a different type is selected.

7. Use **Table 19** to set the required parameters for the APC.

***Table 19 Setup Parameters***

| Parameter | Setting |
|---|---|
| Bit Rate | 38400 |
| Data Bit | 8 |
| Parity | Odd |
| Stop Bit | 1 |

8. Use the **Flow Control** menu to enable the MC1 notify the serial device when it is experiencing a data overflow and stop sending data (SW) or to allow continuous data flow between the MC1 and the device (None). The default is None.
9. Close the **Configure the serial connection** dialog.

   The new settings are automatically applied.

## Reserving Crosspoints for Automation Use

Under Automation control with the MC1 **Switch Request** feature set to **Router Crosspoint**, the MC1 will use the first crosspoint with its **Type** set to **Router** that matches the desired crosspoint source. When the desired crosspoint source is not permanently mapped to a crosspoint button, the first available **Router Extra** button will be temporarily mapped to the desired crosspoint source. If all **Router Extra** buttons are in use, or there are none assigned, the automated switch request will fail.

**To reserve crosspoints for Automation Use**

1. In the **APC Control** area of the **Remote Control** tab, click **Device Setup**.

   The **APC Control** dialog opens.

2. From the **Switch Request** area, select how a crosspoint switch is defined:
   - Router Crosspoint — The received value refers to a physical or virtual router crosspoint. This is the default setting.
   - Button Number — The received value refers to a specific MC1 crosspoint button on the DashBoard control panel. Note that these crosspoint buttons are defined in the Crosspoint Map tab.

3. Close the **APC Control** dialog.

   The new settings are automatically applied.

**To assign a crosspoint as an Router Extra source**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Locate the row for the router source you wish to map.
4. Use the **Source Type** menu to select **Router**.
5. Use the **Selection** menu to select **Router Extra**.
6. Use the **Alpha** menu to select **None**.
7. Select the **Update Router Extra Labels** box to enable the crosspoint button label (on the On Air Control interface) to update with the currently selected router source.

## Supported Commands

**Table 20** lists the APC commands the MC1 supports.

***Table 20 APC Commands***

| Command | Description |
|---|---|
| CHANGE | Reports when a status change occurs in the device |
| DSK | Loads the Key via the specified transition type at a specified transition rate |
| ERROR | Reports when a communication error occurs on the device |
| OVER | Controls the audio over on either program or preset bus.<br>• The first channel is audio over as on the on-air display.<br>• The second channel controls the EAS audio over channel. |
| PGM | Loads the Program source to the indicated channel |
| PST | Loads the Preset audio/video channel via the specified transition type at a specified transition rate |

***Table 20 APC Commands (Continued)***

| Command | Description |
|---|---|
| STATUS | Requests the On Air status of the keys, PST, and PGM |
| TAKE | Performs a transition/Take via preset |

# Setting up an EAS with MC1

This chapter outlines how to set up communications between an EAS decoder and the MC1 via the SAGE EAS protocol.

✶ EAS communication requires an MC1-MASTERCTRL-LICENSE. Refer to "**Licensed Features**".

## Cabling Requirements

Before you begin, confirm how your EAS device will communicate with the MC1:

- via the Comtrol® DeviceMaster® over ethernet, or
- via a serial connection

✶ Set up with an EAS requires an R3B-GATOR (8322AR-318D) or R3A-GATOR (8322AR-319C) rear module.

**For More Information on...**

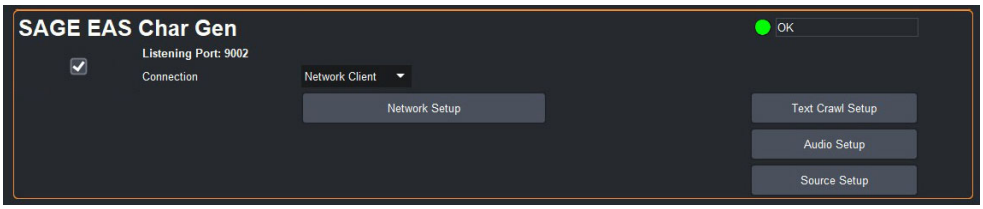
- configuring a Comtrol DeviceMaster, refer to "**Comtrol® DeviceMaster® Setup**".
- the MC1 rear modules, refer to "**MC1-UHD Cabling Overview**".

## MC1 Setup

This section outlines how to configure the MC1 to communicate via the SAGE EAS ethernet protocol.

**To set up ethernet communications via the SAGE EAS protocol**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Select the box in the **SAGE EAS Char Gen** area.




4. From the **Connection** menu, select **Network Client**.

   The MC1 functions as a service requester that initiates communications with a server on the network.

5. Click **Network Setup**.

   The **Network Setup** dialog opens.

6. Use the **Packet Type** menu to specify **TCP**.
7. Ensure the **Port** field is set to **7788**.
8. Use the **Remote IP** field to specify the IP Address of the EAS device.
9. Close the **Network Setup** dialog.

   The new settings are automatically applied.

10. From the **Port** menu, specify the port number that is connected to the EAS device.

11. Select the **Enabled** box.

    The **Text Crawl** sub-tab now displays in the **On Air Control** > **Logos** tab of DashBoard. This tab will be used to configure the text overlay as described in "**Customizing the EAS Text Overlay**".

12. Confirm that the EAS device reports a valid connection.

## Customizing the EAS Text Overlay

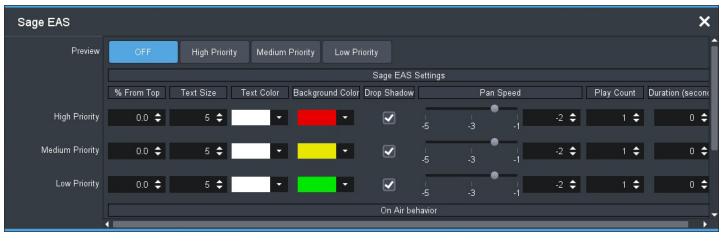
The MC1 provides an overlay engine that is capable of displaying an EAS horizontal text crawl in real time. EAS messages are grouped into categories as determined by the EAS device you are using. The MC1 provides options for customizing the appearance of each message category such as font size and color, background color, and pan speed.

✶ The overlay is automatically loaded into a dedicated Logo channel.

**To customize the EAS text overlay**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **SAGE EAS Char Gen** area of the tab.
4. Click **Text Crawl Setup**.

   The **SAGE EAS** dialog opens.



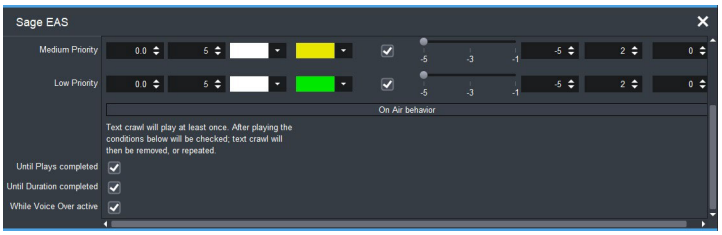

5. Use the **% From Top** slider to adjust the vertical position of the EAS text overlay. Note that this setting is not applicable to the Emergency Alert (High Priority) categories as these messages are fixed to the top of the screen.
6. Use the **Text Size** slider to adjust the font size of the text overlay from smallest (1) to largest (10). Note that actual text size is dependent on the video format.
7. Select a text color and/or background color for the text overlay using the provided fields. The **EAS Text Attributes** field reports an error when the text color and the background color match.

✶ When using very long EAS messages, the MC1 may use a smaller font size and/or may disable transparency. The exact length depends on the characters used in the message (widths of each font character).

8. To apply a drop shadow to the text overlay, select the **Drop Shadow** box.
9. Use the **Pan Speed** slider to specify the speed of the EAS text crawl across the screen.
10. Use the **Play Count** field to specify the number of times to display the entire text crawl before taking it off air.
11. Use the **Duration** field to specify the number of seconds the EAS text crawl will display before it is taken off air.
12. Repeat 5 to 11 for each message category you want to configure.
13. Close the **SAGE EAS** dialog.

**To specify the On Air behavior of the EAS text crawl**

1. Display the **SAGE EAS** dialog as outlined in steps 1 to 4 in the above procedure.
2. Locate the **On Air Behavior** area of the dialog. You may need to scroll down to locate this area.




3. Select the **Until Plays Completed** box to enable the EAS text crawl to continue to play until the number of plays equals the value specified in the **Play Count** menu of the **SAGE EAS** dialog.
4. Select the **Until Duration Completed** box to enable the EAS text crawl to continue to play until the value in the **Duration** menu is reached.
5. Select the **While Voice Over Active** box to enable the EAS text crawl to continue to play only while the EAS Voice Over source is playing.
6. Close the **SAGE EAS** dialog.

# EAS Voice Over

The MC1 enables flexible audio/voice over mixing with a variable program audio level, audio over gain control, and preset mixing with transition control.When EAS is active, all channels are mixed. If the source may contain more audio channels that you want mixed, ensure to use the Mute setting for those channels.

When setting up the gain and duck levels, note that audio sources are layered with the EAS positioned downstream from the Voice Over channel. For example, applying a duck level when EAS is active, also applies that value to the Voice Over channel (if active) and the other incoming audio sources. That means when both Voice Over and EAS audio are in effect, it is possible to duck the incoming audio twice.

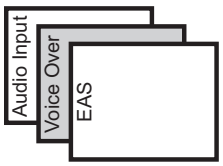



*Figure 33 Simplified Audio Layering*

## Configuring the Audio Source for EAS

This section outlines how to configure the embedded audio sources for the EAS audio transitions.

**To set up an EAS source**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **SAGE EAS Char Gen** area of the tab.
4. Click **Source Setup**.

   The **Voice Over** dialog opens.


5. Use the **Embedded SDI Source** options to specify the SDI source for the EAS.
6. From the **Voice Over** area, select the audio source to include in the output. Choose from the following:

✶ Silence is embedded if the selected source is not present on the input video.

- None — no channels are assigned for the EAS voice over.
- Clear All — assigns all channels (1-16) to None.
- Clear Group — assigns the four sources in the same group to None.
- Clear Pair — assigns the two sources in the same pair to None.
- AES — assigns all 16 sources to consecutive AES sources.
- AES # > Ch # — assigns the specified AES channel in the selected EAS channel.
- Embedded — assigns all 16 sources to the corresponding SDI inputs.
- Embedded > SDI G#C# — assigns the specified embedded audio group and channel pair in the selected EAS channel.
- Test Tone — sets the group (4 sources) to all consecutive test tones.
- Test Tone > # — sets the selected test tone to the specified EAS channel.

7. Close the **Voice Over** dialog.

## Setting the EAS Duck and Gain Levels

When EAS is active, all audio channels on the Program shall be adjusted by a value specified on the Remote Control > SAGE EAS Char Gen > Voice Over Audio Setup dialog. The default is to reduce the gain by 10dB.

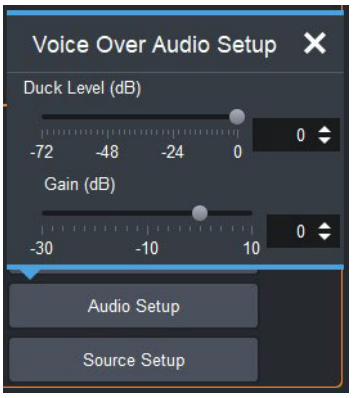
When using a Sage Digital ENDEC EAS, the MC1 reacts to the Sage Push To Talk (PTT) relay closure to activate audio voice over. While the PTT relay is closed, the MC1 applies the EAS Duck Level specified via the Audio Setup dialog to the incoming Program audio and performs a cut transition by mixing the incoming audio from the channel at a specified level.

✶ If both Voice Over and EAS audio are in effect, the incoming audio is ducked twice.

**To set the EAS duck level**

1. Ensure that you have configured a port on the MC1 rear module for the EAS protocol you are using.
2. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
3. Select the **Remote Control** tab.
4. Locate the **SAGE EAS Char Gen** area of the tab.
5. Click **Audio Setup**.

   The **Voice Over Audio Setup** dialog opens.




6. Use **Duck Level** slider to specify the amount (dB) to reduce the audio level on the Program bus during an EAS alert.
7. Use the **Gain** slider to apply a gain (in dB) to the Voice Over (EAS) channel.

## Enabling EAS Voice Over on an Output

This section outlines how to enable EAS voice over on any MC1 output. You can also have multiple instances of the same output with and without EAS voice over.

**To enable EAS voice over on an output**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Output Selection** tab.
3. Locate the **Voice Over Enable** area.
4. In the **EAS** column, select the box for each SDI output you wish to enable EAS voice over for.

   In the following example, the user enabled EAS for Outputs 1 and 3.

## EAS Status

The On Air Control > Home > EAS Status field reports if the connected EAS device is providing content to the text overlay of the MC1. This field is located at the bottom of the Home tab. (**Figure 34**)

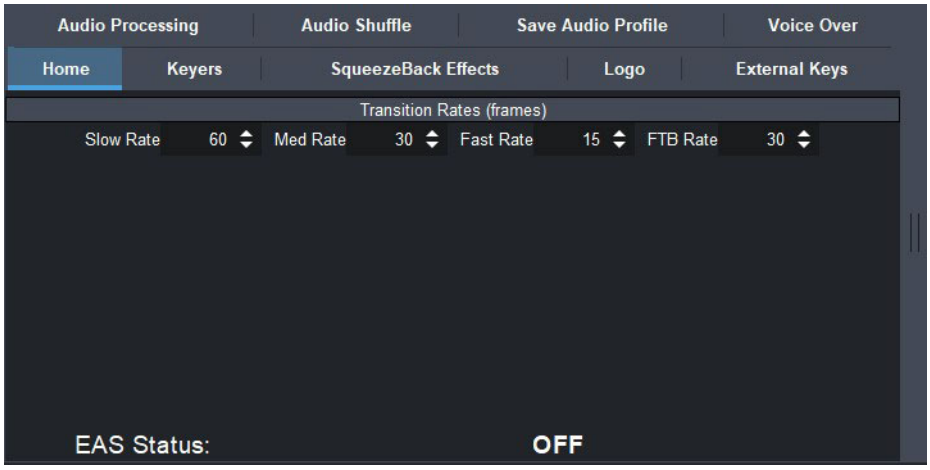



*Figure 34 Example of a Home Tab with EAS Status Field*

When the EAS Status field reports **OFF**, the MC1 text overlay does not include EAS content.

When the EAS Status field reports **ON**, followed by color-coded text, an installed EAS is provides content to the MC1 text overlay. This text also displays in this area when the EAS is active.

# On Air Control Overview

This chapter provides a basic introduction to the MC1, including an overview of the different areas of the On Air Control interface, using the menu system, as well as a brief summary of how video is controlled by the MC1.

## Menu System Basics

The **On Air Control** interface enables you to set up and perform transitions, configure keyers, monitor and control audio levels. (**Figure 35**) This section provides a brief overview of this interface.

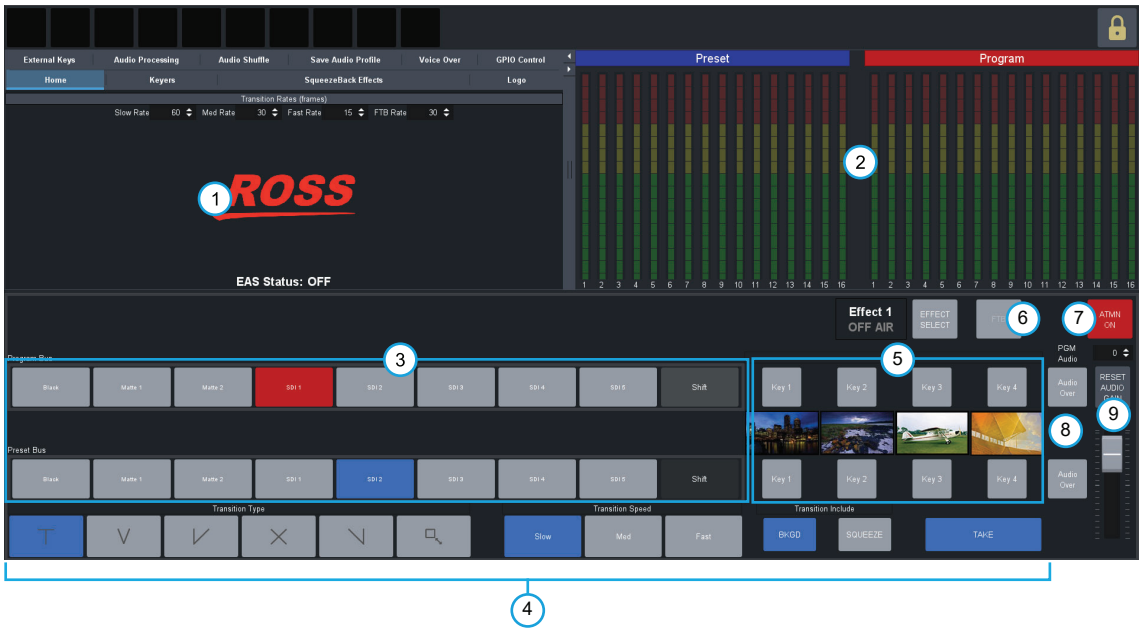



*Figure 35 MC1 — On Air Control Interface*

| | | |
|---|---|---|
| 1) Setup Tabs | 4) Transition Area | 7) Automation Button |
| 2) Audio Meters | 5) Keyer Area | 8) Audio Over Buttons |
| 3) Crosspoint Buses | 6) FTB Button | 9) Program Audio Area |

### 1. Setup Tabs

The tabs located near the top left of the interface provide options for configuring the keyers, on-air controls, and selecting logo channel sources. Refer to "**DashBoard Interface Overview**" for a list of the available tabs and parameters.

### 2. Audio Meters

This area displays Preset and Program audio peak level measurements for your audio channels. Measurement units are in dBFS (decibel full scale) where 0dBFS is the maximum digital value. Each audio meter displays audio level information as illustrated in **Figure 36**.

✶ The audio meters will not report any audio when the MC1 no outputs are assigned to Preview. Refer to "**To configure your video outputs**".

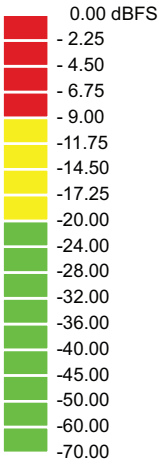



*Figure 36 Illustrative Example of Audio Level Information*

**3. Crosspoint Buses**

This area is used to select the video sources for each bus. Each crosspoint button will display the name of its source on the button face. The default bus mapping is outlined in "**Default Crosspoint Mapping**". The following buses are available:

› **Program Bus** — The Program Bus is used to select the video source that will show as the Background on the Program output. After performing a factory default reset, the **BLACK** button is selected on this bus.

› **Preset Bus** — The Preset Bus is used to select the video source that is visible on the Preview output. After performing a factory default reset, the **BLACK** button is selected on this bus.

**4. Transition Area**

This area provides the options for selecting transition rates (slow, medium, fast), and type (take, fade-fade, take-fade, mix, fade-take). Refer to "**Transitions**" for details.

**5. Keyer Area**

This area includes the four keyers of the MC1 and allows you to perform the key transitions. Refer to "**Keying**" for details.

**6. FTB Button**

Use this button to fade the Program bus to black. The Fade to Black (FTB) rate is specified in the **Home** tab. After performing a factory default reset, this button is toggled off (unlit).

**7. Automation Button**

Toggling this button on (button will be lit) allows an Automation System to control the MC1. After performing a factory default reset, this button is toggled on (lit).

**8. Audio Over Buttons**

An **AUDIO OVER** button is included on each bus. Selecting the button in the PST bus includes the voice over channel in the next transition. You can also hot-punch the **AUDIO OVER** button in the Program bus.

**9. Program Audio Area**

This area includes an audio fader that enables you to control the Program audio gain. The slider is set by default to 0 and has a range of -72 to +20dB. Use the **Default** button to reset the audio gain.

# Switcher Basics

This section gives an overview of how video is controlled by the MC1. This includes video sources, video layering, and preview. For information on setting up crosspoints, refer to "**Mapping the Program and Preset Crosspoints**".

## Video Sources

The MC1 has access to two basic types of video sources: external and internal. All video sources can be assigned to video source (crosspoint) buttons. By pressing a crosspoint button on a bus, the video source assigned to that button is selected.

- **External** — video sources that come from SDI inputs on the rear module.
- **Internal** — video sources that come from internally generated video, such as any of the two internally generated Logo channels, or an internally generated black, or one of the matte generators.

To select a video source on a bus, you must identify the bus you want to assign a video source to and then press the crosspoint button you want to select on that bus.

## Video Layering

Key layering is fixed for the MC1 and starts with Background and proceeds to Keyer 4.

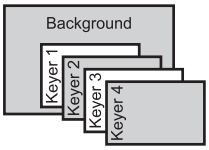



*Figure 37 Simplified Video Layering*

## Video Preview

Video preview allows you to use an additional monitor to preview what the next shot is going to be. The Preset bus of MC1 shows what is selected for the next transition. This includes the keys and background video sources that will be on-air after the next transition.

## DVE Transitions

The MC1 can be used to perform on-air 2D DVE (SqueezeBack) transitions to reveal another video source or graphic. You can also transition to pre-squeezed effects with standard transitions, squeeze in any direction on either X or Y axis, or both. Refer to "**SqueezeBack Effects**" for more information.

✶ DVE transitions require the MC1-DVE-1CH-LICENSE. Refer to "**Licensed Features**".

# Displaying the On Air Control Interface

You can choose whether to display the entire On Air Control interface at full-screen mode on a DashBoard client computer.

**To set the MC1 On Air Control interface to full-screen**

- Press **Shift**+**F11** to display the interface in full-screen mode; or
- Select **Window** > **Full Screen** from the DashBoard toolbar.

✶ To exit out of full-screen mode, press **Shift**+**F11** again.

# Channel Select Buttons

This chapter outlines how to assign a MC1 card to a Channel Select button, and update the icons for an MC1 button for ease of identification.

## Overview

When using multiple MC1 cards, it may be desirable to control any MC1 from a DashBoard console. To facilitate switching between multiple MC1 cards, a row of dedicated Channel Select buttons is provided in the upper left corner of the On Air Control interface (**Figure 38**). You can change the icons displayed in the Channel Select Buttons, the Basic Tree View node, and the Home tab by updating the corresponding graphic files stored on the MC1 card.

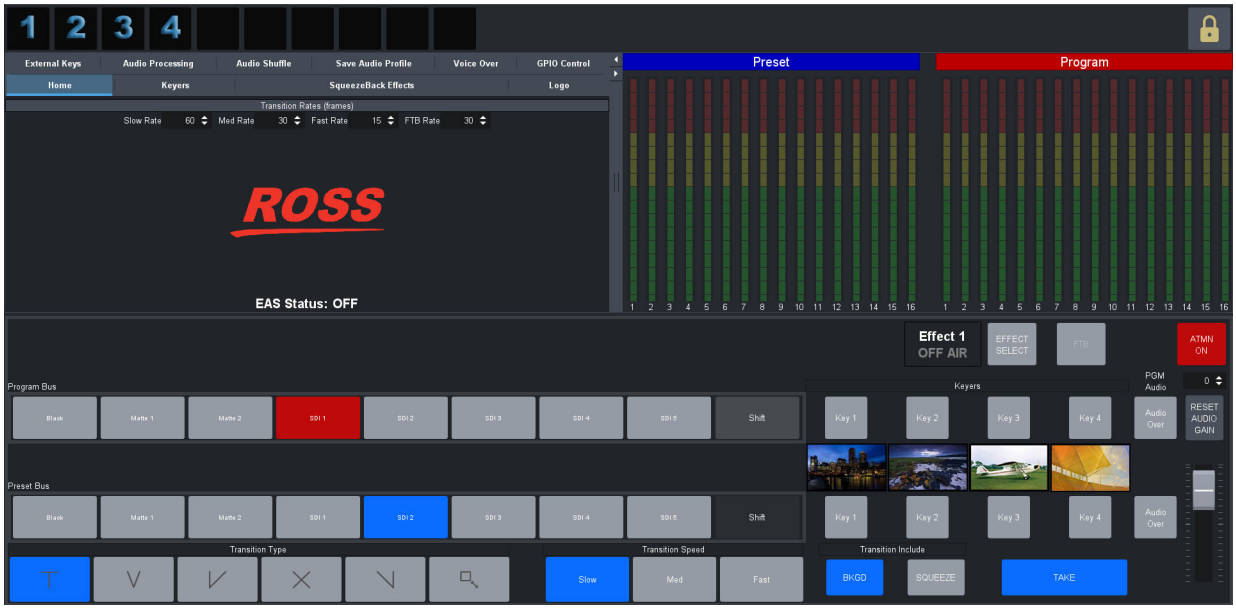



*Figure 38 Example of the Channel Select Row of the On Air Control Interface*

## Before You Begin

Keep the following in mind when using multiple MC1[1] cards:

- The Channel Select buttons must be setup on each MC1 card.
- When setting up the Channel Select buttons, it is important that the sequence of devices be consistent. Otherwise the buttons will appear to "move around" when toggling between interfaces. This cannot be enforced automatically, the user must be careful when setting up the buttons.
- If the IP address of any MC1 cards changes, then the Channel Select buttons will not work correctly. Specifically, the red background color that indicates the currently active device will not be correct. It is highly recommended to use static IP addresses to avoid this problem.

✶ If either of these problems occur, they can be fixed by repeating the procedure "**Configuring the Channel Select Buttons**".

1. This also applies when a setup includes MC1-MK cards.

## Updating the Icons

It is intended for users to update the icon graphics for each MC1 with their own versions, particularly if they have more than one MC1. For example, you may wish to identify each MC1 by using a specific station logo. This section summaries the graphic files used by a card.

Prior to configuring the Channel Select buttons, each MC1 should be given a custom set of icon (station logo) graphics as described in this section. Channel Select buttons will operate with the default logos, but it may be confusing to the operator.

### Graphic Files

The graphic files are stored on the Micro SD card of the MC1 in the Media/Logos directory on the card. Note that the underlying file system (ext3) is case-sensitive, and that both the directory and the filenames are lower-case. Inside the media directory there are three files containing icons (station logos) in various sizes. (**Table 21**)

✶ When replacing the content of these files, ensure that the filename and image dimensions remain the same. For best results, also ensure that these images have a transparent background.

***Table 21 Image Files for Multi-Channel Setups***

| Filename | Image Dimensions | Used for... |
|---|---|---|
| station_logo_icon.png | 16 x 16 pixels | Basic Tree View node icon |
| station_logo_small.png | 50 x 50 pixels | Channel Select button icon |
| station_logo_large.png | 450 x 250 pixels | On Air Controls, Home tab icons |

### Managing the Graphic Files

Use an FTP client to connect to the MC1 and replace the graphic files stored on the card. This is exactly the same procedure as is used to load other graphics files to logo channels on the MC1. Refer to "**Connection using FTP**" for details.

Once new files are transferred to the MC1 via FTP, they will immediately be used. However, DashBoard software caches the images and may not display the new icons right away. Refreshing the card (click the **Refresh** button), or restarting DashBoard, generally fixes this problem.

## Configuring the Channel Select Buttons

The Channel Select buttons are located in the upper left corner of each card's On Air Control interface. (**Figure 39**) Until these are configured by the user, they appear as empty buttons. Clicking the empty buttons has no effect. You can specify the number of Channel Select buttons, to a maximum of 10, that display in the interface.

These buttons allow you to toggle between the On Air Control interfaces of multiple MC1 Master Control Switchers. Selecting a button displays the corresponding MC1 **On Air Control** interface in DashBoard. A lit button indicates that the corresponding On Air Control interface is the currently active card in DashBoard.

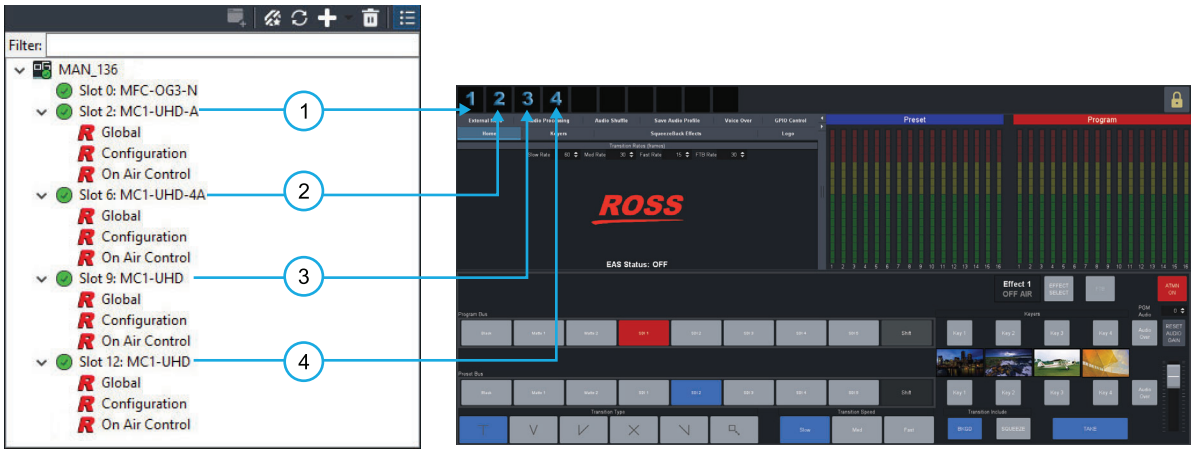



*Figure 39 Example of Mapping the Channel Select Buttons*

✶ It is highly recommended to consistently assign MC1 cards to the Channel Select buttons. For example, assigning the same MC1 to the first Channel Select button on all interfaces ensures that clicking the first Channel Select button displays the same MC1.

**To specify the number of Channel Select buttons**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Crosspoint Map** tab.
3. Specify the number of buttons to display in the On Air Control interface of that MC1 by typing the number into the **Number of Channel Select Buttons** field.

✶ You may need to scroll down the tab to locate this field.

4. Repeat steps 1-4 for each MC1 you wish to configure.

**To configure the first MC1**

1. Display the **On Air Control** interface of the first MC1 as outlined in "**To display the On Air Control interface in DashBoard**".
2. Return to the **Tree View**.
3. Assign the first MC1 to the first Channel Select button as follows:
   a. Select the **On Air Control** node and keep the mouse button pressed.
   b. Drag the node over the first Channel Select button. Notice the mouse pointer changes shape when over the target button.
   c. Release the mouse button. The Channel Select button updates to show the appropriate logo for the first MC1.
4. Repeat step 3 for the second MC1, but ensuring to assign the second MC1 to the second Channel Select button.
5. Assign each additional MC1 to a button in **On Air Control** node of the first MC1.

**To set up additional MC1**

1. Display the **On Air Control** interface of the next MC1 as outlined in "**To display the On Air Control interface in DashBoard**".
2. Return to the **Tree View**.
3. Drag the On Air Control node of the first MC1 to the first Channel Select button on the next MC1 On Air Control interface.

4. Drag the On Air Control node of the second MC1 to the second Channel Select button on the next MC1.
5. Repeat for each additional MC1 to add the buttons to the On Air Control interface for each MC1.

# Audio

This chapter provides instructions for configuring the audio features of the MC1 using the options available in DashBoard. This includes how to map the audio channels, adjust the gain, and specifying the Voice Over source.

## Audio Overview

The MC1 provides the ability to independently configure the audio channel map and gain of each input (up to 16) that can be selected on the crosspoint bus, and to adjust the gain, or mute, individually, each of the 16 embedded channels. The audio processing and shuffle settings are retained on a per crosspoint basis. In addition, audio settings can be saved to one of four audio profiles that can be applied to any crosspoint during a **TAKE** transition.

### Workflow

**Figure 40** provides a simplified workflow diagram of the audio processing.

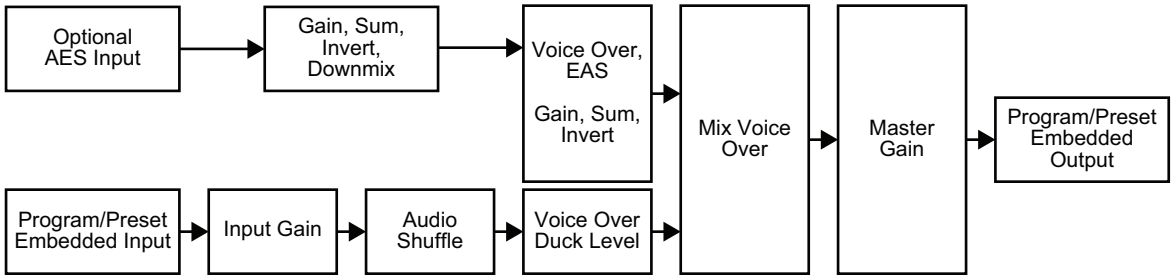



*Figure 40 Audio Processing Workflow*

**For More Information on...**

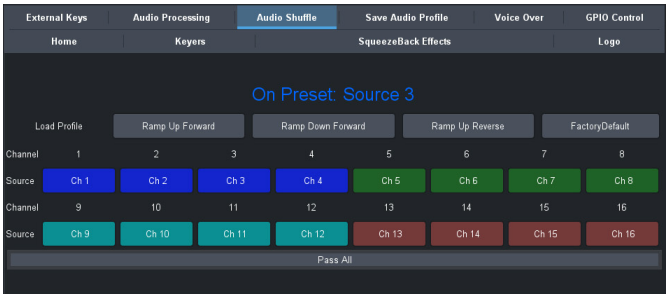
- automation protocol support for audio, refer to the chapter in this guide for the protocol you are using.

## Identifying the Audio Groups

The MC1 also provides the ability to change the color scheme of the audio group buttons in the On Air Control interface. This allows you to assign a unique color to each group, allowing you to quickly identify the groups on the interface.

**To map the audio channels**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Select the **Audio Shuffle** tab.



3. To change the audio profile, select the required button from the **Load Profile** area.
4. Locate the channel you wish to map.
5. Click the associated **Source** button.

   The **Select source** dialog opens.
6. Select the source you wish to map to the selected channel.
7. Close the dialog.
8. Repeat steps 4 to 7 for each channel.

## Setting the Master Audio Level

The master audio level can be adjusted manually using the **Audio Gain** slider. This slider applies a gain (in dB), to the audio that is included with the output.

**To set the Master Audio level**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Specify the audio gain value using the **Audio Gain** slider.

✶ The numerical gain value may also be entered directly in the field above the **Reset Audio Gain** button.


3. You can select the **Reset Audio Gain** button to set the audio gain to 0dB. This resets the gain preset back to 1:1.

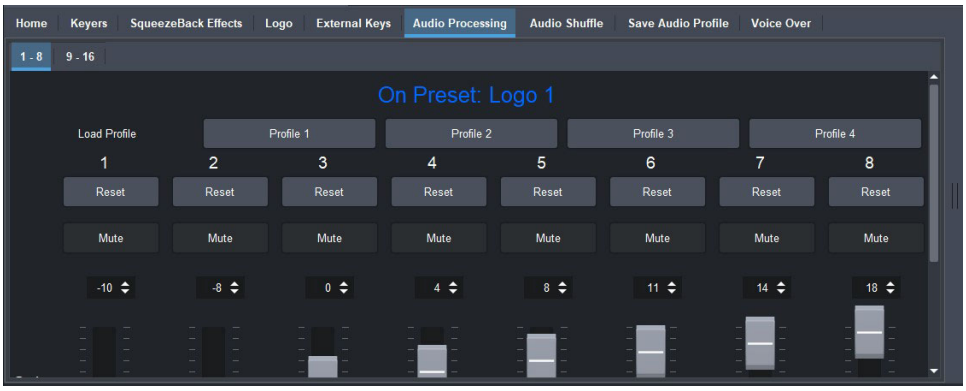
## Audio Processing

The MC1 provides the ability to adjust the gain, or mute, individually, each of the 16 embedded channels. The audio processing and shuffle settings are retained on a per crosspoint basis. You can also sum every adjacent pair of audio groups with the first channel on the Odd Channel numbers (e.g. Channels 1 and 2, 3 and 4, 5 and 6 etc.).

✶ Changes made to settings on the **Audio Processing** tab take effect immediately on the Preview output. The changes will be applied to the Program output on the next Take transition.

**To configure the audio processing**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Select the **Audio Processing** tab.




3. Select the sub-tab for the channels you wish to configure. The **1-8** tab is selected by default.
4. To apply a gain to a channel, use the associated **Ch #** slider to select a value between -20dB and +20dB. Note that this does not affect the Audio Over gain levels.
5. To mute a channel, select the associated **Mute** button. When the button is red, the specified output channel is muted.
6. To sum the outputs of channel pairs within a group, select the **Sum** button for the channel pair. Note that both channels will carry the average of the two input channels ((A+B)/2).
7. To reset the parameters for the specified channel to the default values, select the associated **Reset** button.
8. If required, repeat steps 4 to 6 for each channel in the group.

## Enabling Voice Over on an Output

This section outlines how to enable Voice Over on specific outputs. You can also have multiple instances of the same output with and without voice over.

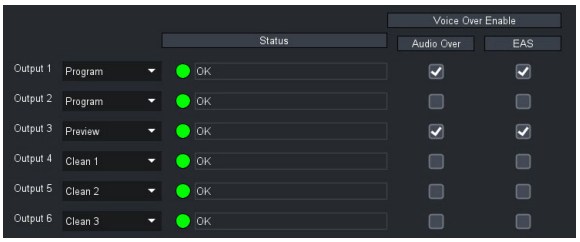
**For More Information on...**

- configuring EAS voice over, refer to "**Enabling EAS Voice Over on an Output**"

**To enable voice over audio on an output**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Output Selection** tab.
3. Locate the **Voice Over Enable** area.
4. In the **Audio Over** column, select the box for each SDI output you wish to enable voice over for.

   In the following example, the user enabled Audio Over for Outputs 1 and 3.

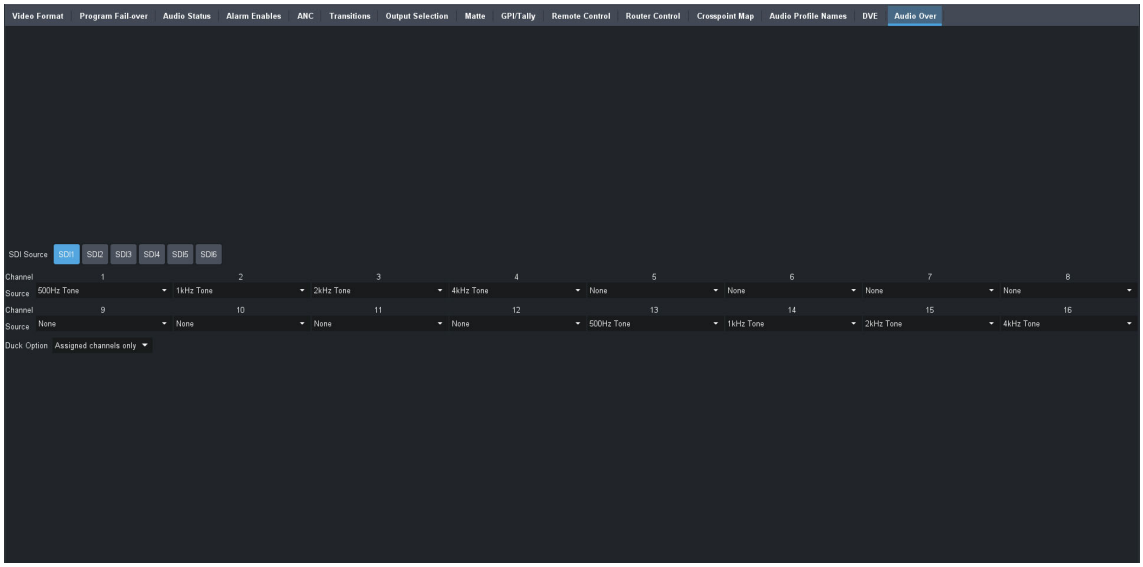


# Voice Over Setup

This section outlines how to configure the embedded audio sources for the Voice Over feature for audio transitions.

**To set up the voice over source**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Audio Over** tab.



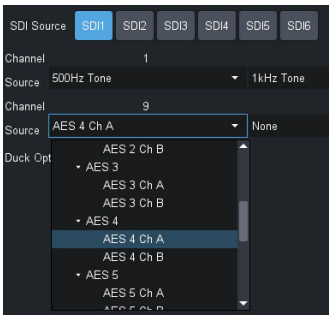

3. From the **SDI Source** options, select the SDI source for the voice over.

   The selected SDI is now lit blue.
4. Locate the **Channel** you wish to configure for voice over.
5. Use the **Source** menu to configure the voice over channel. Choose from the following:

★ Silence is embedded if the selected source is not present on the input video.

- None — no source is assigned to the specified voice over channel.
- Clear All — assigns all channels (1-16) to None.
- Clear Group — assigns the four sources in the same group to None.
- Clear Pair — assigns the two sources in the same pair to None.
- AES — assigns all 16 sources to consecutive AES sources.
- AES # > Ch # — assigns the specified AES channel in the specified voice over channel.
- Embedded — assigns all 16 sources to the corresponding SDI inputs.
- Embedded > SDI G#C# — embeds the specified audio group/channel.
- Test Tone — sets the group (4 sources) to all consecutive test tones.
- Test Tone > # — the voice over channel outputs the specified test tone.

In the following example, the user is assigning AES4 ChA as the source for Channel 9.




6. Use the **Duck Option** menu to specify how the Duck Level is applied. Choose from the following:
   - All channels — all audio channels on the Program shall be adjusted by the Duck Level value specified on the On Air Control > Voice Over interface.
   - Assigned channels only — Only the audio channels specified in the Source menu (step 5) shall be adjusted by the Duck Level value specified on the On Air Control > Voice Over interface.

# Voice Overs

The MC1 enables flexible audio/voice over mixing with a variable program audio duck level, audio over gain control, and preset mixing with transition control.When Voice Over or EAS is active, all channels are mixed. If the source contains more audio channels that you want mixed, ensure to use the Mute setting for those channels. The Voice Over source is selected using the **Audio Over Sources** tab in the Configuration interface. A Voice Over can also be triggered using GPIs.

**For More Information on...**

- setting up GPIs, refer to "**Configuring the GPI/Tallies**".

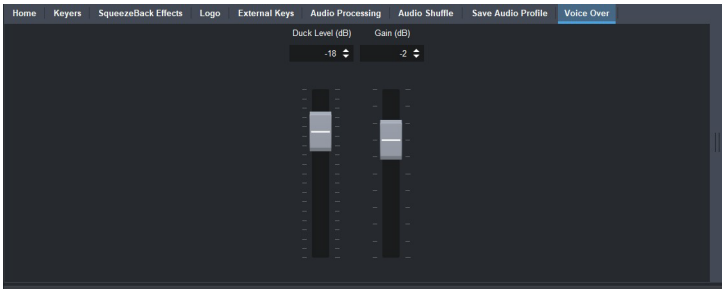
## Setting the Voice Over Duck/Gain Level

You can adjust the duck and gain levels of the Voice Over channel.

✶ If both Voice Over and EAS audio is in effect, the MC1 ducks the incoming audio twice. The Voice Over duck/gain is set in the **Voice Over** tab of the On Air Control interface.

**To set the duck/gain level**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Select the **Voice Over** tab.




3. Use the **Duck Level** slider to apply a negative gain (in dB) to the Voice Over channel.
4. Use the **Gain** slider to apply a gain (in dB) to the Voice Over channel.

### Including a Voice Over

The Voice Over feature is triggered on/off by pressing the **AUDIO OVER** button located on the On Air Interface. Once the button is selected (button is lit), the voice over will remain active until the button is selected again (button is unlit).

## Audio Profiles

You can define up to four audio profiles. Each profile records the audio processing and shuffling settings for all 16 embedded channels including:

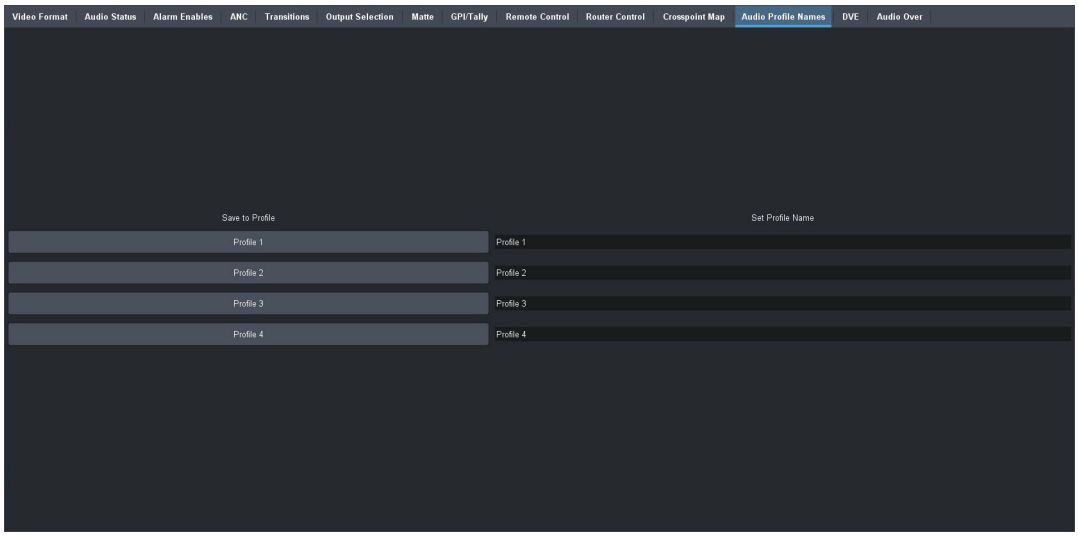
- which audio sources are re-mapped
- gain to the input(s)
- embedded audio source
- pass mode
- mute (enabled or disabled)
- which channels are inverted (or not)
- which channels are summed (or not)

### Creating an Audio Profile

A profile captures all the audio settings, except the Voice Over or EAS settings, currently in use. Each profile displays as a selectable button on the **Audio Processing** tab and **Audio Shuffle** tab of the On Air Control interface.

**To create an audio profile**

1. Specify which audio group is embedded for output as outlined in "**Identifying the Audio Groups**".
2. If required, adjust the gain for your audio channels as outlined in "**Audio Processing**".
3. Select the **Audio Profile Names** tab in the **Configuration** interface.




4. In the **Set Profile Name** field for the audio profile:
   a. Type a unique identifier for your profile.
   b. Press **Enter** to save.

This becomes the button label on the **Audio Processing** and **Audio Shuffle** tabs of the On Air Control interface.

5. Repeat step 4 for each profile you wish to update.

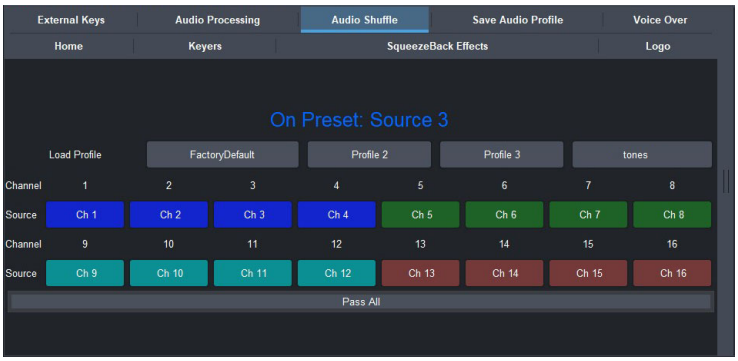
## Recalling an Audio Profile

Each of the four audio profiles are defined using the Configuration interface and capture the settings specified in the Audio tabs of that interface. These profiles that can be recalled from the On Air Control interface via the top row of buttons on the **Audio Processing** tab and **Audio Shuffle** tab of the On Air Control interface.

✶ Recalling an audio profile does not affect the Voice Over or EAS settings.

**To recall an audio profile**

1. Configure the audio profile as outlined in "**Creating an Audio Profile**".
2. On the **Preset** bus, select the crosspoint button for the source you wish to take to air. The button is now lit blue.
3. Select the **Audio Shuffle** tab to display the available profiles.




4. Locate the **Load Profile** area of the tab.
5. Select the button for the audio profile that you want to use during the next transition.

✶ The profile settings are used until another profile is loaded, or the user changes any of the settings.

6. Select the **TAKE** button.

   The selected crosspoint is taken to air and the corresponding button is lit in the Program bus. The settings in the audio profile are applied only to this crosspoint during the transition.

7. To apply a different audio profile to the next transition, repeat steps 2 to 6.

# Media File Management

DashBoard enables you to select and configure the two Logo channels that are loaded in the MC1. Each Logo channel has a sub-tab that enables you to assign a media file to the specified logo, view a thumbnail that represents the media file currently loaded, and adjust on-air properties. This chapter outlines how to select and configure the two Logo channels for the MC1.

## Before You Begin

The following tips and restrictions apply when managing your media files:

- Media files, such as stills and animations, are transferred to and from the MC1 using FTP protocol. The media files are stored on the Micro SD card that is installed on the MC1.
- When using Mac OS X™ to transfer files to the Micro SD card via an FTP server, you may only have read-only access. Refer to your Mac OS X™ documentation for details.
- Four logo channels are available on video modes up to 3G.
- When using UHD video, two logo channels are available.

## Managing your Media Files

The MC1 features two Logo channels (Logo 1, 2) into which you can load files from the Micro SD card physically installed on the Micro SD card. Each MC1 has up to 2GB of DDR playout memory[1].

**Table 22** lists an estimation of how many uncompressed frames can fit into the playout memory of the MC1.

✶ Very large animations may take several minutes to load.

***Table 22 Full Frame Animation***

| Format | Image Size | No Alpha | With Alpha |
|---|---|---|---|
| **1080i** | 1920x1080 | 386 | 256 |
| **1080p** | 1920x1080 | 386 | 256 |
| **720p** | 1280x720 | 870 | 579 |
| **PAL** | 720x576 | 2882 | 1921 |
| **NTSC** | 720x486 | 3416 | 2277 |

Media files, such as animations and still images, can be transferred to and from the Micro SD card using an FTP connection. Once transferred to the Micro SD card, you use the options in the Logo tab to load the files and assign them to a Logo channel.

This section outlines the specifications for media files and provides general information on using the Micro SD card and an FTP connection.

**For More Information on...**

- assigning media files to Logo channels, refer to "**Loading a Media File**".

### Image Specifications

Media files used on the MC1 must meet the specifications outlined in **Table 23**. Note that if larger images are used, the images will be clipped to the dimensions listed in **Table 23**.

1. The MC1-UHD has 1.5GB of DDR playout memory when the MC1-UHD-DVE-1CH-LICENSE license is enabled.

*Table 23 Image Specifications*

| Parameter | Specification |
|---|---|
| Supported File Types | BMP, GIF, JPEG, PNG, TGA |
| Compression | Compressed and uncompressed |
| Max. Image Width (all formats) | 65,536 pixels |
| Max. Image Height (all formats) | Dependent on available memory |
| Animation Maximum Length | 10,000 frames |

## File Naming Specifications

Keep the following in mind when naming your media files:

- The name can contain letters, numbers, and spaces, but cannot contain symbols such as ! @ # & * ( ) ? / , ‘ “.
- If you are naming an animation, each file must be numbered in the sequence that it will play out. The following restrictions apply to file names for animations:
  - › Each file can use a minimum 3-digit number, including all the leading zeros.
  - › The file name and number must be separated by an _ followed by 3 or more digits, then a period (.).
  - › Each file in the sequence must have the same numbering scheme.
  - › The MC1 loads files in numerical order.

  The following is an example of a 10-frame animation using a typical numbering scheme:

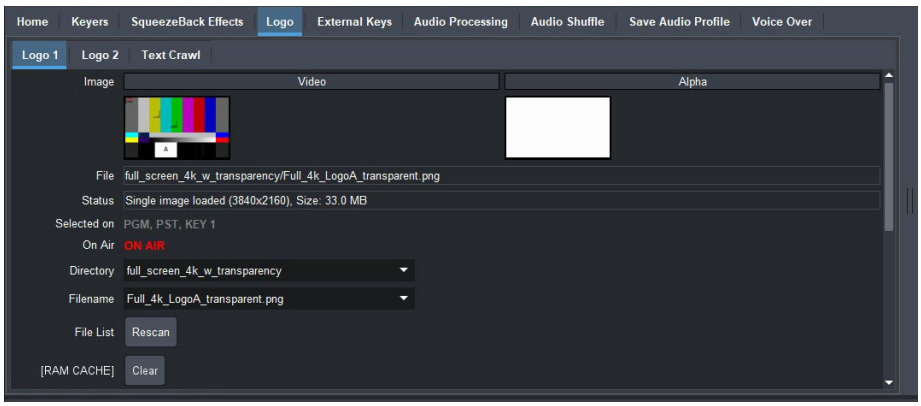
```
DTVB_000.tga
DTVB_001.tga
...
DTVB_009.tga
```

# Loading a Media File

When a media file is loaded, data, such as X/Y position, is also loaded, if it exists. Otherwise, the last used values are retained. For animations, parameters are recalled after the last frame is loaded.

**To load a media file into a Logo channel**

1. Display the **On Air Control** interface as outlined in “**To display the On Air Control interface in DashBoard**”.
2. Select the **Logo** tab.



3. Select the sub-tab for the Logo channel you want to load the media file for.
4. If files were added or re-named using an FTP connection, click **Rescan** to update the list of directories and filenames in the tab menus.
5. From the **Directory** menu, select the directory you wish to load a file from. Choose from the following:
   - [RAM CACHE] — A virtual directory that displays media files that are already loaded in the play-out memory. Selecting this directory enables you to quickly access a pre-loaded file from the memory.
   - [ROOT] — This is the default directory and represents the top-most directory on the Micro SD card. You can manage files on the Micro SD card using an FTP connection.
6. From the **Filename** menu, select the file.

✶ You can clear space in the image cache by selecting None from the Filename menu of any Logo channel. However, doing so immediately replaces the current media file with the file you are attempting to load.

✶ Use the [RAM CACHE] > Clear button to remove all the items in the RAM cache directory that are not currently used (on air) by any of the logo channels.

## Adjusting On-Air Properties

The Logo tab in DashBoard allows you to adjust the position and play modes of media files. Parameters that are adjusted are saved with the image/animation. When a logo/animation is subsequently re-loaded, these parameters are also recalled. However, if there are no saved parameters for a recalled logo/animation, then the last used values are retained.

**To adjust the on-air properties of a media file**

1. Load a media file as outlined in **"To load a media file into a Logo channel**".
2. Adjust the position of a still image in the viewing area of the screen using the **X** and **Y Position** sliders.

✶ Full images cannot have their position adjusted.

3. Use the **Auto Play** box to set whether the animation automatically starts to play when it is taken on-air.

   When this feature is enabled, the animation will play from the first frame when it is brought to air.
4. Use the **Looping** box to set whether the animation will start over when it reaches the last frame of the animation.
   - When this feature is enabled, the animation plays continuously (from the last frame back to the first) in an endless loop.
   - When this feature is disabled, the animation plays once, and freezes on the last frame. The animation will stay fixed on the first frame.

✶ When both Auto Play and Looping are enabled, the animation begins to play on a transition, and keeps playing in an endless loop. If another transition is triggered, the animation jumps to the first frame and keeps playing in an endless loop.

5. Use the **Hold Time** menu to add a pause between loops of an animation.

✶ When this feature is enabled, the animation will play, but before looping back (if looping is enabled), it pauses on the last frame, for the specified Hold Time (in number of frames).

6. Select how an image is displayed by selecting an option from the **Play Mode** menu.

✶ The Play Mode feature only applies to Interlaced video formats and has no effect when using Progressive video formats.

## Connection using FTP

You can use an FTP connection to transfer media files to and from the Micro SD card of the MC1. You can also use an FTP client to delete images on the Micro SD card and re-name images.

✶ Before proceeding, verify your FTP settings on the MC1. Refer to "**Enabling FTP(S)**" for details.

Before accessing the MC1 via FTP:

1. Ensure the MC1 link status is valid. This information is reported in the Global > Network > Link Status field in DashBoard.
2. The default login credentials are:
   - User Name — user
   - Password — password

## Connection using RossLinq

RossLinq enables you to transfer still images directly from the XPression to a MC1 Logo channel. You can transfer files into any of the directories for any of the Logo channels on the card. There are two directories, each corresponding to a specific Logo channel on the card. The file can be a format as listed in **Table 23**. Note that the transfer of animations is not supported at this time.

✶ Before proceeding, verify your FTP settings on the MC1. Refer to "**Enabling FTP(S)**" for details.

To connect to the XPression via RossLinq, establish an FTP connection using the following information:

✶ The RossLinq channel in XPression must be set as a passive FTP connection in order to set up communications between XPression and the MC1. Refer to the XPression documentation for details.

- IP Address — This information is displayed in the Global > Network > Current IP Address field in DashBoard.
- User Name — xpression
- Password — password

✶ The images loaded via RossLinq are not retained after reboot of the MC1.

**For More Information on...**

- using XPression, refer to the ***XPression User Guide***.

## Using the Micro SD Card

The following tips and restrictions apply when using the Micro SD card:

- the MC1 must be powered down to install or remove the Micro SD card
- if you must remove the Micro SD card for programming, re-boot the MC1 when you re-install the Micro SD card. This allows the MC1 to recognize that a new card is available.
- the Micro SD card Status field in the **On Air Control** > **Logo** > **Logo** # tab reports how much space is available on the Micro SD card.

# Keying

Keying is the term used to described the inserting (or electronically cutting) portions of one video source on to another (for example placing titles over background images). Keys are made up of two components: an alpha (that cuts the hole in the background video), and a fill (that fills the hole with different video). This chapter summarizes the MC1 keying features and configuration options.

## Overview

The MC1 includes four high quality video keyers. In addition to the external Key Video and Key Alpha source, there are also two internal static/animation play-out channels. This enables the keying of external devices such as character generators or graphic systems into a program feed and/or keying with two internal logo channels.

The MC1 offers full key control with shaped and unshaped keying, self key or auto key, with clip and gain control.


*Figure 41 MC1 — Keyer Controls*

| | |
|---|---|
| 1) Keyers Tab | 3) Program Keyer Select Buttons |
| 2) Logos Tab | 4) Preset Keyer Select Buttons |

### 1. Keyers Tab

Each keyer has a sub-tab that enables you to select video sources, key types, and adjust transparency, clip, and gain. The MC1 supports Auto Select and Self keys. The External sub-tab enables you to specify the router source that feeds input on the KEY VIDEO Input or KEY ALPHA Input used as the External source when configuring keyers.

### 2. Logos Tab

Each logo channel has a sub-tab in the Logos tab that enables you to specify the media files the channel uses.

### 3. Program Keyer Select Buttons

When lit red, a button indicates that specific keyer is currently on-air on the Program bus. Selecting a button will immediately perform cuts on that keyer.

**4. Preset Keyer Select Buttons**

These buttons are used to choose which keyer is included in the next transition. Note that depending on a Personality tab setting, once a transition is performed, the buttons are no longer lit.

## Key Types

The MC1 supports the following key types.

### Auto Select

An Auto Select Key uses two video signals: the Key Alpha is used to cut the hole in the video, and the Key Video is used to fill the hole. For external keying, use the Configuration > External Key options to configure the two external keys. For internal sources, the Key Video and Alpha are generated internally. Note that the Key Alpha Type is automatically set to Shaped.

### Self

A Self Key uses only one video signal: the luminance (or brightness) of the Key Video is used as the Key Alpha. For external keying, use the On Air Control > External Keys options to configure the two external keys. For internal sources, the Key Video is internally supplied. Note that the Key Alpha Type is automatically set to Unshaped.

## Key Alpha Types

You can specify a key alpha as one of the following types. The default key type is Shaped.

### Unshaped (multiplicative keying)

With an Unshaped Key, the Key Alpha luminance value mixes linearly the Key Video with the Background. Shades of gray, in the Key Alpha, are translated into transparency levels, giving the key a soft edge. Self Keys are set to Unshaped by default.

### Shaped (additive keying)

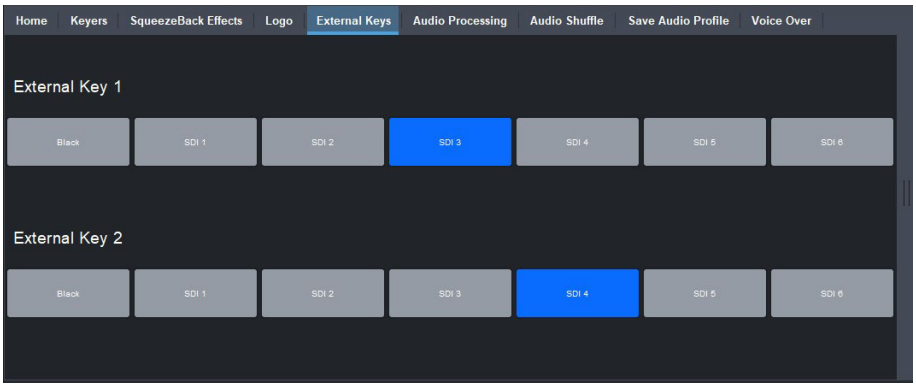
With a Shaped Key, the Key Alpha cuts a hole in the Background based on the luminance value of the Key Alpha and adds the Key Video to the Background hole. Shaped Key alphas are sometimes used with Character Generators to cut very precise holes for the Key Video fill. Auto Select keys are set to Shaped by default.

## Mapping the External Keys

Each of the two external keys can have an independent input source assigned. The External Key can then be used over top of the PGM input for each Keyer.

**To map an external key**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Select the **External Keys** tab.




3. Locate the row for the External Key you wish to map.
4. Select an input crosspoint (the key video and, optionally, the key alpha source) from the row.
5. Repeat steps 3 and 4 for the second External Key.

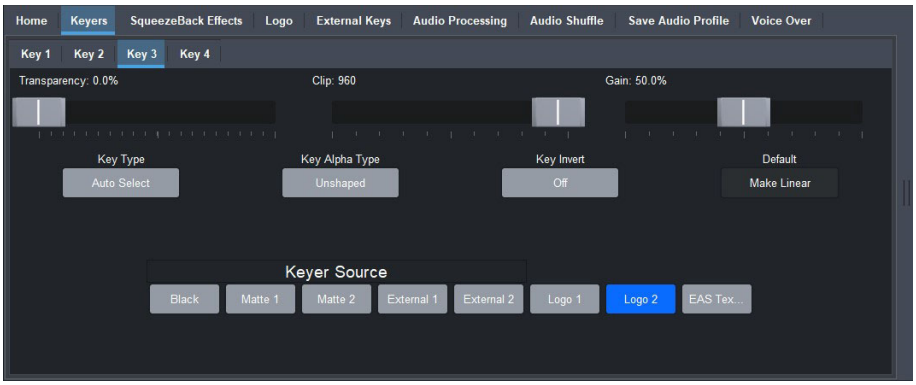
## Configuring a Key

You can assign any of the logo channels as the source for a keyer. The MC1 offers full key control with shaped and unshaped keying, self key or auto key, with clip and gain control.

**To configure a key**

1. Ensure that you set up the logo channel(s) as outlined in "**Media File Management**".
2. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
3. Select the **Keyers** tab.
4. Select the sub-tab for the Key you wish to configure.
5. To assign a source to a key:
   a. Locate the **Keyer Source** area of the tab.
   b. Select a button from the Keyer Source area to assign that source to the Key.

      In the following example, the user assigned Logo 2 as the source for Key 3.



6. Set the **Key Type** by toggling the **Key Type** button.
    - Auto Select— A Key which uses two video signals (Alpha and Fill); the Key Alpha Type is automatically set to Shaped. If you configure an internal Logo channel as Auto Select, the associated alpha signal is used.
    - Self — A Key that uses the luminance values of the KEY VIDEO source for the alpha; the Key Alpha Type is automatically set to Unshaped. If you configure an internal Logo channel as Self, the luminance value of the associated alpha is used.
7. Use the **Transparency** slider to adjust the transparency level of the key.
    - 0 — The key is completely opaque; there is no difference between the original key and the key with the transparency effect applied to it.
    - 100 — The key is completely transparent; the key is not visible on the screen.
8. Use the **Clip** slider to set the threshold level between what is keyed (visible) and what is not.
9. Use the **Gain** slider to set the range of softness around the Clip threshold, which defines the transparency of the key. For shaped keys, the clip and gain should be left at their default values.

✶ To reset the **Clip** and **Gain** values, click **Make Linear**.

10. Use the **Key Alpha Type** menu to specify the Key Alpha type. Refer to "**Key Types**" for more information on each type.
11. Click **Key Invert** to **On** to reverse the polarity of the key alpha so that the holes in the background are cut by dark areas of the key alpha instead of bright areas.

# Mattes

This chapter outlines how to set up a matte color and assign a matte generator to an external key.

## Overview

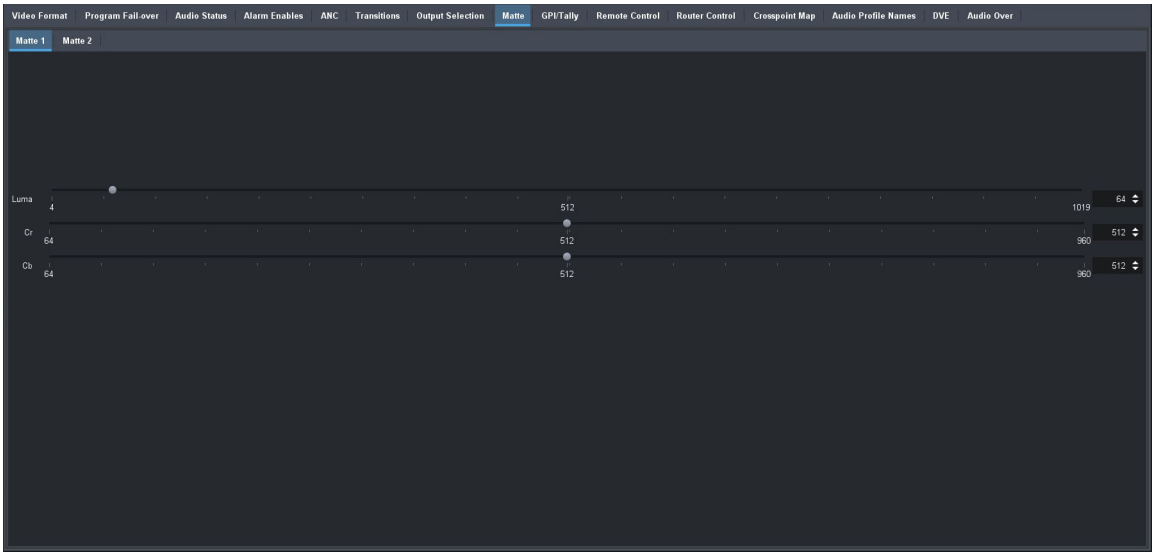
Mattes are solid color signals that can be applied to backgrounds and keys. A matte has only one color but can be applied to a key or to the PGM/PST buses.

## Setting up a Matte Color

Color selection is done by adjusting the luma, and two color difference signals (Cr and Cb) to create a desired color. The matte is a full raster signal.

**To set up a matte color**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Matte** tab.




3. Select the sub-tab for the matte generator you want to configure.
4. Use the **Luma** slider to adjust the luminance of your matte color.
5. Use the **Cr** slider to adjust the red difference signal of your matte color.
6. Use the **Cb** slider to adjust the blue difference signal of your matte color.
7. Repeat steps 3 to 6 for the second matte generator if required.

# Transitions

This chapter outlines how to specify the post transition behavior, configure the TAKE button, set a transition rate, and perform basic transitions.

## Before You Begin

Keep the following in mind when performing transitions:

- To allow for audio cross fading, a cut takes two frames. One frame is used for the audio fade down, the video is then cut, followed by the one frame audio fade up.
- The speed at which the transition is performed, in number of frames, is determined by the setting (Slow, Medium, or Fast) in the Transition Rate area.
- If a crosspoint or transition button is selected while a transition is in progress, the original transition continues as subsequent button presses are ignored (except the FTB button).
- When you are performing a transition, or keying, the embedded audio is carried in the ancillary data of the background video signal. The ancillary data from the background source is replaced with the ancillary data from the preset source, and the ancillary data for keyed sources is stripped.

## Overview

Transitions are used to change the background video and take keys on and off-air. A transition can include any combination of Background video, keys, and audio. The BKGD A (Program) and BKGD B (Preset) inputs allows for background dissolves and V-Fades behind the external key source.

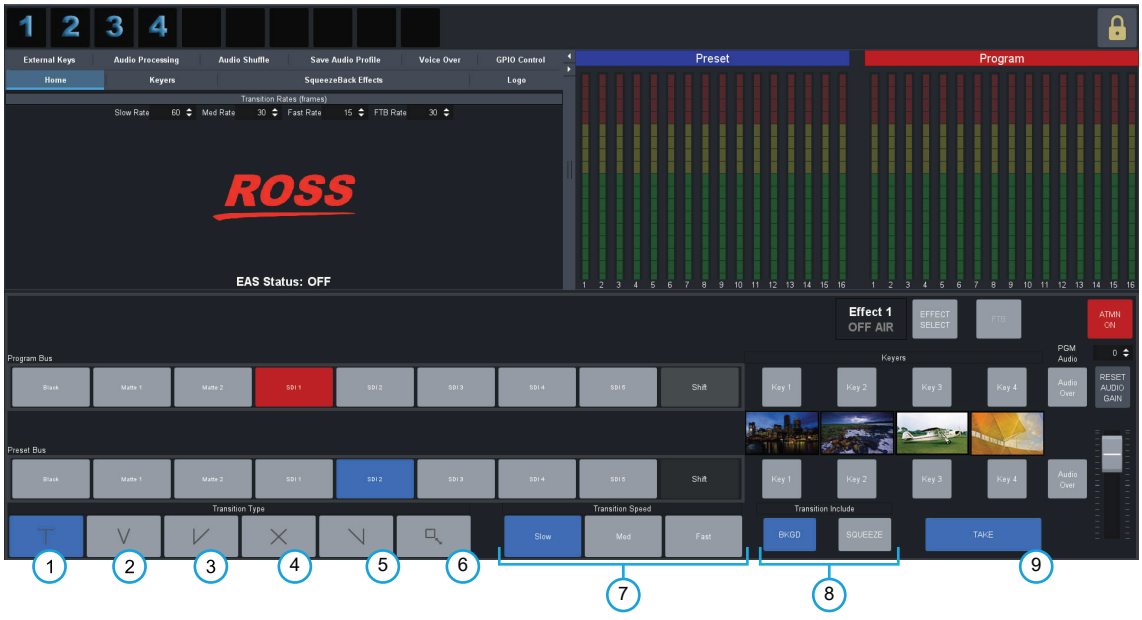



*Figure 42 MC1 — Transition Buttons*

| | | |
|---|---|---|
| 1) Cut Button | 4) Cross-Fade Button | 7) Transition Speed Buttons |
| 2) V-Fade Button | 5) Fade-Cut Button | 8) Transition Include Buttons |
| 3) Cut-Fade Button | 6) SqueezeBack Button | 9) TAKE Button |

**1. Cut Button**

Select this button to perform a cut transition from one source to the next.

**2. V-Fade Button**

Select this button to perform a V-Fade transition from the Program source to Black to the next source.

**3. Cut-Fade Button**

Select this button to perform a cut to black, then fade up to the next source.

**4. Cross-Fade Button**

Select this button to perform a gradual fade from one source to the next. Note that this button is selected after performing a factory default reset.

**5. Fade-Cut Button**

Select this button to fade from one source to black and then cut to the next source.

**6. SqueezeBack Button**

Select this button to perform a SqueezeBack effect by reducing the size of the video over time to the dimensions set in the Squeeze Effects tab. You may change your background or keys on-air with this transition type. The MC1-DVE-1CH-LICENSE is required.

**7. Transition Speed Buttons**

These buttons apply the rate (slow, medium, fast) to the next transition. The transition rates are specified in the **Home** tab. Note that the **Slow** button is selected after performing a factory default reset.

If you are controlling the MC1 via Automation, and these buttons are not lit, the transition rate applied is set by the Automation command. If you wish to apply one of these rates, remember to select the required transition speed button before performing a transition (e.g. selecting **TAKE**).

**8. Transition Include Buttons**

This area displays the following buttons:

› The **BKGD** button is used to add, or remove, the BKGD from the next transition. Toggling this button will immediately affect the Background video that is visible on the Preset output.

› The **SQUEEZE** button is used to add or remove, the selected squeeze effect preset from the next transition. Toggling this button will immediately affect the video that is visible on the Preset output. You may not de-select this button if a squeeze effect is on-air. This can be done with a Squeeze transition to perform a SqueezeBack, or as part of another transition (Take, Mix, Fade-Fade).

**9. TAKE Button**

Selecting the **TAKE** button performs the transition between the sources and effects selected in the Program and Preset buses, using the specified Transition Type and Transition Speed. The button is labeled TAKE NEXT when Automation is configured and enabled (the ATMN button is toggled ON), and the Take Button on Panel setting is set to Take Next.

## Configuring the Transition Buttons

The Configuration interface in DashBoard enables you to specify how the **TAKE** button, in the On Air Control tab, behaves when toggled during a transition.

**For More Information on...**

- the **GPI Overrides TAKE** feature, refer to "**Enabling GPIs to Override Take Transitions**".

**To configure the TAKE button**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Transitions** tab.
3. Configure the **TAKE** button behavior by choosing an option from the **Take During Transition Action** area. Choose from the following:

✶ The selected behavior also applies to GPIOs.

- Ignore — Select this option to disregard any successive presses of the TAKE button until the transition is complete. This is the default setting.
- Pause — Select this option to pause the transition when the **TAKE** button is toggled, and resume the transition when the button is pressed again.
- Reverse — Select this option to reverse the transition back to the start.

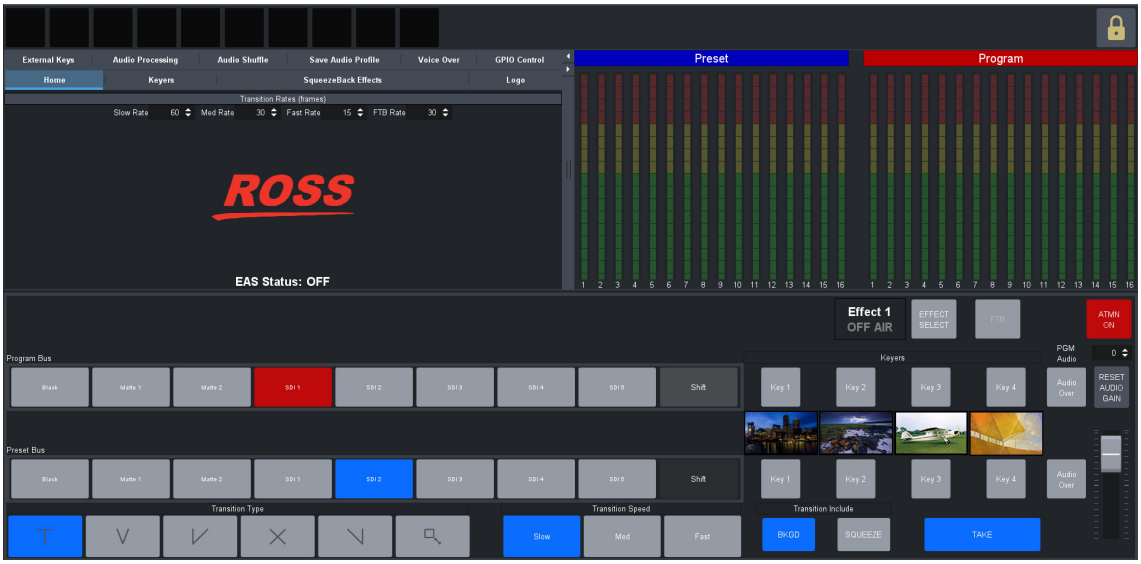
4. Select the **Cut on Clean Feed** option to automatically perform a cut transition from one Clean Feed source to the next.

## Specifying a Transition Rate

You can independently define the Fade to Black, Slow, Medium, and Fast transition rates, in number of frames.

**To set a transition rate**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".




2. Specify the rate, in number of frames, as required in the **Slow Rate**, **Medium Rate**, and **Fast Rate** fields.
3. Use the **FTB Rate** field to specify the Fade to Black transition rate.

## Auto Swapping of Program and Preset Buses

You can choose to have the Program and Preset bus flip-flop after a transition (default setting), or have the Preset bus unchanged after a transition.

**To swap the buses after a transition**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Transitions** tab.
3. Choose one the following **Post Transition Behavior** options:
   - Leave Preset As Is — The Preset bus is unchanged after a transition. Preset keyers follow Program keyers on hot-punches.
   - Swap Program/Preset — The selections for the Program and Preset swap. This is the default.
   - Preset Off — The keyers on the Preset bus will be turned off automatically after a transition.

## Resetting the Audio Gain Level After a TAKE Transition

The Reset Audio Gain option enables you to specify the audio gain level is reset, to the factory default value of 0dB during TAKE transitions. When enabled, this option ramps the audio gain level to the default level as the Preview bus is transitioned. When disabled, this option keeps the audio gain level at the current level after the transition completes (the audio gain is not adjusted).

**To reset the audio gain level after a TAKE transition**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Transitions** tab.
3. Select the **Reset Audio Gain** box to reset the audio gain level after a transition.

## Performing Transitions

You can perform transitions in one of the following manners:

- hot-punching a crosspoint on the Program or Preset bus
- selecting a Keyer button from the Keyer area to transition a keyer on/off air
- using the options in the Transition area to add elements to the transition

The speed at which the transition is performed, in number of frames, is determined by the Transition Rate (Slow, Medium or Fast) set in the Home > Transition Rate menus.

**For More Information on...**

- the transition area and buttons of the On Air Control interface, refer to "**Control Panel**".

**To perform a Cut transition on the Program bus**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Select a button on the Program bus.

**To perform a Cut transition for a Key**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Select a source for the Program output from the desired Key **Source** menu.
3. Click  .
4. Click **TAKE**.

   The Key is transitioned on or off air.

The **Key Status** field(s) indicates the on-air status of the key.

**To perform a Take transition**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Select the **Key 1-4** buttons to add the required corresponding keyer(s).
3. Select a **Transition Speed** button (Slow, Medium, or Fast).
4. Select a **Transition Type** button.
5. Click **TAKE**.

## Performing a Fade to Black

The **FTB** button performs a fade to black where the:

- Program bus is faded to black at the FTB rate,
- audio fades to silence, and
- closed captioning information is not passed.

The Fade to Black rate is set in the **Home** tab as outlined above. When the **FTB** button is selected, the MC1 performs an Auto transition to black.

✶ If the **FTB** button is grayed out, the Configuration > Transitions> FTB Disabling > FTB Button option is set to FTB Disabled.

**To perform a fade to black**

1. Display the **On Air Control** interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Toggle the **FTB** button as follows:
   - When the button is lit red, clicking it performs an Auto transition to black. The rate is determined by the rate set in the Home > FTB Rate menu.
   - When the button is not lit red, clicking it performs an Auto transition from black. The rate is determined by the rate set in the Home > FTB Rate menu.

## Automation Switch Request

When the MC1 interfaces with an Automation System via the Presmaster protocol, you can choose how the MC1 defines automation switch requests. This feature applies to the Program bus, Preset bus, and external sources. Ensure the **ATMN** button is toggled to **ON** to enable your automation device to control the MC1. This button is located on the **On Air Control** interface.

**For More Information on...**

- setting up communications via the Presmaster protocol, refer to "**Using the Presmaster Protocol**".

**To define the automation switch requests**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Remote Control** tab.
3. Locate the **Presmaster** area of the tab.
4. Click **Device Setup**.

   The Presmaster control dialog opens.

5. From the **Automation Switch Request** area, select how a crosspoint switch is defined:
   - Router Crosspoint — The received value refers to a physical or virtual router crosspoint. This is the default setting.
   - Button Number — The received value refers to a specific MC1 crosspoint button on the DashBoard control panel. Note that these crosspoint buttons are defined in the Crosspoint Map tab.

# SqueezeBack Effects

The MC1 can be used to perform on-air 2D DVE (SqueezeBack) transitions to reveal another video source or graphic. You can also transition to pre-squeezed effects with standard transitions, squeeze in any direction on either X or Y axis, or both. Four DVE presets are provided for quick effect recalls on the fly. This chapter outlines the DVE feature and SqueezeBack Effects options of the MC1.

✶ The MC1-DVE-1CH-LICENSE is required.

## SqueezeBack Effects Controls

This section briefly outlines the elements of the On Air Control interface for the SqueezeBack Effects feature.

**For More Information on...**

- the DVE tab in the Configuration interface, refer to "**DVE Tab**".


*Figure 43 MC1 — SqueezeBack Effects Controls Buttons*

| | |
|---|---|
| 1) SqueezeBack Effects Tab | 3) SqueezeBack Effect Transition Type Button |
| 2) Effect Select Area | 4) SQUEEZE Button |

### 1. SqueezeBack Effects Tab

The SqueezeBack Effects tab provides a sub-tab for each of the four SqueezeBack presets, enabling you to customize each effect separately. From these sub-tabs you can specify the horizontal and vertical positions of the image on the screen, and the reveal source from the four logo channels or an external video source. Because the reveal source shares the same sources available to the keyers, we encourage users to avoid sharing a source between keyer and reveal operation.

### 2. Effect Select Area

This area includes the Effect # status field and an **EFFECT SELECT** button. The status field reports the last applied effect and whether it is on or off air, or currently on the Preset Bus.

While the squeeze effect is on air:

› the **EFFECT SELECT** button is locked. Even though you can still adjust the options in the SqueezeBack Effects tabs, we suggest not doing so since all effect changes are immediately applied.

› you are able to change the background with a transition and you can hot-punch a source or key on the Program bus. However, hot-punching a source on the Program bus will take the squeeze effect off air. Hot-punching keys on/off will not take the squeeze effect off air.

› you can perform any hot-punch or **TAKE** transition inside of the squeeze effect.

**3. SqueezeBack Effect Transition Type Button**

Selecting this button performs a SqueezeBack effect with the transition. You must pre-configure your SqueezeBack presets, then select the preset you want to apply to the transition before executing your transition. Refer to "**Transitions**" for details.

**4. SQUEEZE Button**

Selecting this button applies the squeeze effect (as specified using the **EFFECT SELECT** button) to the next transition.

The **SQUEEZE** Include button is selected (lit) and locked out as long as the transition type is Squeeze. The **SQUEEZE** Include button is not unlocked until you select another transition type, at which time the previous state of **SQUEEZE** Include button is restored.

You can de-select the **SQUEEZE** Include button while an effect is on air to perform a transition inside the squeeze effect.

# Working in 2D Space

In order to maximize the features of the SqueezeBack feature, it helps to have a basic understanding of two-dimensional (2D) space. Two axes (X and Y) are used to define 2D space. The position of an image on each of the two axes determines its location in 2D space.

- X — Refers to the horizontal (left-right) position of the image on the screen.
- Y — Refers to the vertical (up-down) position of the image on the screen.

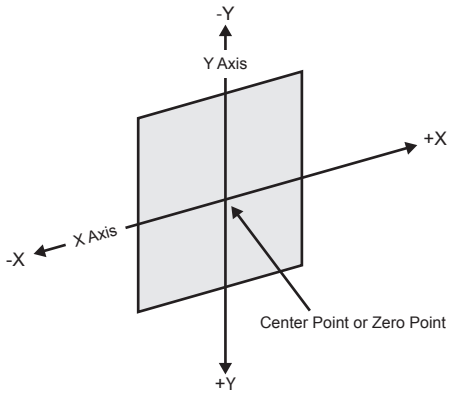



*Figure 44 Basics of 2D Space*

## Image Position in 2D Space

The center point of the screen is the center (zero) point. Each axis has a positive and negative region.

- Moving an image to the left of the center (or zero) point locates it in -X space.
- Moving an image to the right of the center locates it in +X space.
- Moving an image below the center point locates it in +Y space.
- Moving an image above the center point locates it in -Y space.

When working with images, keep in mind that the 2D space extends beyond the visible area of the screen. Images can be positioned and manipulated outside of the viewable area to create some interesting effects. For example, and image can be positioned in such a way that it appears to roll into view from a point outside the screen and roll out of view on the other side.

# Configuring the DVE Transition Options

The MC1 can be used to perform on-air SqueezeBack transitions to reveal another video source or graphic. If

you wish to include a SqueezeBack with your transitions, you must first specify the key order using the DVE located in the Configuration interface.

## Specifying the Key Order

You can select the SqueezeBack point in the mixer tree. There are five possible options. This setting is applied to all SqueezeBacks.

**To specify the key order of the SqueezeBacks**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **DVE** tab.
3. Locate the **Included in SqueezeBack** area.
4. Specify the key order by selecting one of the following:
   - Background Only — includes only the background in the SqueezeBack effect. This is the default.
   - After Key 1 — Key 1 is included in the squeeze effect. Keys 2 to 4 are excluded.
   - After Key 2 — Keys 1 and 2 are included in the squeeze effect. Keys 3 to 4 are excluded.
   - After Key 3 — Keys 1 to 3 are included in the squeeze effect. Key 4 is excluded.
   - After Key 4 — All keys are included in the squeeze effect.
5. Use the **Background in Fade** options to specify the reveal source during a V-fade type transition inside an already squeezed image on the PGM bus. Choose from the following:
   - Background —allows the reveal source background to pass through.
   - Black — allows the reveal source background to fade to complete black.

# Configuring a SqueezeBack Preset

This section outlines how to configure Preset Effect 1 in preparation of including it in a transition. The same procedure can be used to configure any of the effect presets for your MC1.

**For More Information on...**

- the menu options when configuring your SqueezeBack presets, refer to **Table 59**.

**To configure an effect**

1. Display the On Air Control interface as outlined in "**To display the On Air Control interface in DashBoard**".
2. Select the **SqueezeBack Effects** tab.
3. Select the **Effect 1** tab to configure the first effect.
4. To specify the position of the image in the viewing area of the screen:

a. Use the **X Position** slider to adjust the horizontal position of the image on the screen.

b. Use the **Y Position** slider to adjust the vertical position of the image on the screen.

5. To squeeze the image appearance:

a. Use the **X Size** slider to squeeze horizontally.

b. Use the **Y Size** slider to squeeze vertically.

6. Select the **Lock Aspect Ratio** check box to squeeze in both directions at the same time.

✶ You can reset the image to the default image settings by clicking **Reset to Defaults**.

7. In the **Reveal Source** area, select the video source the squeeze effect will reveal.

## Performing Transitions with SqueezeBack Presets

This section provides examples of performing transitions with SqueezeBack Presets. Your requirements may differ from what is presented here.

### Notes on Performing Transitions with SqueezeBack Presets

Keep the following in mind when performing transitions with SqueezeBack presets:

- You can pre-define up to four different SqueezeBack Presets (Effects 1-4)
- A squeeze effect does not consume any existing keyers and you can specify any of the logo channels to use as a reveal source for that effect.
- Hot-punches on the Program bus can be performed within an on air squeeze effect. The hot-punch is carried out inside of the squeeze effect. The squeeze effect remains on air.
- Squeeze effect transitions are also supported under the Presmaster automation protocol.
- You can also trigger a squeeze effect using a GPI trigger.
- You can configure a tally to raise when the reveal source is visible. This tally will be raised regardless of the configured source. This can be used in cases when a graphics station is providing the video and needs to know when to trigger the playing of an animation.
- Selecting the Constrain to Screen box in the SqueezeBack Effects tab will enable "snap-back" on the X, Y position controls to ensure the squeezed image remains entirely on screen.

## Previewing a Squeeze Effect

You can preview your Effect preset on the Preview monitor without affecting the Program bus. However, any time a squeeze effect is on air, the preview output is not scaled correctly.

**To preview a squeeze effect**

1. Set up your effect as outlined in "**To configure an effect**".
2. Display the On Air Control interface as outlined in "**To display the On Air Control interface in DashBoard**".
3. Use the **EFFECT SELECT** button to specify the desired squeeze effect for the transition.
4. Select the **SQUEEZE** button.

## Transitions with SqueezeBack

This section provides examples of executing transitions that include SqueezeBack Preset.

## Basic Transition with a Squeeze Effect

*Operation:* This is a SqueezeBack transition.

1. Set up your effect using the tabs in the SqueezeBack Effects tab as outlined in "**Performing Transitions with SqueezeBack Presets**".
2. Use the **EFFECT SELECT** button to specify the desired squeeze effect for the transition. This is the effect that you configured in step 1.
3. Click  in the **Transition Type** area.

   The Effect # status field now indicates `ON PST`. You can preview the squeeze dimensions on your Preview monitor.
4. Select the **SQUEEZE** button.
5. Select **TAKE**.

## Dissolve to a Static Squeeze Effect

*Prerequisite:* You have a pre-squeezed effect ready on Preview.

*Description:* When you select **TAKE**, the Program dissolves to the pre-squeezed effect. After you have set up the transition, and during the transition, the Preview monitor is scaled correctly.

*Operation:*

1. Select the **EFFECT SELECT** button to specify the desired squeeze effect for the transition.
2. Select a dissolve transition type (Fade-Fade, Take-Fade).
3. Ensure the **SQUEEZE** button is selected.

   The Preview monitor shows the squeeze effect.

# Ancillary Data

Ancillary Data (ANC) is the non-video data that can be embedded within the SDI signal, such as audio, audio metadata, timecode, closed caption data, AFD, and payload identification. This chapter provides an overview of ANC support on the MC1.

## Supported Data Types

This section provides information on the data types that the MC1 manages.

### Compressed Audio Metadata

Compressed Audio Metadata can be passed or deleted as follows:

- If the input is not synchronous to the output, select **Action** > **Delete** in the **ANC Settings** sub-tab.
- If converting between progressive and interlaced formats, select **Action** > **Delete** in the **ANC Settings** sub-tab.
- If the input is not synchronous to the output, data will be dropped (but not duplicated[1]) as part of the frame sync behavior.

### Other Packets

All remaining packets can be passed or disabled. When pass is enabled, the packets will be inserted in VANC on the specified line in the same order as they were received. If they do not fit on the specified line, they will continue on the next line. Approximately up to 250 packets, or 1500 bytes of data, can be passed this way.

## Specific ANC Processing

Use the options in the **ANC** tab to define how ancillary data is inserted in the output when HANC and/or VANC pass through is disabled. For each packet type the user can control the insertion position.

✶ If the ANC Pass-through box is selected, the MC1 passes all upstream ANC data with no modifications. The ANC Delete/Pass, Insertion Line, and Insertion Order settings are ignored. Refer to **Table 38** for more information.

**To configure the processing of specific ANC types**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **ANC** tab.

   The **ANC** sub-tab is automatically selected.
3. For each packet, specify how the card processes the ANC data by selecting an option from the **Action** area.
4. Use the **Insertion Line** menu to select a line to insert the specified ANC packet on. The default is 12 for each packet. Note that all packets are inserted in VANC, except for timecode in non-SD formats which are inserted in the HANC.

✶ If more than one packet is to be inserted in the same line, the packet with the lowest insertion order number will be inserted first.

5. Use the **Insertion Order** menu to define the hierarchy of the packets insertion.

✶ The lower the number, the higher priority the packet is given. For example, by default, the AFD packet is set to be inserted first (5), and Compressed Audio Metadata is inserted fourth (4).

6. If the Output Format is set to 480i 59.94Hz, use the **Line 21 Caption Pass-through** option to specify to pass closed-captioning or other data, through unaltered on Line 21.

✶ The **Line 21 Caption Pass-through** option should only be used when ancillary data is present on Line 21.

## Monitoring the Encoding and Decoding of ANC Data

The MC1 provides the ability to monitor the encoding or decoding of ANC data on SDI signals.

**To verify that the MC1 is decoding ANC data**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select **ANC** > **Decode**.
3. Select the sub-tab for the SDI port you want to monitor.
4. Select the **Alarm Enable** box for an ANC Data type to enable an alarm condition to display when an error is detected.

**To verify the MC1 is encoding ANC data**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select **ANC** > **Encode**.
3. Select the sub-tab for the SDI port you want to monitor.
4. Select the **Alarm Enable** box for an ANC Data type to enable an alarm condition to display when an error is detected.

# Configuring the GPI/Tallies

This chapter outlines how to configure each GPI/Tally independently on the MC1.

## GPI Communication Setup

When configured as a GPI, a port behaves as an input, and can be used to trigger actions such as Cut/Dissolve the Key and/or Background. A push-button switch, or an ON-OFF switch, may be directly connected between the port and the adjacent ground pin. Alternatively, an external device may drive a low level. Minimum pulse duration is 1ms, anything shorter will be filtered out.

Typically, users will configure the GPI for Edge trigger. This means that the action is carried out either on the falling edge (button is pushed), or rising edge (button is released), depending on which Polarity is selected. Alternatively, users may configure the GPI for Level trigger. In this mode, the action is carried out on both the rising and falling edges, so there are effectively two states. The Polarity control can be used to invert the behavior. For all trigger types, GPI commands may be overridden by other command inputs such as serial protocols.

✶ RossTalk GPI commands will trigger functions assigned in the GPI setup.

The **Edge** option enables the GPI to act as a latching trigger. Edge triggers are used when you want to toggle between settings. This option enables the GPI to execute a specific function.

- If configured for Falling Edge, the selected function is executed when the GPI input signal transitions from High to Low.
- If configured for Rising Edge, the selected function is executed when the GPI input signal transitions from Low to High.
- Edge triggered GPI signals are sampled once per frame and the associated function is executed only once per frame. The minimum pulse width is 1 millisecond.
- Typically, the edge triggered GPI is driven by external equipment that generates one pulse per event.

**Level** triggers are used when you want to assert a particular state for a setting. You define the on-air state of the function as being either Level High or Level Low. Therefore, if the on-air state of the Key is defined as Level High for example, when the GPI is a Level High signal, the Key will stay on air. If a Level Low is received, the Key will be taken off air.

- If configured for Active Low, the selected function is executed when the GPI input signal is driven Low.
- If configured for Active High, the selected function is executed when the GPI input signal is driven High.

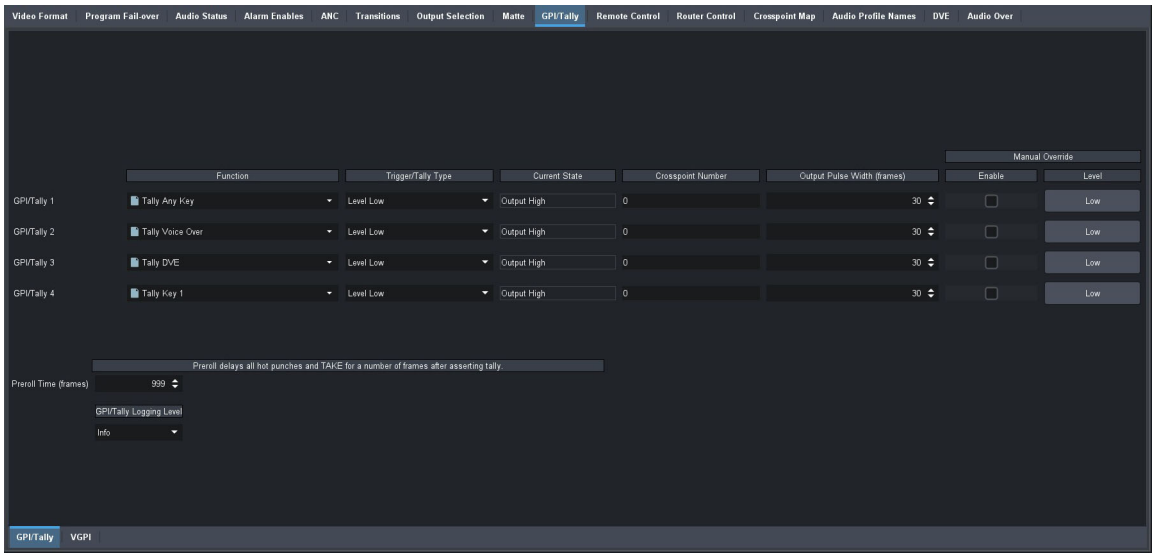
### Configuring a Port as a GPI

Each GPI can be configured independently from the others, allowing you to customize the function of each connection.

✶ The number of available GPIO ports depends on the rear module you are using. The R3B-GATOR (8322AR-318D) and R3A-GATOR (8322AR-319C) each provide 6 GPIO ports. The R4-GATOR (8323AR-325) provides 4 GPIO ports.

**To configure a port as a GPI**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **GPI/Tally** tab.




3. Use the **Function** menu to assign a transition event to a specific GPI port.
4. Use the **Trigger/Tally Type** menu to select a trigger and polarity for the GPI.
5. If the **Trigger/Tally Type** is set to **Falling** or **Rising**, use the **Output Pulse Width** menu to specify the number of frames the pulse will be for an edge trigger.
6. If the **Function** is set to **GPI PGM XPT**, use the **Crosspoint Number** field to specify the crosspoint on the MC1 that will trigger the GPI.

   The crosspoint number can be either a router source or a button number, as determined by the Remote Control > Device Setup > Switch Request setting.
7. Use the **Manual Override** and **Level** options in conjunction to override a GPI. This allows a GPI to be manually triggered from the menu and is useful for testing GPI function.

   a. Select the **Manual Override** box for a GPI/Tally.

   b. Toggle the **Level** button.

## Tally Communication Setup

When configured as a Tally, a port becomes an output, providing a status indicator. Typically this is used to indicate which input(s) are on-air at any given moment. Each tally output on the card can be configured to be active when any of the six inputs are on air. They can be configured as Active High or Active Low. Edge triggered tallies generate a pulse to the configure polarity (high or low) for a duration of 30 frames or the duration of the event (whichever is shorter). The tally outputs defaults to a logical high level when inactive. When the tally becomes active, for example the signal is on-air, then the output is driven low.

✶ The number of available GPIO ports depends on the rear module you are using. The R3B-GATOR (8322AR-318D) and R3A-GATOR (8322AR-319C) each provide 6 GPIO ports. The R4-GATOR (8323AR-325) provides 4 GPIO ports.

**To configure a port as a tally**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **GPI/Tally** tab.
3. Use the **Function** menu to specify what will drive the tally output when the input is on-air.

4. If the **Function** is set to **Tally PGM XPT**, use the **Crosspoint Number** field to specify the crosspoint on the MC1 that will trigger the tally.

   The crosspoint number can be either a router source or a button number, as determined by the Remote Control > Device Setup > Switch Request setting.

5. Use the **Trigger/Tally Type** menu to select the polarity of the tally.
6. If the **Trigger/Tally Type** is set to **Falling** or **Rising**, use the **Output Pulse Width** menu to specify the number of frames the pulse will be for an edge trigger.
7. Use the **Manual Override** and **Level** options in conjunction to override a tally. This allows a tally to be manually triggered from the menu and is useful for testing tally function.

   a. Select the **Manual Override** box for a GPI/Tally.

   b. Toggle the **Level** button.

## Enabling GPI/Tally Logging

The MC1 can provide a log of commands received from downstream devices via the GPI/Tally ports. You can specify the type of events to monitor. Events are listed in a hierarchical order based on the selected severity including internal errors and unrecognized or invalid responses from the GPI/Tally port, failed communications between the MC1-UHD (such as time outs) and the device connected to the GPI/Tally port. This is intended for troubleshooting incompatibilities between the MC1 and downstream devices.

**To configure the GPI/Tally logging feature**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **GPI/Tally** tab.
3. Use the **GPI/Tally Logging Level** menu to specify the type of events to log.

✶ By default, the logging level is set to **Info** which enables the MC1 to provide a summary of all commands sent to and responses via this GPI/Tally port.

## Configuring a Pre-roll Time

The MC1 includes an optional pre-roll time to be used in conjunction with GPIO crosspoint tallies. The tally is asserted immediately on any TAKE or hot-punch operation. The operation is then delayed for the specified number of frames.

✶ The Preroll Time will apply to all GPI/Tally connections in use on the rear module.

**To configure a pre-roll time**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **GPI/Tally** tab.
3. Use the **Preroll Time** field to specify the number of frames to pause before executing a command on any GPI/Tally connection.

## Enabling GPIs to Override Take Transitions

The MC1 can be configured to prevent GPI-triggered keys from being taken off-air by a TAKE transition. On activation, this feature disables the corresponding key on the preset bus. Note that the key can still be taken off-air by a hot-punch.

**To enable GPIs to override Take transitions**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **Transitions** tab.
3. Select the **GPI Overrides TAKE** box.

# Using Virtual GPIs

The Virtual GPI (VGPI) functionality of the Miranda™ Presmaster Automation or RossTalk protocols can be used to trigger squeeze on/off transitions on the MC1 using a specified SqueezeBack preset. This section outlines how to assign a VGPI to a SqueezeBack preset.

**For More Information on...**

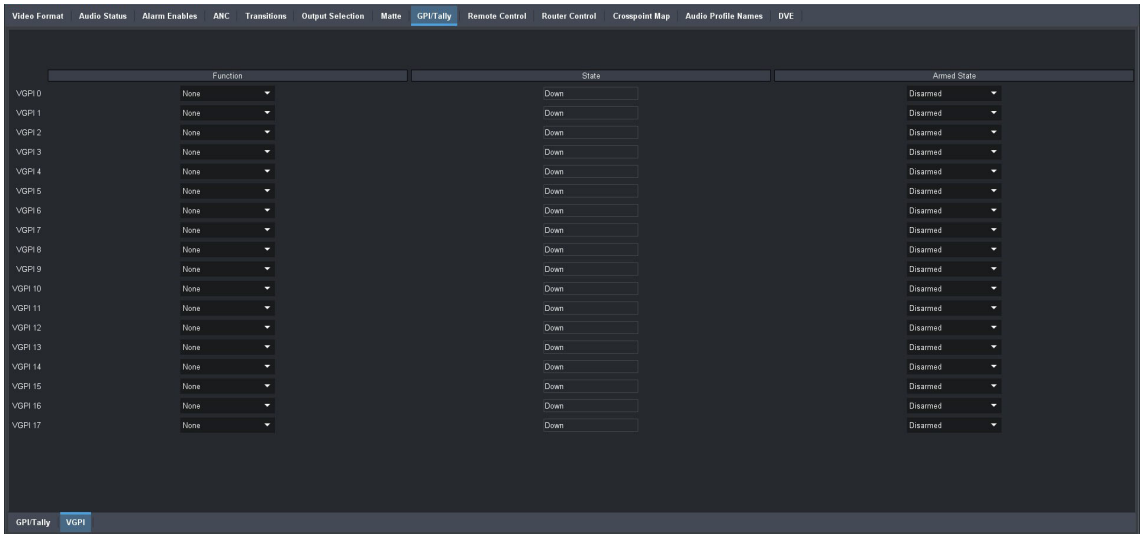
- the Presmaster commands, refer to the Miranda™ Presmaster Automation Protocol documentation.
- the Presmaster commands the MC1 supports, refer to "**Using the Presmaster Protocol**".
- the RossTalk protocol commands the MC1 supports, refer to "**Using RossTalk**".
- the options in the VGPI tab, refer to "**VGPI Tab**".
- the location of the **ATMN** button on the On Air Control interface, refer to "**Menu System Basics**".

## Assigning a SqueezeBack Preset to a VGPI

You can assign one of sixteen Virtual GPIs (VGPIs) to a specific SqueezeBack preset. Note that these VGPIs are not associated with the physical GPIO ports on the rear module.

**To assign a SqueezeBack Preset to a VGPI**

1. Display the **Configuration** interface as outlined in "**To display the Configuration interface in DashBoard**".
2. Select the **GPI/Tally** tab.
3. Select the **VGPI** sub-tab.




4. Use the **Function** menu to assign a specific SqueezeBack Preset for each VGPI.

5. Use the **Armed State** menu to determine if the specified SqueezeBack Preset is included in the transition. Choose from the following:
   - Disarmed — the command excludes the specified SqueezeBack Preset in the transition (the SQUEEZE button is unlit on the On Air Control interface). This command will be ignored when the specified SqueezeBack Preset is on Program.
   - Armed Up — the command includes the specified SqueezeBack Preset in the transition (the SQUEEZE button is lit on the On Air Control interface). This command will be ignored when the specified SqueezeBack Preset is on Program.
   - Armed Down — the command excludes the specified SqueezeBack Preset in the transition (the SQUEEZE button is unlit on the On Air Control interface). This command will be ignored when the specified SqueezeBack Preset is on Program.
6. Ensure the **ATMN** button is toggled to **ON** to enable your automation device to control the MC1-MK. This button is located on the On Air Control interface.

# Upgrading the Software

The MC1 can be upgraded in the field via DashBoard.

✶ During a software upgrade, the MC1 may be unresponsive and there will be interruptions to signal flow. Ensure the MC1 is bypassed in your signal path prior to performing a software upgrade.

**To upgrade the software on a card**

1. Contact Ross Technical Support for the latest software version file.
2. Ensure the Ethernet cable is connected to the **ETHERNET** port on the openGear frame.
3. Ensure the network settings on the MC1 are valid.
4. From the **Tree View**, expand the node for the MC1 you want to access.
5. Double-click the **Global** sub-node to display the interface in the right-half of DashBoard.
6. Click **Upload**, located near the bottom of the interface, to display the **Select file Upload** dialog.
7. Navigate to the ***.bin** file you want to upload.
8. Click **Open**.
9. If you are upgrading a single card:
   a. Click **Finish** to start the upgrade.
   b. Proceed to step 11.
10. If you are upgrading multiple cards:
    a. Click **Next >** to display the **Select Destination** menu. This menu provides a list of the compatible cards.
    b. Specify the card(s) to upload the file to by selecting the check box(es) for the cards you want to upload the file to.
    c. Verify the card(s) you want to upload the file to. The **Error/Warning** fields indicate any errors, such as incompatible software or card type mismatch.
    d. Click **Finish**.
11. Monitor the upgrade.
    - An **Upload Status** dialog enables you to monitor the upgrade process.
    - Notice that each card is listed in the dialog with a  button. This button is replaced with a **Reboot** button once the software file is loaded to that card.

✶ Avoid clicking the individual Reboot buttons until all cards have successfully completed the file upload process and the OK button, located in the bottom right corner of the dialog, is enabled.

- Click **OK** to reboot all the cards listed in the **Uploading to Selected Devices** dialog.
- The **Reboot Confirm** dialog displays, indicating the number of cards that will reboot. Click **Yes** to continue the upgrade process. Note that clicking **Cancel** or **No** returns you to the **Uploading to Selected Devices** dialog without rebooting the card(s).
- The card(s) are temporarily taken off-line during the reboot process. The process is complete once the status indicators for the **Card State** and **Connection** return to their previous status.

## Notes on Rebooting the Card

The following parameters are saved and recalled when the MC1 reboots:

- All editable parameters on the Global and Configuration interfaces
- The on-air setup should be recalled.
- The Program and Preset bus selection
- The External Key crosspoint selection.
- The Transition setup including Rates, Speed, and Trans Type
- Keyer configurations (such as source, transparency, etc.)
- Logos are reloaded
- The SqueezeBack effects and the Selected Effect are reloaded

The following on-air states are not recalled:

- Keyer on-air state (Program and Preset)
- Transition includes (BKGD, Squeeze)
- Audio Over state
- Fade to Black state

# DashBoard Interface Overview

This chapter summarizes the interfaces, and tabs available from DashBoard for the MC1.

✶ An asterisk beside a parameter indicates that it is the default value.

## Global Interface

The tabs in the Global interface enable you to monitor the overall status of the MC1 software and hardware. The Global interface is displayed by double-clicking the Global sub-node in the MC1 tree. (**Figure 45**)

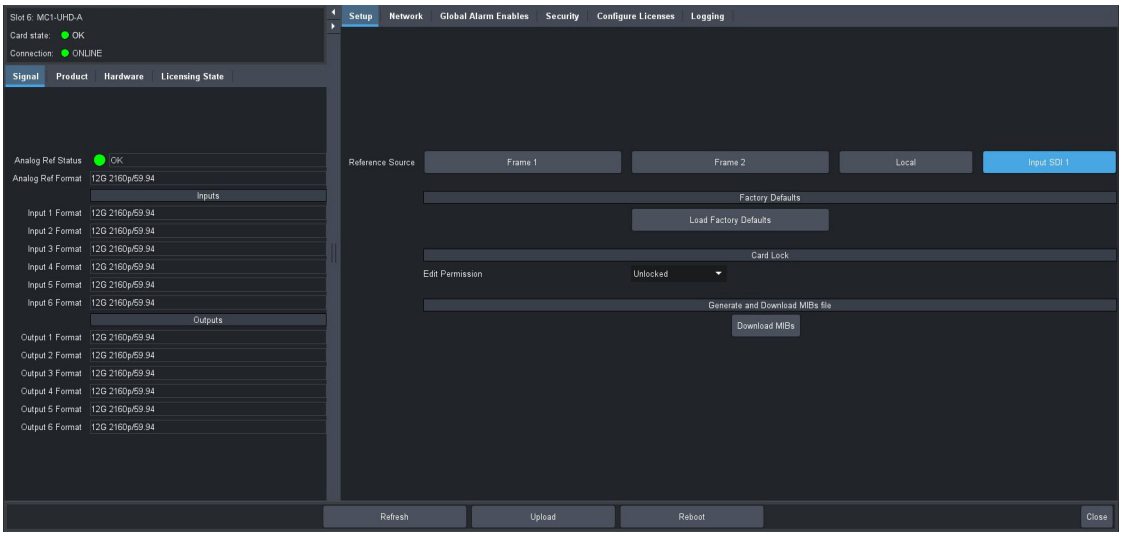



*Figure 45 Example of the Global Interface in DashBoard*

✶ If the Global Interface does not display as shown in **Figure 45**, the network settings of the MC1 may be incorrectly set or invalid. Refer to "**Getting Started**" for details.

## Signal Tab

**Table 24** summarizes the read-only information displayed in the Signal tab.

***Table 24 Signal Tab***

| Item | Parameters | Description |
|---|---|---|
| Analog Ref Status | OK (Green) | The detected reference format is supported |
| | Alarm Suppressed (Green) | An unsupported reference format is detected but the Global Alarm Enables > Reference Format option is disabled (box is not selected) |
| | Unlocked (Red) | A reference signal is detected but the MC1 is not locked to it |
| | Unsupported (Red) | A reference signal is detected but the format is not supported by the MC1 |
| | Incompatible (Red) | A reference signal is detected but the format is incompatible with the current output mode |

*Table 24 Signal Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Analog Ref Format | ### | Indicates the detected reference format |
| **Inputs** | | |
| Input # Format | ### | Signal present and the format matches the video output format configuration of the card |
| **Outputs** | | |
| Output # Format | ### | Reports the format of the specified video output |

## Product Tab

**Table 25** summarizes the read-only information displayed in the Product tab.

*Table 25 Product Tab*

| Item | Parameters | Description |
|---|---|---|
| Product | MC1 | |
| Supplier | Ross Video Ltd. | |
| Board Rev | # | Indicates the hardware version |
| Serial Number | # | Indicates the serial number of the card |
| Rear Module | # | Indicates the rear module the card is installed in |
| Rear Module Status | OK (Green) | A supported rear module is installed with the card |
| | Alarm suppressed (Green) | An unsupported rear module is installed but the Global Alarm Enables > Rear Module option is disabled (box is not selected) |
| | Incomp I/O Module (Red) | Card is connected to an unsupported rear module |
| Software Rev | v#.#-# | Indicates the software version running on the card |
| Firmware Rev | #.# | Indicates the firmware version running on the card |
| CPLD Rev | #.# | Indicates the complex programmable logic device version of the MC1 |
| **Daughter Card** | | |
| Type | # | Indicates the daughter card model installed on the main card |
| Variant | # | |
| Issue | # | Indicates the hardware version of the daughter card |

## Hardware Tab

**Table 26** summarizes the read-only information displayed in the Hardware tab.

***Table 26 Hardware Tab***

| Item | Parameters | Description |
|---|---|---|
| Hardware Status | OK (Green) | The fans are operating correctly and no errors are detected |
| | Alarm suppressed (Green) | There are fan errors detected but the Global Alarm Enables > Fan Speed option is disabled (box is not selected) |
| | Critical Temperature (Red) | An error with the fans is occurring. Verify that the fans and airflow for the card is valid. |
| | Fan Off/Stalled (Red) | |
| Voltage (mV) | # | Measured input voltage |
| Current (mA) | # | Current consumption in milliamperes |
| Power (W) | # | Power consumption in watts |
| FPGA Temp (C) | #C | Indicates the FPGA Core temperature where:<br>• A green indicator displays when the temperature is less than 95°C.<br>• A yellow indicator displays when the temperature is greater than or equal to 95°C.<br>• A red indicator displays when the temperature is greater than or equal to 100°C. |
|  | **If the temperature is greater than 100°C (212°F), the user must manually power down the card.** | |
| AXI Bridge | # | The Advanced extensible interface bridge is running correctly on the card. This information is used by Ross Technical Support for diagnostics. |
| Fan Speed | # | Reports the speed (rpm) of the fan on the board |
| CPU Usage | x.xx / y.yy / z.zz | Displays the CPU Load average where:<br>• x.xx represents in the last minute<br>• y.yy represents the last five minutes<br>• z.zz represents the last fifteen minutes |
| Uptime (System/App) | D HH:MM:SS | Reports the amount of time since the last reboot, or loss of connectivity, of the card |
| RAM Available | # / #.## MB | CPU Memory Used / Total CPU Memory |
| SD Card Status | x of #GB used | Reports the amount of memory used on the Micro SD card |
| **Daughter Card** | | |
| Voltage (mV) | # | Measured input voltage |

*Table 26 Hardware Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Current (mA) | # | Current consumption in milliamperes |
| Power (W) | # | Power consumption in watts |

## Licensing State Tab

**Table 27** summarizes the information displayed in the Licensing State tab.

*Table 27 Licensing State Tab*

| Item | Parameters | Description |
|---|---|---|
| Base Product Type | MC1 | |
| **MC1-#-LICENSE** | | |
| License State | Unlicensed | The license key for the feature is not installed. Navigate to the Configure License tab to enable this feature |
| | Licensed | The license key for this feature was correctly enabled in the Configure License tab |

## Setup Tab

**Table 28** summarizes the options in the Setup tab.

*Table 28 Setup Tab*

| Item | Parameters | Description |
|---|---|---|
| Reference Source | Frame 1 | Assigns the source connected to the **REF 1** port on the openGear frame |
| | Frame 2 | Assigns the source connected to the **REF 2** port on the openGear frame |
| | Local | Assigns the external reference source connected to **REF IN** port on the rear module |
| | Input SDI 1 | Assigns the signal connected to the **SDI IN 1** port on the rear module |
| **Factory Defaults** | | |
| Load Factory Defaults | All editable parameters in DashBoard, except those in the Network tab and any installed licenses, are reset to the factory default values. A reboot of the card may be required to update the parameters. | |
| **Card Lock** | | |
| Unlocked* | All editable parameters in DashBoard can be modified by a user | |
| Locked | The DashBoard interface is locked. The editable parameters in DashBoard can no longer be modified by the user.<br>To unlock the interface, select the box again. | |
| **Generate and Download MIBs File** | | |

*Table 28 Setup Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Download MIBs | Downloads the Management Information Base (MIB) file that provides the SNMP controls for your card | |

## Network Tab

**Table 29** summarizes the menus and read-only fields displayed in the Network tab.

*Table 29 Network Tab*

| Item | Parameters | Description |
|---|---|---|
| **Network Time** | | |
| Use time from Frame Network Controller | Selected | Enables the MC1 to use the time data reported by the MFC-OG3-N or MFC-OGX-N that is installed in the same openGear frame |
| | Cleared | |
| **openGear Chassis RJ-45** | | |
| Link Status (read-only) | OK (Green) | The MC1 is communicating on the network via the MFC-OG3-N or MFC-OGX-N |
| | Invalid Subnet Mask (Yellow) | The Current Subnet Mask value is set incorrectly or is invalid within your network |
| | Apply/Cancel Changes (Yellow) | One or more setting on this tab was changed but the **Apply** button was not selected |
| | Not Present (Red) | A link could not be established using the present network setting values |
| | Link Down (Red) | The link for the MFC-OG3-N or MFC-OGX-N is invalid |
| Current IP Address (read-only) | #.#.#.# | Indicates the IP Address currently assigned to the MC1 via the MFC-OG3-N or MFC-OGX-N |
| Current Subnet Mask (read-only) | #.#.#.# | Indicates the subnet mask for the MC1 |
| Current Gateway (read-only) | #.#.#.# | Indicates the gateway for communications outside of the local area network (LAN) |
| MAC Address (read-only) | # | Indicates the MAC Address currently assigned to the MC1 |
| Mode | Static | The user manually supplies the network settings for the MC1 |
| | DHCP* | Automates the assignment of network settings for the MC1 |
| Static IP Address | # | The IP Address for the MC1 that the user manually assigned |
| Subnet Mask | # | The Subnet Mask for the MC1 that the user manually assigned |

*Table 29 Network Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Static Gateway | #.#.#.# | The Gateway for the MC1 that the user manually assigned |

## Global Alarm Enables Tab

**Table 30** summarizes the options displayed in the Global Alarm Enables tab.

*Table 30 Global Alarm Enables Tab*

| Item | Parameters | Description |
|---|---|---|
| **Network Time** | | |
| Network time (read-only) | # | Displays the time data transmitted by the Frame Controller card in the same openGear frame.<br>Requires that the Global > Network > Use time from Frame Controller box is selected. |
| Alarm Enable | Selected | The MC1 reports the NTP time as provided by the Frame Controller card |
| | Cleared* | Disables this alarm |
| **Rear Module Alarm** | | |
| Rear Module (read-only) | This field replicates the information displayed in the Product > Rear Module Status field | |
| Alarm Enable | Selected* | The Global > Product > Rear Module Status field reports when a rear module is not compatible with the card |
| | Cleared | Disables this alarm |
| **Fan Alarm** | | |
| Fan Speed (read-only) | # | Reports the fan speed (rpm) of the fan on the board |
| Alarm Enable | Selected* | The MC1 reports when the fan is not working correctly |
| | Cleared | Disables this alarm |
| **Analog Reference Alarm** | | |
| Reference Format (read-only) | OK (Green) | Indicates the detected reference format is supported |
| | Alarm Suppressed (Green) | The Alarm Enable box is cleared. The status of the reference signal will not be reported. |
| | Unlocked (Red) | A reference signal is detected, but the card is not locked to it |
| | Unsupported (Red) | A reference signal is detected, but the format is not supported by the MC1 |
| | Incompatible (Red) | A reference signal is detected but the format is incompatible with the current output mode of the card |

*Table 30 Global Alarm Enables Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Alarm Enable | Selected* | The Global > Signal > Analog Reference Status field reports when there is a loss of reference signal |
| | Cleared | Disables this alarm |
| **SDI Input Alarms** | | |
| Input # Status (read-only) | Each field duplicates the information reported in the Configuration > Video Format > Input Status fields | |
| Alarm Enable | Selected* | MC1 reports a loss of the specified input or if the format is incompatible for the specified input |
| | Cleared | Disables this alarm |

## Security Tab

**Table 31** summarizes the options displayed in the Security tab.

*Table 31 Security Tab*

| Item | Parameters | Description |
|---|---|---|
| **Security Configuration** | | |
| SSH Login | Disable* | Disables the ability to log onto the MC1 via an SSH server |
| | Enable | The MC1 can be accessed via a secure channel by an SSH server |
| **File Transfer Protocol Configuration** | | |
| Disable FTP Server | The MC1 does not have access to any FTP server in your network | |
| Enable FTP & FTPS | The MC1 uses the File Transfer Protocol (FTP) and/or FTP with Transport Layer Security (FTPS) for connection to your network. If using FTPS, ensure the SSL certificate is loaded and validated on the MC1. | |
| Enable FTPS Only | The MC1 uses FTP with Transport Layer Security (FTPS) for connections. Ensure the SSL certificate is loaded and validated on the MC1. | |
| Enable FTP Only | The MC1 uses the File Transfer Protocol (FTP) for connection to your network | |
| SSL Status (read-only) | New valid SSL file received and in use | Indicates the status of the *.pem file after the last time the Scan SSL Certificate & Key button was clicked. |
| | No new valid SSL file received and current SSL file in use is still valid | |
| | No new valid SSL file received and current SSL file in use is no longer valid or does not exist | |
| | Current SSL file in use is still valid | |

*Table 31 Security Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| SSL Status (read-only) | Current SSL file in use is no longer valid or does not exist | Indicates the status of the *.pem file after the MC1 was recently rebooted |
| | Current SSL file in use is still valid | |
| SSL Expire (read-only) | D M dd hh:mm:ss yyyy GMT | Displays the exact expiration date of the SSL file on the MC1 where:<br>• D represents the day of the week<br>• M represents the month<br>• dd represents the date<br>• hh:mm:ss represents the time<br>• yyyy represents the year<br>For example, Sat Oct 31 18:08:55 2026 GMT |
| | <blank> | The SSL file is invalid or cannot be found |
| Scan SSL Certificate & Key | Click this button to verify if the uploaded and current *.pem file is valid or not. The SSL Status field updates with the result of the scan.<br>The current *.pem file will be validated and then be placed at the appropriate location in the MC1 for it to be used to have the ability to use FTPS. The *.pem file will no longer be present in the SSL_CK folder.<br>If there is an error or if the wrong file type is provided, the file will not be used. You will then need to upload a new SSL Certificate as outlined in "**Enabling FTP(S)**". | |

## Configure Licenses Tab

**Table 32** summarizes the read-only information displayed in the Configure Licenses tab.

*Table 32 Configure Licenses Tab*

| Item | Parameters | Description |
|---|---|---|
| Base Product Type | MC1 | |
| Feature | <license name> | Specifies the license(s) available for your card |
| Request Code | # | This character string is used to obtain a license key |
| Key | # | Specifies the license key that was provided to enable the licensed feature |
| | Licensed | The license key is valid and the licensed feature is enabled |

## Logging Tab

**Table 33** summarizes the read-only information displayed in the Logging tab.

*Table 33 Logging Tab*

| Item | Parameters | Description |
|---|---|---|
| Logging Level | Filters the events the System Log captures | |

***Table 33 Logging Tab (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Remote Logging | #.#.#.# | Specifies the IP Address for the external device that is logging the communication activity for the MC1 |
| System Log | Displays the events logged for the MC1 since the last time the log was cleared | |

# Configuration Interface

The tabs in the Configuration interface enable you to configure the outputs, transitions, the matte generators, the box masks, and GPI/Tally communications. (**Figure 46**) The Configuration interface is displayed by double-clicking the Configuration sub-node in the MC1 tree.

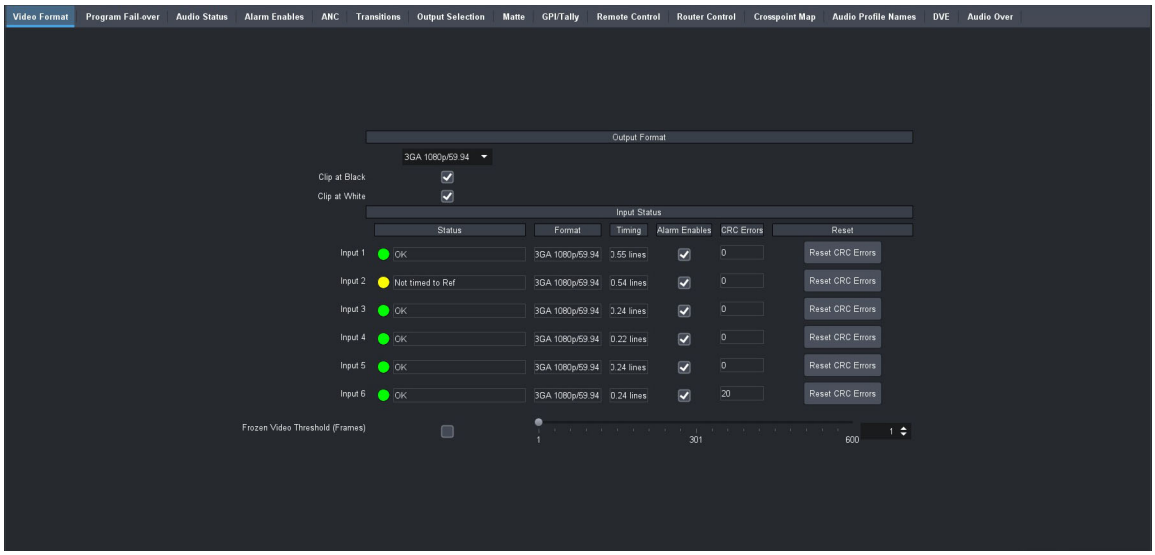



*Figure 46 Example of the Configuration Interface in DashBoard*

## Video Format Tab

**Table 34** summarizes the read-only information displayed in the Video Format tab.

***Table 34 Video Format Tab***

| Item | Parameters | Description |
|---|---|---|
| **Output Format** | | |
| Output Format | # | Selects the video format for the output signal. Note that a change in video format takes effect immediately. The default is 1080p/59.94. |
| Clip at Black | Selected* | Enables the card to clip to SMPTE black on all outputs |
| | Cleared | Super-black is not clipped (allows super-black) |

*Table 34 Video Format Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Clip at White | Selected* | Enables the card to slip to SMPTE white on all outputs |
| | Cleared | Super-white is not clipped (allows super-white) |
| **Input Status - Input #** | | |
| Status (read-only) | OK (Green) | The input signal is valid and no errors are detected |
| | Incompatible Video (Yellow) | The input video format is not supported by the reference format |
| | Frozen Video (Yellow) | The input signal has frozen on the last valid frame of video |
| | Invalid Video (Red) | The input signal is detected but it is in an unsupported format or an error is occurring |
| | No signal (Red) | No signal present on the specified input |
| Format (read-only) | # | Indicates the detected video format of the specified input signal |
| Timing (read-only) | # lines (to analog ref) | Indicates the timing of the specified input signal relative to the reference signal |
| Alarm Enables | Selected* | The MC1 monitors the signal on the specified IN BNC and reports when an error is detected on the input signal |
| | Cleared | The MC1 does not report when an error is detected on the specified input signal |
| CRC Errors | # | Displays the count of the CRC errors on the video input. This counter is reset on loss of video, or by user request. The counter is non-latching, and the count can roll over the counter. |
| | Reset | Resets the CRC Errors field |
| Frozen Video Threshold (Frames) | Selected | The MC1 reports an error when the input signal is frozen on the last valid frame of video |
| | Cleared* | Disables this feature |
| | 1-600 | Specifies the number of frames the video must be frozen before an alarm is reported |

## Program Fail-over Tab

**Table 35** summarizes the options displayed in the Program Fail-over tab.

***Table 35 Program Fail-over Tab***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | OK (Green) | Indicates the detected Program output signal is valid |
| | Auto Failover | The Program output is now defined by the Fail-over Mode setting |
| | Failover - User Force | The user manually set the card into Failover mode by clicking the Override button |
| Override | FORCE FAILOVER | Forces the MC1 to switch from the current Program output signal as specified by the Fail-over Mode |
| | RESET FAILOVER | The MC1 is currently operating in Fail-over Mode. Click this button again to return the Program output to the signal selected via the Program bus. |
| Auto return | Disabled | Disables this feature |
| | Enabled | The MC1 automatically returns to the output selected on the Program bus when the automatic trigger conditions are no longer detected |
| Fail-over mode | Disabled | Disables this feature |
| | Switch to preset | The Program output switches to the video source assigned to the Preset output |
| | Mute output | Mutes the video source on the Program output |
| | SDI # | The Program output switches to the specified SDI input signal |
| | Logo # | The Program output switches to the specified logo channel |
| **Hold off (frames) > Video** | | |
| Hold off | 1-600 | Specifies the number of frames the MC1 encounters video errors before a failover is triggered. The default is 1. |
| Auto Return | 1-600 | Specifies the number of frames the MC1 encounters no video errors before switching to a detected valid input signal. The default is 1. |
| **Hold off (frames) > Audio** | | |
| Hold off | 1-600 | Specifies the number of frames the MC1 encounters audio errors before a failover is triggered. The default is 1. |

*Table 35 Program Fail-over Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Auto Return | 1-600 | Specifies the number of frames the MC1 encounters no audio errors before automatically switching to the detected valid input signal. The default is 1. |
| **Hold off (frames) > ANC** | | |
| Hold off | 1-600 | Specifies the number of frames to wait when no ANC data is detected before triggering a failover. The default is 1. |
| Auto Return | 1-600 | Specifies the number of frames the MC1 encounters no ANC errors before automatically switching to the detected valid input signal. The default is 1. |
| **VIDEO Fail-over** | | |
| Incompatible Video | Selected | Triggers a failover when the Program output signal is not compatible with the reference input signal |
| | Cleared | A failover is not triggered by this error |
| Not Timed to Reference | Selected | Triggers a failover when the Program input is not locked to the reference signal |
| | Cleared | A failover is not triggered by this error |
| No Signal | Selected | Triggers a failover when a valid signal is not detected on the Program input |
| | Cleared | A failover is not triggered by this error |
| Frozen Video | Selected | Triggers a failover when the Program input signal has frozen on the last valid frame of video |
| | Cleared | A failover is not triggered by this error |
| Unlicensed | Selected | Triggers a failover when the Program input signal requires a license key |
| | Cleared | A failover is not triggered by this error |
| **AUDIO Failover > Group #** | | |
| Missing | Selected | Triggers a failover when a valid audio signal is absent on the Program input |
| | Cleared | A failover is not triggered by this error |
| Async | Selected | Triggers a failover when the audio signal is mistimed with the video on the Program input |
| | Cleared | A failover is not triggered by this error |
| **ANCILLARY Failover** | | |
| ST.352 Upstream | Selected | Triggers a failover when SMPTE ST-352 packets are not detected on the Program input |
| | Cleared | A failover is not triggered by this error |

***Table 35 Program Fail-over Tab (Continued)***

| Item | Parameters | Description |
|---|---|---|
| AFD | Selected | Triggers a failover when AFD data is not embedded in the ancillary area of the Program input |
| | Cleared | A failover is not triggered by this error |
| Closed Captioning (CC-708) | Selected | Triggers a failover when the CEA-708 data is not detected in the Program input |
| | Cleared | A failover is not triggered by this error |
| Closed Captioning (CC-608) | Selected | Triggers a failover when the CEA-608 is not detected in the Program input |
| | Cleared | A failover is not triggered by this error |
| LTC | Selected | Triggers a failover when the Linear Timecode packet is missing from the Program input |
| | Cleared | A failover is not triggered by this error |
| VITC | Selected | Triggers a failover when the Vertical Interval Timecode packet is missing from the Program input |
| | Cleared | A failover is not triggered by this error |
| Compressed Audio Metadata | Selected | Triggers a failover when the audio metadata of the input is not synchronous to the Program input |
| | Cleared | A failover is not triggered by this error |
| SCTE-104 | Selected | Triggers a failover when the SCTE-104 packet is not detected in the baseband SDI video signal of the Program input |
| | Cleared | A failover is not triggered by this error |
| OP-47 | Selected | Triggers a failover when the embedded OP-47 VANC packets are not detected on the Program input |
| | Cleared | A failover is not triggered by this error |
| Other | Selected | Triggers a failover when other supported ANC data types (not listed above) are absent in the VANC of the Program input |
| | Cleared | A failover is not triggered by this error |

## Audio Status

**Table 36** summarizes the read-only information displayed in the Audio Status tab for each channel.

***Table 36 Audio Status Tab***

| Item | Parameters | Description |
|---|---|---|
| **Embedded Audio # - Group #** | | |
| Ch # Status (read-only) | PCM | The channel is PCM audio |
| | Non-PCM | The channel is non-PCM audio |
| | Absent | The audio channel is not detected or invalid |
| **AES - AES # Input** | | |
| Sample Rate Conversion | Selected | SRC is used on the input of the specified AES signal |
| | Cleared | SRC is not used on the input of the specified AES signal. Select this option when using non-PCM audio data. |
| Ch # Status (read-only) | PCM (Green) | Displays the status of the specified channel input |
| | PCM-silent (Green) | |
| | Non-PCM (Green) | |
| | No Input (Red) | |
| | Async[a] (Red) | |
| Word Length (read-only) | #bit | Reports the number of bits of audio |
| Sample Rate (read-only) | #kHz | Reports the sample rate of the AES input |
| Emphasis (read-only) | Yes | The incoming AES signal is indicating 50/15 or CCiTT J.17 emphasis |
| | No | The incoming AES signal is indicating no emphasis or the emphasis is not indicated |
| Presence Alarm | Selected* | The MC1 reports when the specified AES input is not detected |
| | Cleared | Disables the alarm. |
| Async Alarm[c] | Selected | The AES source is either asynchronous to the input video, or is not a 48kHz rate |
| | Cleared | Disables the alarm. The AES input is not monitored. |

a. If the Sample Rate Conversion is enabled, an Async AES signal is processed to be PCM and indicated as such.

## Alarm Enables Tab

**Table 37** summarizes the options displayed in the Alarm Enables tab.

***Table 37 Alarm Enables Tab***

| Item | Parameters | Description |
|---|---|---|
| **SDI Input #** | | |
| Video | Selected* | An alarm is triggered when a missing or an invalid video signal is detected on the SDI input |
| | Cleared | The alarm is suppressed when a missing or an invalid video signal is detected on the SDI input |
| **SDI Input # - Audio Group #** | | |
| Absent | Selected* | An alarm is triggered when a missing audio signal is detected on the SDI input |
| | Cleared | The alarm is suppressed when a missing audio signal is detected on the SDI input |
| Async | Selected* | An alarm is triggered when the audio signal is mistimed with the video on the SDI input |
| | Cleared | The alarm is suppressed when the audio signal is mistimed with the video on the SDI input |

## ANC Tab

The ANC menus, status fields, and options are organized into three sub-tabs: ANC, Decode, and Encode. This section summarizes the options available in each sub-tab.

ANC

**Table 38** summarizes the options available in the **ANC** sub-tab.

***Table 38 ANC — ANC Tab***

| Item | Parameters | Description |
|---|---|---|
| ANC Frame Delay (read-only) | # | The frame delay is always relative to the next output frame. The output is at a fixed rate as defined by the Output Video mode. |
| ANC Pass through | Selected | The MC1 passes all upstream ANC data with no modifications.<br>The ANC Delete/Pass, Insertion Line, and Insertion Order settings are ignored.<br>The ANC > Decode tab continues to report the incoming services as if they are being decoded.<br>The ANC > Encode >Status field reports the pass through status and copies the data rate fields from the ANC > Decode tab. |

***Table 38 ANC — ANC Tab (Continued)***

| Item | Parameters | Description |
|---|---|---|
| ANC Pass through | Cleared | The MC1 applies the ANC Delete/Pass and Insertion line/order settings before passing the upstream ANC data |
| **Packet Name** | | |
| Action | Delete | Card deletes the packet from the output |
| | Pass* | The card receives and re-inserts the specified packet type into the specified line without modifying the packet contents |
| Field # Insertion Line | Switch Line + # | Selects a line to insert the specified ANC packet on.<br>Note that if more than one packet is to be inserted in the same line, the packet with the lowest insertion order number will be inserted first. The default is Switch Line + 2. |
| | Follow upstream | Inserts the packet on the same line as the upstream device |
| Insertion Order | # | Defines the hierarchy of the packets insertion<br>Note that the lower the number, the higher priority the packet is given. |
| Line 21 Caption Pass-through[a] | Selected | Specifies to pass closed-captioning data on Line 21 unaltered. This setting should only be used when closed-captioning, or other data, is present on Line 21. |
| | Cleared | Disables this feature |

a. This option only displays when the Configuration > Video Format > Output Format is set to 480i 59.94Hz.

## Decode

**Table 39** summarizes the **Decode** sub-tab fields available in DashBoard for each type of ANC data for each SDI signal.

***Table 39 ANC — Decode > SDI # Tab***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | OK | Expected decoded ANC data is present |
| | Exceeded Bandwidth | Captured VANC services exceeded bandwidth |
| | Missing | Expected decoded ANC data is not present |
| | Present in Luma and Chroma | Decoded data was found on both LUMA and CHROMA channels |
| | Unexpected: Field # | Receiving ANC data from wrong field |
| | Unexpected: LUMA | Receiving ANC data from wrong channel |
| | Unexpected: CHROMA | Receiving ANC data from wrong channel |
| | Line Out of Range | Receiving data from wrong line |

***Table 39 ANC — Decode > SDI # Tab (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Too Many Packets in Frame | There is a data overflow |
| | Overflow | Exceeded decoded bandwidth. Lost data. |
| | CRC Error | CRC error found in decoded ANC data: some protocols only |
| | Parse Error | Decoded data does not match expected protocol |
| | Invalid Length | The length of decoded ANC packet is incorrect for service |
| Data Rate (Bytes/Sec) (read-only) | # | Reports the decoding data transfer rate; the number of bytes received in the last field |
| Field # | #, <text> | Reports the data insertion location where **#** represents the specific line and **<text>** :<br>• HC represents HVANC CHROMA<br>• HL represents HVANC LUMA<br>• VC represents VANC CHROMA<br>• VL represents VANC LUMA |
| Alarm Enable | Selected | The MC1 monitors the decoded ANC status and updates the Status field accordingly |
| | Cleared* | Disables this alarm |
| **Field #** | | |
| Bandwidth Used (Percent) (read-only) | # | The overall bandwidth percentile including buffer overflow state, of all decoding ANC services |

## Encode

**Table 40** summarizes the **Encode** sub-tab fields available in DashBoard for the ANC data for each SDI signal.

***Table 40 ANC — Encode > SDI # Tab***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | OK | Expected encoded ANC data is present |
| | Exceeded Bandwidth | Captured VANC services exceeded bandwidth |
| | Missing | Expected encoded ANC data is not present |
| | Present in Luma and Chroma | Encoded data was found on both LUMA and CHROMA channels |
| | Unexpected: Field # | Receiving ANC data from wrong field |
| | Unexpected: LUMA | Receiving ANC data from wrong channel |
| | Unexpected: CHROMA | Receiving ANC data from wrong channel |

***Table 40 ANC — Encode > SDI # Tab (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Line Out of Range | Receiving data from wrong line |
| | Too Many Packets in Frame | There is a data overflow |
| | Overflow | Exceeded encoded bandwidth. Lost data. |
| | CRC Error | CRC error found in encoded ANC data: some protocols only |
| | Parse Error | Encoded data does not match expected protocol |
| | Invalid Length | The length of encoded ANC packet is incorrect for service |
| Data Rate (Bytes/Sec) (read-only) | # | Reports the encoding data transfer rate; the number of bytes received in the last field |
| Alarm Enable | Selected | The MC1 monitors the encoded ANC status and updates the Status field accordingly |
| | Cleared* | Disables this alarm |
| **Field #** | | |
| Bandwidth Used (Percent) | # | The overall bandwidth percentile including buffer overflow state, of all decoding ANC services |

## Transitions Tab

**Table 41** summarizes the options displayed in the Transitions tab.

***Table 41 Transitions Tab***

| Item | Parameters | Description |
|---|---|---|
| VANC Preroll | 0-25 | Specifies the number of frames to pause all hot-punches, key punches, and TAKE transitions after the VANC is passed through |
| **Post Transition Behavior** | | |
| Leave Preset As Is | The Preset bus remains unchanged after a transition | |
| Swap Program/Preset* | The Program and Preset buses flip-flop after a transition | |
| Preset Off | The Preset bus is unavailable after a transition | |
| **Take During Transition Action** | | |
| Ignore* | Select this option to disregard any successive presses of the TAKE button until the transition is complete | |
| Pause | Select this option to pause the transition when the TAKE button is toggled, and resume the transition when the button is pressed again | |
| Reverse | Select this option to reverse the transition back to the start | |
| **Cut on Clean Feed** | | |

*Table 41 Transitions Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Selected | A cut is performed when transitioning to a clean feed output | |
| Cleared* | Disables this feature | |
| **Reset Audio Gain** | | |
| Selected | Ramps the audio gain level to the default level as the Preview bus is transitioned after a TAKE | |
| Cleared* | Keeps the audio gain level at the current level after a TAKE transition completes (the audio gain is not adjusted) | |
| **GPI Triggered Keys to Override TAKE Transitions** | | |
| GPI Overrides TAKE | Selected | Prevents GPI-triggered keys from being taken off-air by a TAKE transition. On activation, this feature disables the corresponding key on the preset bus. |
| | Cleared* | Disables this feature |
| **FTB Disabling** | | |
| FTB Button | FTB Enabled | Selecting the FTB button performs a fade to black where the: program bus is faded to black at the FTB rate, the audio fades to silence, and closed captioning information is not passed |
| | FTB Disabled | The FTB button is grayed out on the interface, and selecting it has no effect |

## Output Selection Tab

**Table 42** summarizes the options displayed in the Output Selection tab.

*Table 42 Output Selection Tab*

| Item | Parameters | Description |
|---|---|---|
| Output # | Black | Specified output displays black |
| | Program | Specified output displays the Program output |
| | Preview | Specified output displays the Preview output |
| | Clean # | Specified output displays the selected clean feed output |
| | Logo # | Assigns the specified logo channel to the output |
| **Voice Over Enable - Output #** | | |
| Audio Over | Selected | Enables voice over on the selected output |
| | Cleared | Disables voice over on this output |
| EAS | Selected | Enables EAS voice over on the selected output |
| | Cleared | Disables EAS voice over on this output |

## Matte Tab

**Table 43** summarizes the options displayed in the Matte tab for each matte generator.

***Table 43 Matte Tab***

| Item | Parameters | Description |
|---|---|---|
| **Matte #** | | |
| Luma | # | Adjusts the luma component |
| Cr | # | Adjusts the blue-difference values of the matte generator channel where:<br>• Increasing the value causes the display color to become increasingly saturated with blue<br>• Decreasing the value de-saturates the blue color from the display color |
| Cb | # | Adjusts the red-difference values of the matte generator channel where:<br>• Increasing the value causes the display color to become increasingly saturated with red<br>• Decreasing the value de-saturates the red color from the display color |

## GPI/Tally Tab

The GPI/Tally tab is divided into two sub-tabs: GPI/Tally and VGPI.

### GPI/Tally Tab

**Table 44** summarizes the options displayed in the GPI/Tally sub-tab.

***Table 44 GPI/Tally > GPI/Tally Tab***

| Item | Parameters | Description |
|---|---|---|
| **GPI/Tally #** | | |
| Function | None* | The specified GPIO port is not configured and the GPI has no effect. The Trigger/Tally Type setting is ignored. |
| | Tally Video Input # | Configures the GPIO port as an output and reflects the on-air status of the specified SDI IN signal |

***Table 44 GPI/Tally > GPI/Tally Tab (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Function | Tally Key # | Configures the GPIO port as an output and reflects the on-air status of the specified Key |
| | Tally Any Key | Configures the GPIO port as an output; the Tally is active when any of the Keys are on-air |
| | Tally PGM XPT | Configures the GPIO port as an output and reflects the on-air status of the crosspoint specified in the Crosspoint Number field |
| | Tally Voice Over | Configures the GPIO port as an output; the tally is active when an Audio Over channel is on-air |
| | GPI Auto Key # | When a trigger is received by the GPI input, an auto key transition (a V-fade) is performed as defined by the selected Transition Type and Speed |
| | GPI Cut Key | A cut transition is performed on the specified Key when a trigger is received by that GPI input |
| | GPI On Air | Configures the GPIO port as an input and reflects the on-air status of the source |
| | GPI Take | A Take transition is performed when a trigger is received by that GPI input |
| | GPI FTB | A fade to black is performed when a trigger is received that the specified GPI input |
| | GPI PGM XPT | Configures the GPIO port as an input and reflects the on-air status of the crosspoint specified in the Crosspoint Number field when this GPI is triggered |
| | GPI Voice Over | Configures the GPIO port communicate with a device to receive an audio voice over when this GPI is triggered |
| | GPI EAS Audio Over | Configures the GPIO port to communicate with an EAS device to receive an EAS audio voice over when this GPI is triggered |
| Trigger/Tally Type | Falling* | If configured for Falling Edge, the selected function is executed when the GPI input signal transitions from High to Low |
| | Rising | If configured for Rising Edge, the selected function is executed when the GPI input signal transitions from Low to High |
| | High | If configured for Active High, the selected function is executed when the GPI input signal is driven High |

*Table 44 GPI/Tally > GPI/Tally Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Trigger/Tally Type | Low | If configured for Active Low, the selected function is executed when the GPI input signal is driven Low |
| Current State (read-only) | High | Reports the tally status |
| | Low | |
| Crosspoint Number | # | Only applicable when the **Function** is set to **Tally PGM XPT** or **GPI PGM XPT**.<br>Specifies the crosspoint on the MC1 that will trigger the tally. The crosspoint number can be either a router source or a button number, as determined by the **Remote Control** > **Device Setup** > **Switch Request** setting. |
| Output Pulse Width (frames) | # | Specifies the number of frames between the rising and falling edges of the output |
| **Manual Override** | | |
| Enable | Selected | The user will trigger a switch in states |
| | Cleared | The port will trigger a switch in states |
| Level | High | The output toggles from the base low level to the high level. The output signal remains at this level until reset. |
| | Low | The output level toggles from the base high level to the low level. The output signal remains at this level until reset. |
| **Pre-roll** | | |
| Pre-roll Time (frames) | # | Specifies the number of frames to pre-roll delay all hot-punches, key punches, and TAKE transitions after asserting a tally |
| **GPI/Tally Logging Level** | | |
| Emergency | Events are listed in a hierarchical order based on the selected severity including:<br>• internal errors and unrecognized or invalid responses from the GPI/Tally port<br>• failed communications between the MC1 (such as time outs) and the device connected to the GPI/Tally port<br>This is intended for troubleshooting incompatibilities between the MC1 and downstream devices. | |
| Alert | | |
| Critical | | |
| Error | | |
| Warning | | |
| Notice | | |
| Info* | The MC1 provides a summary of commands sent to and responses via this GPI/Tally port | |

## VGPI Tab

The **VGPI** tab provides configuration options for Virtual GPIs (VGPIs) when using the Miranda™ Presmaster or RossTalk protocols. **Table 45** provides a summary of the VGPI tab.

**For More Information on…**

- the Presmaster protocol, refer to "**Using the Presmaster Protocol**".
- the RossTalk protocol, refer to "**Using RossTalk**".

***Table 45 GPI/Tally > VGPI Tab***

| Item | Parameters | Description |
|---|---|---|
| **VGPI #** | | |
| Function | SqueezeBack Effect 1[a] | • An ARM command (0x0130) will enable/disable SqueezeBack Preset 1 on the Preset bus<br>• A STATE command (0x0140) will enable/disable SqueezeBack Preset 1 on the Program bus |
| | SqueezeBack Effect 2[b] | • An ARM command (0x0130) will enable/disable SqueezeBack Preset 2 on the Preset bus<br>• A STATE command (0x0140) will enable/disable SqueezeBack Preset 2 on the Program bus |
| | SqueezeBack Effect 3[c] | • An ARM command (0x0130) will enable/disable SqueezeBack Preset 3 on the Preset bus<br>• A STATE command (0x0140) will enable/disable SqueezeBack Preset 3 on the Program bus |
| | SqueezeBack Effect 4[d] | • An ARM command (0x0130) will enable/disable SqueezeBack Preset 4 on the Preset bus<br>• A STATE command (0x0140) will enable/disable SqueezeBack Preset 4 on the Program bus |
| | None* | The specified VGPI is disabled. |
| State (read-only) | Up | When no SqueezeBack Preset is on Program and this command is in the Up state, the command selects the effect type of VGPI and transitions the selected effect on Program |
| | Down | When a SqueezeBack Preset is on Program and this command is in the Down state, the VGPI which has the same effect as the current one will be handled and the current effect will be off air or on Preview |

*Table 45 GPI/Tally > VGPI Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Armed State | Disarmed* | In this state, the command excludes the specified SqueezeBack Preset in the transition (the **SQUEEZE** button is unlit on the On Air Control interface).<br>This command will be ignored when the specified SqueezeBack Preset is on Program. |
| | Armed Up | In this state, the command includes the specified SqueezeBack Preset in the transition (the **SQUEEZE** button is lit on the On Air Control interface).<br>This command will be ignored when the specified SqueezeBack Preset is on Program. |
| | Armed Down | In this state, the command excludes the specified SqueezeBack Preset in the transition (the **SQUEEZE** button is unlit on the On Air Control interface).<br>This command will be ignored when the specified SqueezeBack Preset is on Program. |

a. The default value for VGPI 0.
b. The default value for VGPI 1.
c. The default value for VGPI 2.
d. The default value for VGPI 3.

## Remote Control Tab

This section summarizes the options displayed in the Remote Control tab.

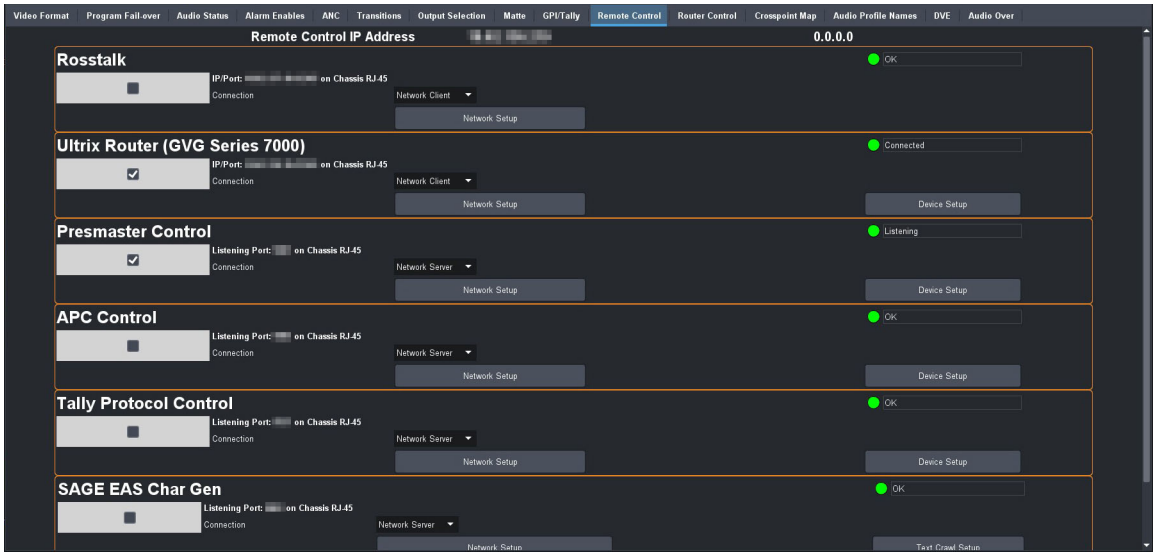



*Figure 47 Example of the Remote Control Tab*

RossTalk

**Table 46** summarizes the RossTalk options displayed in the Remote Control tab.

***Table 46 Remote Control — RossTalk***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Connected (Green) | • **Enabled** box is selected for this protocol<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port number are valid<br>• MC1 has successfully established connection to the given IP address and port |
| | Inactive (Green) | **Enabled** box is not selected for RossTalk |
| | Listening (Green) | • **Enabled** box is selected for RossTalk<br>• **Connection** is set to **Network Server**<br>• Specified Port number is valid<br>• MC1 is ready to accept connections on the specified port |
| | Reconnecting (Yellow) | • **Enabled** box is selected for the protocol<br>• **Connection** is set to **Network Client**<br>• MC1 attempts to connect periodically to the specified IP address and Port number. The interval between connection attempts start at 10 seconds, increases by 10 seconds, to a maximum of 60 seconds. |
| | Connecting (Yellow) | • **Enabled** box is selected for RossTalk<br>• **Connection** is set to **Network Client**<br>• MC1 is attempting to connect to the specified IP address and Port Number |
| | Port in use (Red) | • **Enabled** box is selected for RossTalk<br>• **Connection** is set to **Network Server**<br>• Port Number specified in the Port field is invalid or in use by another service |
| | Cannot connect (Red) | • **Enabled** box is selected for RossTalk<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port Number are invalid or in use by another device |
| | Selected | Enables the protocol on the rear module Ethernet port |
| | Cleared* | Disables the protocol on the Ethernet port. When the check box is cleared, any incoming data from the external device is discarded by the MC1. |

*Table 46 Remote Control — RossTalk (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Connection | Network Server* | The MC1 functions as a host, or socket listener, on the network |
| | Network Client | The MC1 functions as a service requester that initiates communications with a server |
| **Network Setup** | | |
| Protocol | TCP* | Select this option if your external device is connected to the MC1 through a network and uses the Transmission Control Protocol (TCP/IP) |
| | UDP | Select this option if your device is connected to the MC1 through a network and uses the User Datagram Protocol (UDP/IP). |
| Port | # | When **Connection** is set to **Network Server**:<br>• specifies the TCP or UDP port numbers where the MC1 will listen on.<br>• TCP ports 0, 21, 80, 5253, and 6667 are unavailable for Ethernet communications |
| | | When **Connection** is set to **Network Client**, this menu specifies the remote port number to which the MC1 will try to connect |
| IP Address | #.#.#.# | • Only applicable when **Connection** is set to **Network Client**<br>• Specifies the IP address of the external device. The default is 0.0.0.0 and this must be changed to the actual IP address of the external device. |
| Timeout (sec) | # | Specifies the number of seconds the MC1 will wait after a loss of RossTalk TCP connection before reporting an error. The default is 10. |
| Monitor Connection | Selected | Enables the monitoring of the RossTalk TCP connection; the status indicator in the top right corner of the RossTalk area will report the advanced settings enabled for monitoring. This is the default. |
| | Cleared | The status of the RossTalk TCP connection is not monitored |
| Idle Time (sec) | # | The status indicator reports an error when the MC1 does not detect active communication on the RossTalk TCP connection for the specified number of seconds. The default is 20. |

***Table 46 Remote Control — RossTalk (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Retries | # | Specifies the number of attempts the MC1 will make to re-establish the RossTalk TCP connection. The default is 3. |

Ultrix Router (GVG Series 7000)

**Table 47** summarizes the Ultrix Router (GVG Series 7000) options in the Remote Control tab.

***Table 47 Remote Control — Ultrix Router GVG Series 7000***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Connected (Green) | • **Enabled** box is selected for this protocol<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port number are valid<br>• MC1 has successfully established connection to the given IP address and port |
| | Inactive (Green) | **Enabled** box is not selected for GVG Series 7000 |
| | Listening (Green) | • **Enabled** box is selected for GVG Series 7000<br>• **Connection** is set to **Network Server**<br>• Specified Port number is valid<br>• MC1 is ready to accept connections on the specified port |
| | Reconnecting (Yellow) | • **Enabled** box is selected for the protocol<br>• **Connection** is set to **Network Client**<br>• MC1 attempts to connect periodically to the specified IP address and Port number. The interval between connection attempts start at 10 seconds, increases by 10 seconds, to a maximum of 60 seconds. |
| | Connecting (Yellow) | • **Enabled** box is selected for GVG Series 7000<br>• **Connection** is set to **Network Client**<br>• MC1 is attempting to connect to the specified IP address and Port Number |
| | Port in use (Red) | • **Enabled** box is selected for GVG Series 7000<br>• **Connection** is set to **Network Server**<br>• Port Number specified in the Port field is invalid or in use by another service |

*Table 47 Remote Control — Ultrix Router GVG Series 7000 (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Cannot connect (Red) | • **Enabled** box is selected for GVG Series 7000<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port Number are invalid or in use by another device |
| Enabled | Selected | Enables the protocol on the rear module Ethernet port |
| | Cleared* | Disables the protocol on the Ethernet port. When the check box is cleared, any incoming data from the external device is discarded by the MC1. |
| Role | Server | The MC1 functions as a host, or socket listener, on the network |
| | Client | The MC1 functions as a service requester that initiates communications with a server |
| **Network Setup** | | |
| Protocol | TCP* | Select this option if your external device is connected to the MC1 through a network and uses the Transmission Control Protocol (TCP/IP) |
| | UDP | Select this option if your device is connected to the MC1 through a network and uses the User Datagram Protocol (UDP/IP). |
| Port | # | When **Connection** is set to **Network Server**:<br>• specifies the TCP or UDP port numbers where the MC1 will listen on.<br>• TCP ports 0, 21, 80, 5253, and 6667 are unavailable for Ethernet communications |
| | | When **Connection** is set to **Network Client**, this menu specifies the remote port number to which the MC1 will try to connect |
| IP Address | #.#.#.# | • Only applicable when **Connection** is set to **Network Client**<br>• Specifies the IP address of the external device. The default is 0.0.0.0 and this must be changed to the actual IP address of the external device. |
| Timeout (sec) | # | Specifies the number of seconds the MC1 will wait after a loss of connection to the Ultrix router before reporting an error. The default is 10. |

*Table 47 Remote Control — Ultrix Router GVG Series 7000 (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Monitor Connection | Selected | Enables the monitoring of the Ultrix router connection; the status indicator in the top right corner of the Ultrix area will report the advanced settings enabled for monitoring. This is the default. |
| | Cleared | The status of the Ultrix router connection is not monitored |
| Idle Time (sec) | # | The status indicator reports an error when the MC1 does not detect active communication with the Ultrix router for the specified number of seconds. The default is 20. |
| Retries | # | Specifies the number of attempts the MC1 will make to re-establish the connection to the Ultrix router. The default is 3. |
| **Device Setup** | | |
| Level Index | # | Specifies the level that the router will perform crosspoint switches on. The default is 1. |
| Take All Levels | Selected* | Specifies that all transitions take effect on all router levels |
| | Cleared | Disables this feature. Only the level specified in the Level Index field will be affected during a transition. |
| Send Optional Tabs | Selected | Includes the optional tab character between the last command parameter and the checksum. Refer to the documentation for your external device to determine if this character is required. |
| | Cleared* | Disables this feature |
| Log in Hexadecimal | Selected | The SEND and RECV log messages are displayed in hexadecimal (enabled via the Enable Log Messages area) |
| | Cleared* | Disables this feature |
| Disable Queries | Selected | The MC1 does not send query commands to the external device. Select this option when connecting to a Grass Valley NV9000 |
| | Cleared* | Disables this feature |

*Table 47 Remote Control — Ultrix Router GVG Series 7000 (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Log Level | INFO | The MC1 provides a summary of commands sent to and responses from the router |
| | SEND | The MC1 provides a detailed report of commands sent to the router. By default, the box is unselected (cleared). |
| | RECV | The MC1 provides a detailed report of router responses. By default, the box is unselected (cleared). |
| | WARN | Indicates failed communications between the MC1 and the router (such as command time outs and checksum errors). By default, the box is selected. |
| | ERR | Reports internal errors and unrecognized or invalid responses from the router. This is intended for troubleshooting incompatibilities between the MC1 and a third-party router. By default, the box is selected. |

## Presmaster Control

**Table 48** summarizes the Presmaster options displayed in the Remote Control tab.

*Table 48 Remote Control — Presmaster*

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | OK (Green) | • **Enabled** box is selected for this protocol<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port number are valid<br>• MC1 has successfully established connection to the given IP address and port |
| | Inactive (Green) | **Enabled** box is not selected for Presmaster |
| | Listening (Green) | • **Enabled** box is selected for Presmaster<br>• **Connection** is set to **Network Server**<br>• Specified Port number is valid<br>• MC1 is ready to accept connections on the specified port |

***Table 48 Remote Control — Presmaster (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Reconnecting (Yellow) | • **Enabled** box is selected for the protocol<br>• **Connection** is set to **Network Client**<br>• MC1 attempts to connect periodically to the specified IP address and Port number. The interval between connection attempts start at 10 seconds, increases by 10 seconds, to a maximum of 60 seconds. |
| | Connecting (Yellow) | • **Enabled** box is selected for Presmaster<br>• **Connection** is set to **Network Client**<br>• MC1 is attempting to connect to the specified IP address and Port Number |
| | Port in use (Red) | • **Enabled** box is selected for Presmaster<br>• **Connection** is set to **Network Server**<br>• Port Number specified in the Port field is invalid or in use by another service |
| | Cannot connect (Red) | • **Enabled** box is selected for Presmaster<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port Number are invalid or in use by another device |
| Enabled | Selected | Enables the protocol on the rear module Ethernet port |
| | Cleared* | Disables the protocol on the Ethernet port. When the check box is cleared, any incoming data from the external device is discarded by the MC1. |
| Connection | Serial Port | Enables the MC1 to communicate with a third-party device via the Presmaster serial protocol |
| | Network Server | The MC1 functions as a host, or socket listener, on the network |
| | Network Client | The MC1 functions as a service requester that initiates communications with a server |
| **Network Setup** | | |
| Packet Type | TCP* | Select this option if your external device is connected to the MC1 through a network and uses the Transmission Control Protocol (TCP/IP) |
| | UDP | Select this option if your device is connected to the MC1 through a network and uses the User Datagram Protocol (UDP/IP). |

***Table 48 Remote Control — Presmaster (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Port | # | When **Connection** is set to **Network Server**:<br>• specifies the TCP or UDP port numbers where the MC1 will listen on.<br>• TCP ports 0, 21, 80, 5253, and 6667 are unavailable for Ethernet communications |
| | | When **Connection** is set to **Network Client**, this menu specifies the remote port number to which the MC1 will try to connect |
| Remote IP Address | #.#.#.# | • Only applicable when **Connection** is set to **Network Client**<br>• Specifies the IP address of the external device. The default is 0.0.0.0 and this must be changed to the actual IP address of the external device. |
| Timeout (sec) | # | Specifies the number of seconds the MC1 will wait after a loss of Presmaster protocol connection before reporting an error. The default is 10. |
| Monitor Connection | Selected | Enables the monitoring of the Presmaster protocol connection; the status indicator in the top right corner of the Presmaster area will report the advanced settings enabled for monitoring. This is the default. |
| | Cleared | The status of the Presmaster protocol connection is not monitored |
| Idle Time (sec) | # | The status indicator reports an error when the MC1 does not detect active communication on the Presmaster protocol connection for the specified number of seconds. The default is 20. |
| Retries | # | Specifies the number of attempts the MC1 will make to re-establish the Presmaster protocol connection. The default is 3. |
| **Device Setup** | | |
| Switch Request | Router Crosspoint* | The received value refers to a physical or virtual router crosspoint. |
| | Button Number | The received value refers to a specific MC1 crosspoint button on the DashBoard control panel. |
| Log Level | Specifies the type of Presmaster events the MC1 log will capture | |

***Table 48 Remote Control — Presmaster (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Automation Status Tally Enable | Selected | Enables the periodic sending of the automation status tally (0842) every # seconds (set by the Rate field). This tally reports the state of the ATMN button to the automation systems |
| | Cleared* | Disables this feature |
| Rate (s) | # | Specifies the frequency (in number of seconds) the MC1 will send the automation status tally number command. The default is 10. |

## APC Control

**Table 49** summarizes the APC options displayed in the Remote Control tab.

***Table 49 Remote Control — APC***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | OK (Green) | • **Enabled** box is selected for this protocol<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port number are valid<br>• MC1 has successfully established connection to the given IP address and port |
| | Inactive (Green) | **Enabled** box is not selected for APC |
| | Listening (Green) | • **Enabled** box is selected for APC<br>• **Connection** is set to **Network Server**<br>• Specified Port number is valid<br>• MC1 is ready to accept connections on the specified port |
| | Reconnecting (Yellow) | • **Enabled** box is selected for the protocol<br>• **Connection** is set to **Network Client**<br>• MC1 attempts to connect periodically to the specified IP address and Port number. The interval between connection attempts start at 10 seconds, increases by 10 seconds, to a maximum of 60 seconds. |
| | Connecting (Yellow) | • **Enabled** box is selected for APC<br>• **Connection** is set to **Network Client**<br>• MC1 is attempting to connect to the specified IP address and Port Number |
| | Port in use (Red) | • **Enabled** box is selected for APC<br>• **Connection** is set to **Network Server**<br>• Port Number specified in the Port field is invalid or in use by another service |

***Table 49 Remote Control — APC (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Cannot connect (Red) | • **Enabled** box is selected for APC<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port Number are invalid or in use by another device |
| Enabled | Selected | Enables the protocol on the rear module Ethernet port |
| | Cleared* | Disables the protocol on the Ethernet port. When the check box is cleared, any incoming data from the external device is discarded by the MC1. |
| Connection | Serial Port | Enables the MC1 to communicate with a third-party device via the APC serial protocol |
| | Network Server | The MC1 functions as a host, or socket listener, on the network |
| | Network Client | The MC1 functions as a service requester that initiates communications with a server |
| Protocol | TCP* | Select this option if your external device is connected to the MC1 through a network and uses the Transmission Control Protocol (TCP/IP) |
| | UDP | Select this option if your device is connected to the MC1 through a network and uses the User Datagram Protocol (UDP/IP). |
| Port | # | When **Connection** is set to **Network Server**:<br>• specifies the TCP or UDP port numbers where the MC1 will listen on.<br>• TCP ports 0, 21, 80, 5253, and 6667 are unavailable for Ethernet communications |
| | | When **Connection** is set to **Network Client**, this menu specifies the remote port number to which the MC1 will try to connect |
| IP Address | #.#.#.# | • Only applicable when **Connection** is set to **Network Client**<br>• Specifies the IP address of the external device. The default is 0.0.0.0 and this must be changed to the actual IP address of the external device. |
| Timeout (sec) | # | Specifies the number of seconds the MC1 will wait after a loss of APC protocol connection before reporting an error. The default is 10. |

***Table 49 Remote Control — APC (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Monitor Connection | Selected | Enables the monitoring of the APC protocol connection; the status indicator in the top right corner of the APC area will report the advanced settings enabled for monitoring. This is the default. |
| | Cleared | The status of the APC protocol connection is not monitored |
| Idle Time (sec) | # | The status indicator reports an error when the MC1 does not detect active communication on the APC protocol connection for the specified number of seconds. The default is 20. |
| Retries | # | Specifies the number of attempts the MC1 will make to re-establish the APC protocol connection. The default is 3. |
| **Device Setup** | | |
| Switch Request | Router Crosspoint* | The received value refers to a physical or virtual router crosspoint. |
| | Button Number | The received value refers to a specific MC1 crosspoint button on the DashBoard control panel. |
| Log Level | Specifies the type of events the MC1 log will capture | |

## Tally Protocol Control

**Table 50** summarizes the Tally Protocol options displayed in the Remote Control tab.

***Table 50 Remote Control — Tally Protocol***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | OK (Green) | • **Enabled** box is selected for a TSL protocol<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port number are valid<br>• MC1 has successfully established connection to the given IP address and port |
| | Inactive (Green) | **Enabled** box is not selected for a TSL protocol |
| | Listening (Green) | • **Enabled** box is selected for a TSL protocol<br>• **Connection** is set to **Network Server**<br>• Specified Port number is valid<br>• MC1 is ready to accept connections on the specified port |

***Table 50 Remote Control — Tally Protocol (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Reconnecting (Yellow) | • **Enabled** box is selected for a TSL protocol<br>• **Connection** is set to **Network Client**<br>• MC1 attempts to connect periodically to the specified IP address and Port number. The interval between connection attempts start at 10 seconds, increases by 10 seconds, to a maximum of 60 seconds. |
| | Connecting (Yellow) | • **Enabled** box is selected for a TSL protocol<br>• **Connection** is set to **Network Client**<br>• MC1 is attempting to connect to the specified IP address and Port Number |
| | Port in use (Red) | • **Enabled** box is selected for a TSL protocol<br>• **Connection** is set to **Network Server**<br>• Port Number specified in the Port field is invalid or in use by another service |
| | Cannot connect (Red) | • **Enabled** box is selected for a TSL protocol<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port Number are invalid or in use by another device |
| Enabled | Selected | Enables communication via a TSL protocol on the rear module Ethernet port |
| | Cleared* | Disables the protocol on the Ethernet port. When the check box is cleared, any incoming data from the external device is discarded by the MC1. |
| Connection | Serial Port | Enables the MC1 to communicate with a third-party device via a TSL protocol serial protocol |
| | Network Server | The MC1 functions as a host, or socket listener, on the network |
| | Network Client | The MC1 functions as a service requester that initiates communications with a server |
| **Network Setup** | | |
| Packet Type | TCP* | Select this option if your external device is connected to the MC1 through a network and uses the Transmission Control Protocol (TCP/IP) |
| | UDP | Select this option if your device is connected to the MC1 through a network and uses the User Datagram Protocol (UDP/IP). |

***Table 50 Remote Control — Tally Protocol (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Port | # | When **Connection** is set to **Network Server**:<br>• specifies the TCP or UDP port numbers where the MC1 will listen on.<br>• TCP ports 0, 21, 80, 5253, and 6667 are unavailable for Ethernet communications |
| | | When **Connection** is set to **Network Client**, this menu specifies the remote port number to which the MC1 will try to connect |
| Remote IP | #.#.#.# | • Only applicable when **Connection** is set to **Network Client**<br>• Specifies the IP address of the external device. The default is 0.0.0.0 and this must be changed to the actual IP address of the external device. |
| Timeout (sec) | # | Specifies the number of seconds the MC1 will wait after a loss of TSL protocol connection before reporting an error. The default is 10. |
| Monitor Connection | Selected | Enables the monitoring of the TSL protocol connection; the status indicator in the top right corner of the Tally Protocol Control area will report the advanced settings enabled for monitoring. This is the default. |
| | Cleared | The status of the TSL protocol connection is not monitored |
| Idle Time (sec) | # | The status indicator reports an error when the MC1 does not detect active communication on the TSL protocol connection for the specified number of seconds. The default is 20. |
| Retries | # | Specifies the number of attempts the MC1 will make to re-establish the TSL protocol connection. The default is 3. |

### SAGE EAS Char Gen

**Table 51** summarizes the SAGE EAS protocol options displayed in the Remote Control tab.

***Table 51 Remote Control — SAGE EAS Protocol***

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | OK (Green) | • **Enabled** box is selected for the SAGE EAS Generic Character Generator protocol<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port number are valid<br>• MC1 has successfully established connection to the given IP address and port |
| | Inactive (Green) | **Enabled** box is not selected for the SAGE EAS protocol |
| | Listening (Green) | • **Enabled** box is selected for the SAGE EAS protocol<br>• **Connection** is set to **Network Server**<br>• Specified Port number is valid<br>• MC1 is ready to accept connections on the specified port |
| | Reconnecting (Yellow) | • **Enabled** box is selected for the SAGE EAS protocol<br>• **Connection** is set to **Network Client**<br>• MC1 attempts to connect periodically to the specified IP address and Port number. The interval between connection attempts start at 10 seconds, increases by 10 seconds, to a maximum of 60 seconds. |
| | Connecting (Yellow) | • **Enabled** box is selected for the SAGE EAS protocol<br>• **Connection** is set to **Network Client**<br>• MC1 is attempting to connect to the specified IP address and Port Number |
| | Port in use (Red) | • **Enabled** box is selected for the SAGE EAS protocol<br>• **Connection** is set to **Network Server**<br>• Port Number specified in the Port field is invalid or in use by another service |
| | Cannot connect (Red) | • **Enabled** box is selected for the SAGE EAS protocol<br>• **Connection** is set to **Network Client**<br>• Specified IP address and Port Number are invalid or in use by another device |
| Enabled | Selected | Enables communication via the SAGE EAS protocol on the rear module Ethernet port |
| | Cleared* | Disables the protocol on the Ethernet port. When the check box is cleared, any incoming data from the external device is discarded by the MC1. |

*Table 51 Remote Control — SAGE EAS Protocol (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Connection | Serial Port | Enables the MC1 to communicate with a third-party device via the SAGE EAS protocol serial protocol |
| | Network Server | The MC1 functions as a host, or socket listener, on the network |
| | Network Client | The MC1 functions as a service requester that initiates communications with a server |
| **Network Setup** | | |
| Packet Type | TCP* | Select this option if your external device is connected to the MC1 through a network and uses the Transmission Control Protocol (TCP/IP) |
| Packet Type | UDP | Select this option if your device is connected to the MC1 through a network and uses the User Datagram Protocol (UDP/IP). |
| Port | # | When **Connection** is set to **Network Server**:<br>• specifies the TCP or UDP port numbers where the MC1 will listen on.<br>• TCP ports 0, 21, 80, 5253, and 6667 are unavailable for Ethernet communications |
| | | When **Connection** is set to **Network Client**, this menu specifies the remote port number to which the MC1 will try to connect |
| Remote IP | #.#.#.# | • Only applicable when **Connection** is set to **Network Client**<br>• Specifies the IP address of the external device. The default is 0.0.0.0 and this must be changed to the actual IP address of the external device. |
| Timeout (sec) | # | Specifies the number of seconds the MC1 will wait after a loss of SAGE EAS protocol connection before reporting an error. The default is 10. |
| Monitor Connection | Selected | Enables the monitoring of the SAGE EAS protocol connection; the status indicator in the top right corner of the SAGE EAS Char Gen area will report the advanced settings enabled for monitoring. This is the default. |
| | Cleared | The status of the SAGE EAS protocol connection is not monitored |

***Table 51 Remote Control — SAGE EAS Protocol (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Idle Time (sec) | # | The status indicator reports an error when the MC1 does not detect active communication on the SAGE EAS protocol connection for the specified number of seconds. The default is 20. |
| Retries | # | Specifies the number of attempts the MC1 will make to re-establish the SAGE EAS protocol connection. The default is 3. |
| **Text Crawl Setup - High, Medium, Low[a]** | | |
| Preview | Off* | Disables the setup mode; removes test message from the Preview output |
| Preview | Low Priority<br>Medium Priority<br>High Priority | Displays the corresponding text crawl on the Preview output, permitting the user to configure the text crawl settings while in view.<br>Refer to the FCC EAS regulations at 47 C.F.R. Part 11 for more information on message categories. |
| % From Top | 0-100 | Adjusts the vertical position of the EAS text overlay where 0 sets the top of the overlay at the top of the active video, 50 is centered horizontally, and 100 sets the bottom of the overlay on the bottom of the active video. The default is 10. |
| Text Size | 1-10 | Specifies the text size where 1 is smallest and 10 is largest. The actual text size depends on the video format. The default is 5. |
| Text Color | Specifies the foreground color of the text. The default is White. | |
| Background Color | Specifies the background color behind the text. Each message category has a unique default value as follows:<br>• High Priority — Red<br>• Medium Priority — Yellow<br>• Low Priority — Green | |
| Drop Shadow | Selected | Applies a visual effect that makes the text appear three-dimensional. This is the default. |
| | Cleared | Disables this feature |
| Pan Speed | -5 to -1 | Determines how fast the EAS message scrolls across the screen (from left to right) where: 5 is the fastest speed and 1 is the slowest |
| Play Count | 1 to 10 | Specifies the number of times to display the entire text crawl before taking it off air. The default is 2. |

*Table 51 Remote Control — SAGE EAS Protocol (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Duration (seconds) | # | Determines how long the EAS message scrolls on the screen before taking it off air |
| Until Plays Completed | Selected | Enables the EAS text crawl to continue to play until the number of plays equals the value specified in the **Play Count** menu |
| | Cleared | Disables this feature |
| Until Duration Completed | Selected | Enables the EAS text crawl to continue to play until the value in the **Duration** menu is reached |
| | Cleared | Disables this feature |
| While Voice Over Active | Selected | Enables the EAS text crawl to continue to play only while the EAS Voice Over source is playing |
| | Cleared | Disables this feature |
| **Audio Setup - Voice Over Audio Setup** | | |
| Duck Level (dB) | # | Specifies the amount (dB) to reduce the audio level on the Program bus during an EAS alert |
| Gain (dB) | # | Adjusts the overall EAS audio gain on the Program bus while an EAS alert is active (applies to the input audio and the EAS input audio) |
| **Source Setup** | | |
| Embedded SDI Source | SDI # | Assigns the specified SDI as the source for the EAS voice over |
| Voice Over Ch # Source | None | No channels are assigned for the EAS voice over |
| | Clear All | Assigns all channels (1-16) to None |
| | Clear Group | Assigns the four sources in the same group to None |
| | Clear Pair | Assigns the two sources in the same pair to None |
| | AES | Assigns all 16 sources to consecutive AES sources |
| | AES # > Ch # | Assigns the specified AES channel in the selected EAS channel |
| | Embedded | Assigns all 16 sources to the corresponding SDI inputs |
| | Embedded > SDI G#C# | Embeds the specified embedded audio group and channel pair in the selected EAS channel |
| | Test Tone | Sets the group (4 sources) to all consecutive test tones |

*Table 51 Remote Control — SAGE EAS Protocol (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Voice Over Ch # Source | Test Tone > # | Sets the selected test tone to the specified EAS channel |

a. The Text Crawl Setup dialog enables you to customize the EAS text overlay received by your SAGE EAS device. The text overlay is automatically assigned to Logo channel 4 in Key 4, therefore do not use Logo 4 and Keyer 4 for any other purpose when EAS is enabled.

## Router Control Tab

**Table 52** summarizes the options displayed in the Router Control tab.

*Table 52 Router Control Tab*

| Item | Parameters | Description |
|---|---|---|
| Status (read-only) | Reports the most serious router control error currently detected | |
| Park Source | # | When an internal source, such as internal logo, black, SDI input or Key Video/Alpha is selected, the MC1 routes this router source to the corresponding destination |
| **SDI #** | | |
| Status (read-only) | OK (Green) | All router sources are available to the crosspoints |
| | Parked (Green) | The specified output is parked because a crosspoint was selected that was not a router source or the SDI Input is not used on-air |
| Destination | Unassigned | The MC1 will not attempt any router switches |
| | Dest # | Specifies the router output source connected to the specified MC1 input BNC |
| Last Requested (read-only) | <text> | Indicates the last switch request sent for this destination |
| Last Known (read-only) | <text> | Displays what the router is reporting as the active Source on this destination |
| Selected On (read-only) | PGM | Indicates where the SDI input is used in the on-air |
| | PST | |
| | ExtKey#A or ExtKey#V | |
| | Unused | |
| Minimum Delay (frames) | # | Specifies the length of time, in frames, that the MC1 will wait after sending a command to the router before it assumes the router output is switched. This could be extended up to the Retry Interval value before either the switch is re-tried or abandoned. The default is 10. |

*Table 52 Router Control Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Retry Interval (frames) | # | • Specifies the number of frames the MC1 will wait before re-sending a command to the router<br>• It is recommended that this value is at least 3 frames more than the Minimum Delay value<br>• The default is 30 |
| Max Retries | # | Specifies the maximum number of attempts the MC1 will re-send a command to the router. Once the maximum is reached, the MC1 abandons the switch (pushes back to the original crosspoint number). The default is 1. |
| Min Delay (read-only) | # | Reports the measured Minimum Delay time since the counters were reset |
| Max Delay (read-only) | # | Reports the measured Maximum Delay time since the counters were reset |
| Average Delay (read-only) | # | Reports the average delay based on the Min. Delay and the Max. Delay values |
| Total Switches (read-only) | # | Reports the total number of crosspoint switch commands the MC1 has sent to the router |
| Total Retries (read-only) | # | Reports the total number of times the same crosspoint switch command was sent by the MC1 to the router |
| Failed Retries (read-only) | # | Reports the total number of times the same crosspoint switch command failed to be sent by the MC1 to the router |
| Counters | Reset | Clears the Min. Delay, Max. Delay, Average Delay, Total Switches, and Total Retries fields to zero (0) |
| Load Labels from Router | Load<br>Unload | The MC1 automatically retrieves the virtual labels from the router. The label is applied when the user selects the source in the crosspoint menu. Use this option if the router supports automatic label retrieval. |
| **Limit Label Lists - Sources, Destinations** | | |
| Start Index | # | Specifies the first source label to report |
| End Index | # | Specifies the last source label to report |
| Number Received (read-only) | # | Indicates the total number of router labels reported to the MC1 |
| Number Shown (read-only) | # | Indicates the total number of router labels displayed to the MC1 |

## Crosspoint Map Tab

**Table 53** summarizes the options displayed in the Crosspoint Map tab.

***Table 53 Crosspoint Map Tab***

| Item | Parameters | Description |
|---|---|---|
| **Button #** | | |
| Source Type | Matte | Specifies the function of the selected crosspoint. This determines the available options listed in the Selection menu. |
| | Black | |
| | SDI Input | |
| | Logo | |
| | Router | |
| Label | <text> | Assigns new text as the button label.<br>This field is automatically populated by labels provided by the connected router for the Router crosspoints. |
| TSL Address | 0 - 126 | Specifies the identification enumeration |
| **Source Type > Matte** | | |
| Selection | White | Assigns white as the matte source for the crosspoint |
| | Matte# | Assigns the specified Matte generator as the source for the crosspoint |
| **Source Type > SDI Input** | | |
| Selection | SDI # | Assigns the specified SDI input as the source for the crosspoint.<br>This list is populated with the router source labels if they are supported by the router. |
| Alpha | SDI # | Assigns the specified SDI input as the alpha channel for the crosspoint.<br>This list is populated with the router source labels if they are supported by the router. |
| | None | Assigns White as the alpha channel for the crosspoint |
| **Source Type > Router** | | |
| Selection | Router Extra | Allows automation to request router sources that do not appear in the Crosspoint list |
| | Src # | Assigns the specified router source as the input for the crosspoint |
| Alpha | Src # | Assigns the specified router source as the alpha channel for the crosspoint |
| | None | Assigns White as the alpha channel for the crosspoint |
| **Source Type > Logo** | | |

*Table 53 Crosspoint Map Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Selection | Logo # | Assigns the specified logo channel as the source for the crosspoint |
| Load Labels from Router | Load | Updates the Router crosspoint button labels provided by the connected router |
| | Unload | Returns the crosspoint button labels to the default text |
| Overwrite Label with Default Router Label | | Replaces the user-defined labels with the labels imported from the connected router |
| Update Router Extra labels | Selected | When the Source Type is set to Router Extra, the button label on the On Air Control interface reports the last used router source.<br>When automation requests a router source not listed in the crosspoints, and instead uses a Router Extra crosspoint, the label is updated to show the router source that was requested. |
| | Cleared | Disables this feature |
| Number of Buttons | # | Specifies the number of crosspoint buttons to display on each bus of the On Air Control interface |
| Number of Channel Select Buttons | # | Specifies the number of Channel Select buttons, to a maximum of 10, that display in the top row of the **On Air Control** interface |
| IP Address of Frame | #.#.#.# | Specifies the IP address of the router the MC1 is communicating with |

## Audio Profile Names Tab

**Table 54** summarizes the options displayed in the Audio Profile tab.

*Table 54 Audio Profile Tab*

| Item | Parameters | Description |
|---|---|---|
| **Profile #** | | |
| Save to Profile | <text> | Saves the current audio shuffle and processing settings to the selected profile |
| Set Profile Name | <text> | Enables you to assign a unique identifier to the selected audio profile |

## DVE Tab

**Table 55** summarizes the options displayed in the DVE tab.

***Table 55 DVE Tab***

| Item | Parameters | Description |
|---|---|---|
| Included in SqueezeBack | Background Only* | Only the background is included in the SqueezeBack effect |
| | After Key 1[a] | Key 1 is included in the squeeze effect. Keys 2 to 4 are excluded. |
| | After Key 2 | Keys 1 and 2 are included in the squeeze effect. Keys 3 to 4 are excluded. |
| | After Key 3 | Keys 1 to 3 are included in the squeeze effect. Key 4 is excluded. |
| Included in SqueezeBack | After Key 4 | All keys are included from the squeeze effect |
| Background in Fade | Background | Selects between letting the reveal source background pass through or fade to complete black during a V-fade type transition inside an already squeezed image on the PGM bus. |
| | Black | |

a. Refer to "**SqueezeBack Effects**" for more information.

## Audio Over Tab

**Table 56** summarizes the options displayed in the Audio Over tab.

***Table 56 Audio Over Tab***

| Item | Parameters | Description |
|---|---|---|
| **SDI Source** | | |
| SDI # | Selected | Assigns the specified SDI as the source for the voice over |
| | Cleared | This SDI is not assigned as the voice over source |
| **Ch #** | | |
| Source | None | No source is assigned to the specified voice over channel |
| | Clear All | Assigns all channels (1-16) to None |
| | Clear Group | Assigns the four sources in the same group to None |
| | Clear Pair | Assigns the two sources in the same pair to None |
| | AES | Assigns all 16 sources to consecutive AES sources |
| | AES # > Ch # | Assigns the specified AES channel to the voice over |

*Table 56 Audio Over Tab (Continued)*

| Item | Parameters | Description |
|---|---|---|
| Source | Embedded | Assigns all 16 sources to the corresponding SDI inputs |
| | Embedded > SDI G#C# | Assigns the embedded group and channel pair to the voice over |
| | Test Tone | Sets the group (4 sources) to all consecutive test tones |
| | Test Tone > # | Assigns the selected test tone to the voice over |
| Duck Option | All channels | All audio channels on the Program shall be adjusted by the Duck Level value specified on the On Air Control > Voice Over interface |
| | Assigned channels only | Only the audio channels specified in the Audio Over > Ch # Source menu (see above) shall be adjusted by the Duck Level value specified on the On Air Control > Voice Over interface |

## On Air Control Interfaces

The On Air Control interface enables you to setup and perform transitions. There are two distinct panels:

- Setup — This panel is the top half of the interface and includes the Home, Keyers, and Logo tabs.
- Control — This panel is the lower half of the On Air Control interface and includes the Program and Preset buses, Keyers area, Transition area, and TAKE button.

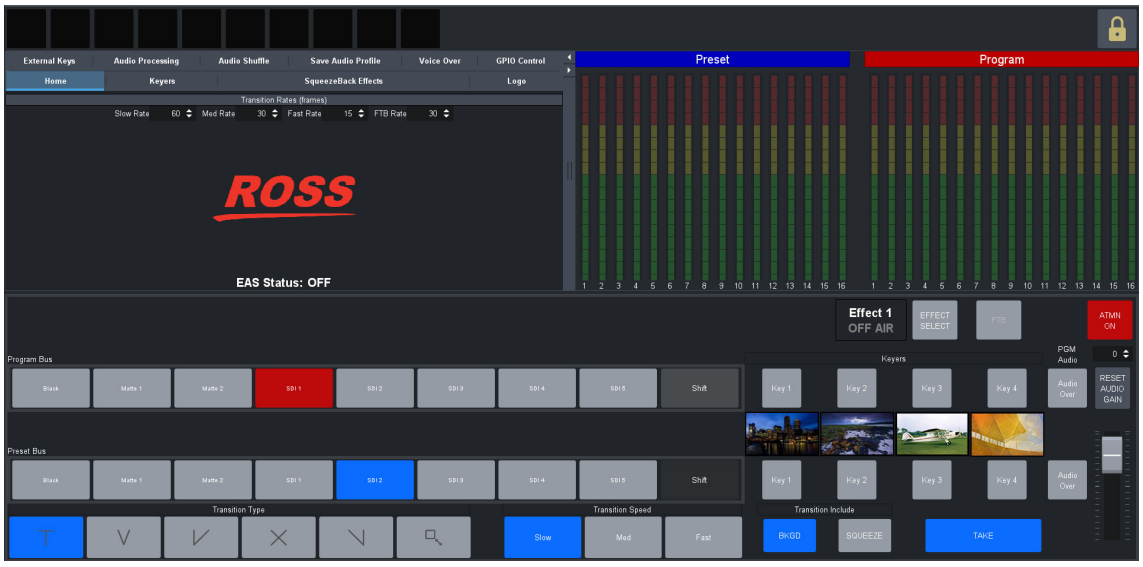



*Figure 48 Example of the On Air Control Interface*

## Home Tab

The Home tab is the first tab that displays in the Setup panel. **Table 57** summarizes the options displayed in the Home tab.

***Table 57 Home Tab***

| Item | Parameters | Description |
|---|---|---|
| **Transition Rates (frames)** | | |
| Slow Rate | 2 to 999[a] | Defines the Slow Rate in frames |
| Med Rate | 2 to 999[b] | Defines the Medium Rate in frames |
| Fast Rate | 2 to 999[c] | Defines the Fast Rate in frames |
| FTB Rate | 2 to 999[d] | Defines the Bade to Black Rate in frames |
| EAS STATUS | ON <text> | Indicates that an installed EAS is providing content to the MC1 text overlay; the text is displayed in this area, and is color-coded, when the EAS is active |
| | OFF | Indicates that the MC1 text overlay does not include EAS content |

a. The default value is 60 frames.
b. The default value is 30 frames.
c. The default value is 15 frames.
d. The default value is 30 frames.

## Keyers Tabs

The Keyers tab is the second tab that displays in the Setup panel. Each keyer has a sub-tab that enables you to select video sources, key types, and adjust transparency, clip, and gain. The MC1 supports Auto Select and Self keys. **Table 58** summarizes the options displayed in each Key sub-tab.

***Table 58 Keyers Tabs***

| Item | Parameters | Description |
|---|---|---|
| **Key #** | | |
| Transparency | 0* to 100 | Adjusts the transparency level of the key:<br>• 0 — The key is completely opaque; there is no difference between the original key and the key with the transparency effect applied to it.<br>• 100 — The key is completely transparent; the key is not visible on the screen. |
| Clip | # | Adjusts the clip values; default is 960 (the maximum luminance range not including Super White). |
| Gain | 0 to 100 | Adjusts the gain values; default is 50. |

***Table 58 Keyers Tabs (Continued)***

| Item | Parameters | Description |
|---|---|---|
| Key Type | Auto Select* | A Key which uses two video signals (Alpha and Fill); the Key Alpha Type is automatically set to Shaped.<br>If you configure an internal Logo channel as Auto Select, the associated alpha signal is used. |
| | Self | A Key that uses the luminance values of the KEY VIDEO source for the alpha; the Key Alpha Type is automatically set to Unshaped.<br>If you configure an internal Logo channel as Self, the luminance value of the associated alpha is used. |
| Key Alpha Type | Unshaped* | The card performs a multiplicative key. The Key Alpha luminance value mixes linearly the Key Video with the Background. Shades of gray, in the Key Alpha, are translated into transparency levels, giving the key a soft edge. |
| | Shaped | The card performs an additive key. The Key Alpha cuts a hole in the BKGD and the Key Video is added to the BKGD. Shaped Key alphas are sometimes used with Character Generators to cut very precise holes for the Key Video fill. |
| Key Invert | On | Reverses the polarity of the Key Alpha. A Key Invert can be applied to any key type. |
| | Off* | The Key Alpha is not inverted |
| Default | Make Linear | Resets the clip and gain values to the default settings |
| **Keyer Source** | | |
| Black | Assigns Black as the keyer output. | |
| Matte # | Assigns the specified Matte generator as the keyer output. | |
| External # | Assigns the external key source as the keyer output. You will also need to configure the settings in the **External Sources** tab | |
| Logo # | Assigns the specified Logo channel as the keyer output. | |
| EAS Text | Assigns the active EAS Text Crawl as the keyer output. | |

## SqueezeBack Effects Tabs

**Table 59** summarizes the **SqueezeBack Effects** tab options available in DashBoard.

***Table 59 SqueezeBack Effects Tabs***

| Item | Parameters | Description |
|---|---|---|
| **Effect #** | | |
| Hide Effect | Selected | Enables the effect to be selected for a transition using the EFFECT SELECT button |
| | Cleared* | Disables the effect |
| X Position | #[a] | Adjusts the horizontal position of the image on the screen (in number of pixels) |
| Y Position | #[a] | Adjusts the vertical position of the image on the screen (number of lines) |
| X Size | 0- #[b] | Squeezes the image horizontally (to the specified in number of pixels) |
| Y Size | 0- #[b] | Squeezes the image vertically (to the specified in number of lines) |
| Lock Aspect Ratio | Selected* | Locks the aspect ratio given the current X and Y size parameters. Changing one parameter will cause the other parameter to automatically change to maintain this ratio. |
| | Cleared | X and Y parameters are adjusted independently |
| Constrain to Screen | Selected* | Applies “snap-back” on the X, Y position controls to ensure the squeezed image remains entirely on screen |
| | Cleared | The squeezed image can be clipped off screen |
| Reveal Source | External | Specifies that a router source will be the video source to be revealed by the squeeze effect. You must also specify the router source using the options in the External Sources tab. |
| | Logo #[c] | Specifies the logo channel as the video source to be revealed by the squeeze effect |
| Reset to Defaults | Returns all parameters on the SqueezeBack Effects tab to the factory default values | |

a. The range is from -# to +#. The default value is 0% which positions the image at the center point of the visible area.
b. The default is 100%.
c. The default Reveal Source is as follows: Effect 1 defaults to External 1; Effect 2 to External 2; Effect 3 to Logo 1; Effect 4 to Logo 2.

## Logo Tabs

Each logo channel has a sub-tab that enables you to select files, position the on-screen image, and specify animation play-out settings. **Table 60** summarizes the options displayed in each Logo tab.

***Table 60 Logo Tabs***

| Item | Parameters | Description |
|---|---|---|
| **Logo #** | | |
| File (read-only) | xxx_##.yyy | Indicates the full path of the currently loaded file where ## represents the duration of the file if it is an animation |
| Status (read-only) | Loading frame X of Y | • Displays information about the channel in both the number of frames (integer), and in the number of seconds (fractional)<br>• Any errors during loading are also displayed<br>• When the file(s) have loaded, this field displays the dimensions of the image (e.g. 1920x1080) |
| | Animation loaded (#) | |
| | Single image loaded (#) | |
| | Idle | |
| | Queued | Indicates that one logo channel is loading and a second channel was selected to load at the same time. Once the first channel is loaded, the second channel will begin loading. |
| Selected on (read-only) | # | Indicates all the key(s), or backgrounds, that currently have the media file selected |
| | None | |
| On Air (read-only) | # | Indicates the on-air key(s), or backgrounds, that have this media file selected |
| Directory | [RAM CACHE] | The field displays the directory the currently selected media file is located in |
| | [ROOT] | Lists the directories on the Micro SD Card |
| Filename | xxx.yyy<br>xxx_####.yyy | Displays the name of the selected media file.<br>Animation filenames include an underscore followed by three or more digits. The number of frames, and duration in seconds, is displayed in brackets after the filename.<br>Updated when a new Directory is selected in the **Directory** menu.<br>Provides a list of all the media files in the currently selected directory. Note that animations appear as a single entry. |
| | [NONE] | Selecting this option clears the logo channel.<br>This item is automatically selected, without clearing the channel, when the user switches to a new directory. |

***Table 60 Logo Tabs (Continued)***

| Item | Parameters | Description |
|---|---|---|
| File List | Rescan | Selecting this button updates the Directory menu options, and the Filename menu options |
| [RAM CACHE] | Clear | Removes all the items in the RAM cache directory that are not used (on air) by any one of the logo channels.<br>Items in the RAM cache directory that are in use by any logo channel are still present in the list to prevent any on air disruption. |
| SD Card Status (read-only) | x of #GB used | Reports the amount of memory used on the Micro SD card |
| Mediastore Memory (read-only) | # / # / # MB | Reports the amount of memory used by the Mediastore |
| **Image Properties** | | |
| X Position | ## to ##[a] | • Adjusts the position of the image along the X-axis in number of pixels<br>• The range varies depending on the output video format |
| Y Position | ## to ##[a] | • Adjusts the position of the image along the Y-axis in number of pixels<br>• The range varies depending on the output video format |
| **Animation Properties** | | |
| Auto Play[b] | Selected | The animation starts to play when a transition occurs |
| | Cleared* | The animation starts playing as soon as the animation is loaded to the bus |
| Looping[c] | Selected | The animation starts over when it reaches the last frame of the animation |
| | Cleared* | The animation stops when it reaches the last frame of the animation |
| Play Mode[d] | Normal* | The entire frame of the image is displayed |
| | Swap Fields | Field 1 and Field 2 of the image are swapped when they are displayed. |
| Hold Time[e] | # | The animation plays but before looping back (if looping is enabled), it pauses on the last frame, for the specified number of frames. |

a. The default value is 0 which represents the top-left corner of the active picture area.
b. This option is only applicable when an animation file is selected.
c. This option is only applicable when an animation file is selected.
d. The Play Mode feature only applies to interlaced video formats and has no effect when using progressive video formats.
e. The default value is 0.

## External Keys Tab

**Table 61** summarizes the **External Keys** tab options available in DashBoard.

***Table 61 External Keys Tab***

| Item | Parameters | Description |
|---|---|---|
| **External Key #** | | |
| # | Selecting a button sets that video source as the External source.<br>The default External Source for the External Key is Black. | |

## Audio Processing Tab

**Table 62** summarizes the options displayed in each Audio Processing sub-tab.

***Table 62 Audio Processing Tab — Audio #-#***

| Item | Parameters | Description |
|---|---|---|
| On Preset: (read-only) | # | Indicates the crosspoint currently selected on the Preset Bus |
| Load Profile | # | Applies the audio settings of the selected profile to the currently selected Preset crosspoint on the next transition |
| **Ch 1-8, Ch 9-16** | | |
| Reset | Resets all Audio Output settings for the applicable audio group to the factory default values | |
| Mute | Selected | Mutes the input source for the specified channel that is inserted into the embedded group (if present) |
| | Cleared | The input source for the specified channel is not muted |
| Gain (dB) | # | Adjusts the gain of the specified channel of audio<br>Select 0 when using non-PCM audio |
| Invert | Selected | Inverts the audio signal of the specified group |
| | Cleared | • Audio signal of the specified group is not inverted<br>• Use for non-PCM audio data |
| Sum | Selected | Both channels will carry the average of the two input channels ((A+B)/2) |
| | Cleared | Disables this feature |

## Audio Shuffle Tab

**Table 63** summarizes the options displayed in each Audio Shuffle tab.

***Table 63 Audio Shuffle Tab***

| Item | Parameters | Description |
|---|---|---|
| On Preset: (read-only) | # | Indicates the crosspoint currently selected on the Preset Bus |
| Load Profile | # | Applies the audio settings of the selected profile to the currently selected Preset crosspoint on the next transition |
| **Channel #** | | |
| Source | Group # Ch # | Specifies the input for the specified channel that is inserted into the embedded group (if present) |
| | #kHz Tone | Embeds the selected test tone |
| Pass | Resets the specified group settings to pass the default input channels to the output channels. The mute, gain, sum, and invert settings for the specific group are reset to the default values. | |
| Pass All | Resets all group settings to pass the default input channels to the output channels. The mute, gain, sum, and invert settings for all groups are reset to the default values. | |

## Save Audio Profile Tab

**Table 64** summarizes the options on the **Save Audio Profile** tab.

***Table 64 Save Audio Profile Tab***

| Item | Parameters | Description |
|---|---|---|
| On Preset: (read-only) | # | Indicates the crosspoint currently selected on the Preset Bus |
| Save Profile | <text> | Saves the current audio shuffle and processing settings to the selected profile. |

## Voice Over Tab

**Table 65** summarizes the **Voice Over** tab options available in DashBoard.

***Table 65 Voice Over Tab***

| Item | Parameters | Description |
|---|---|---|
| Duck Level (dB) | #[a] | This ducks the Voice Over source and the input audio. The AUDIO OVER button is lit. |
| Gain (dB) | #[b] | This applies a gain to the Voice Over source and the input audio. The AUDIO OVER button is lit. |

a. The default is -10dB.
b. The default is 0dB.

## GPIO Control Tab

**Table 66** summarizes the **Voice Over** tab options available in DashBoard.

***Table 66 GPIO Control Tab***

| Item | Parameters | Description |
|---|---|---|
| **GPI/Tally #** | | |
| Function (read-only) | Reports the transition event assigned to a specific GPI port | |
| Current State (read-only) | Reports the port status | |
| Set Level[a] | High | The output toggles from the base low level to the high level. The output signal remains at this level until reset. |
| | Low | The output level toggles from the base high level to the low level. The output signal remains at this level until reset. |

a. The Manual Override option must be enabled on the Configuration > GPI/Tally > GPI/Tally tab for the Set Level button to take effect.

## Control Panel

This area is used to select the video sources for each bus. Each crosspoint button will display the name of its source on the button face.

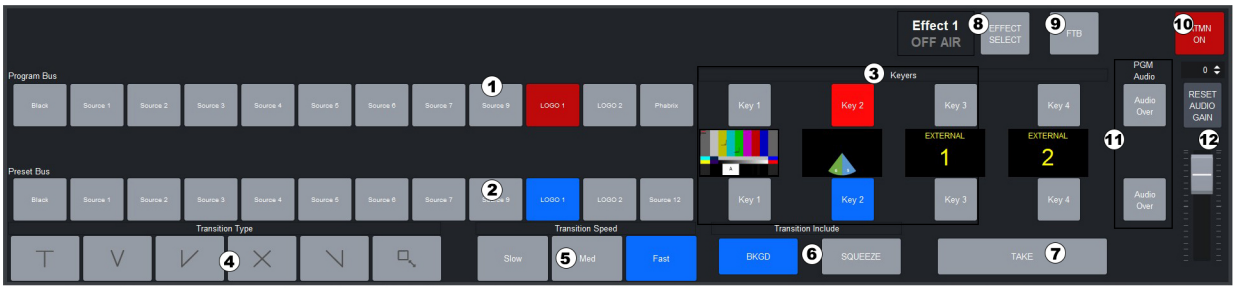



*Figure 49 Example of the Control Panel*

### 1. Program Bus

The Program Bus is used to select the video source that will display as the Background on the Program output.

### 2. Preset Bus

The Preset Bus is used to select the video source that displays on the Preview output.

### 3. Keyers Area

The Keyer Area enables you to add, or remove, keyers in transitions. This area includes the following controls:

The top row of buttons, labeled Key 1-4 and lit in red, are used to perform cuts on the specified keyer directly on the Program Bus, without affecting their inclusion in the next transition. A lit button indicates that the specified keyer is currently on-air.

The bottom row of buttons, labeled Key 1-4 and lit in blue, are used to add, or remove, the specified keyer to the next transition. Selecting the button toggles the keyer on/off and selects/removes the keyer to the Preset Bus respectively. Once the transition is executed, and

depending on the Configuration > Transitions > Transition Behavior setting, the button(s) are no longer lit in this row but are lit red in the top row.

**4. Transition Type Buttons**

The following Transition Type buttons are available (from left to right):

›  (Cut) — Select this button to perform a cut transition from one source to the next.

›  (V-Fade) — Select this button to perform a V-Fade transition from the Program source to Black to the Preset source. The MC1 fades down from one source to black and then transitions to the next source. During a hot-punch transition, the video performs a CUT while the audio performs a V-Fade.

›  (Cut-Fade) — Select this button to perform a cut to black, then fade up to the next source.

›  (Cross Fade) — Select this button to perform a gradual fade from one source to the next. The MC1 performs a cross fade between sources. Note that this button is selected after performing a factory default reset.

›  (Fade-Cut) — Select this button to fade from one source to black and then cut to the next source.

›  (SqueezeBack) — Select this button to perform a SqueezeBack effect by reducing the size of the video over time to the dimensions set in the SqueezeBack Effects tab. Unlike the above types, you may not change your background on-air with this transition type, but you can change keys on-air. The corresponding buttons are grayed out. This button displays only when the MC1-UHD-DVE-1CH-LICENSE license key is installed.

**5. Transition Speed Buttons**

These buttons apply the rate (slow, medium, fast) to the next transition. The transition rates are specified in the **Home** tab.

✶ The **Slow** button is selected after performing a factory default reset.

✶ If you are controlling the MC1 via Automation, and these buttons are not lit, the transition rate applied is set by the Automation command. If you wish to apply one of these rates, remember to select the required transition speed button before performing a transition (e.g. selecting TAKE).

**6. Transition Include Buttons**

› **BKGD** — This button is used to add/remove the Preset source to/from the next transition. Toggling this button will immediately affect the video that is visible on the Preset output.

› **SQUEEZE** — This button is used to add/remove the SqueezeBack effect to/from the next transition. Toggling this button will immediately affect the video that is visible on the Preset output. This button displays only when the MC1-UHD-DVE-1CH-LICENSE license key is installed.

**7. TAKE Button**

Selecting the **TAKE** button performs the transition between the sources and effects selected in the Program and Preset buses, using the specified Transition Type and Transition Speed.

**8. EFFECT SELECT**

This area includes the Effect # status field and an **EFFECT SELECT** button. The status field reports the last applied effect and whether it is on or off air, or currently on the Preset Bus.

✶ The MC1-DVE-1CH-LICENSE is required.

While the squeeze effect is on air:

› the **EFFECT SELECT** button is locked. Even though you can still adjust the options in the SqueezeBack Effects tabs, we suggest not doing so since all effect changes are immediately applied.

› you are unable to change the background or keys with a transition. However, you can still hot-punch a source or key on the Program bus. However, hot-punching a source on the Program bus will take the squeeze effect off air. Hot-punching keys on/off will not take the squeeze effect off air.

› you can perform any hot-punch or **TAKE** transition inside of the squeeze effect.

**9. FTB Button**

Use this button to fade the Program bus to black. The Fade to Black (FTB) rate is specified in the Home tab. After performing a factory default reset, this button is toggled off (unlit). This button can be disabled via the FTB Disabling option on the Transitions tab (refer to **Table 41**).

**10.ATMN Button**

Toggling this button on (button will be lit) allows an Automation System to control the MC1. After performing a factory default reset, this button is toggled off (unlit).

**11.AUDIO OVER Buttons**

An **AUDIO OVER** button is included on each bus. Selecting the button in the Preview bus includes the voice over channel in the next transition. You can also hot-punch the **AUDIO OVER** button in the Program bus.

**12.Program Audio Area**

This area includes an audio fader that enables you to control the Program audio gain. The slider is set by default to 0 and has a range of -72 to +20dB. Use the **Reset Audio Gain** button to reset the audio gain.

# Technical Specifications

This chapter provides technical information for MC1.

✶ Specifications are subject to change without notice.

## Supported Video Formats

***Table 67 Technical Specifications — Supported Video Formats***

| Resolution (lines) | Frame Rate (Hz) |
|---|---|
| 480i | 59.94 |
| 576i | 50 |
| 720p | 50 |
| | 59.94 |
| 1080i | 50 |
| | 59.94 |
| 1080p | 50 |
| | 59.94 |
| 1080pSF | 23.98 |
| | 24 |
| 2160p[a] | 23.98 |
| | 24 |
| | 25 |
| | 29.97 |
| | 30 |
| | 50 |
| | 59.94 |

a. Requires the MC1-UHD-12G-LICENSE.

## SDI Inputs Specifications

***Table 68 Technical Specifications — SDI Inputs***

| Item | Specifications |
|---|---|
| Number of Inputs | 6 |
| Standards Accommodated | 270Mbps, 525/625 Component, SMPTE 259M |
| | 1.485Gbps Component, SMPTE 292M |
| | 2.97Gbps Component, SMPTE 424M |
| | 5.94Gbps Component, SMPTE ST-2081 |
| | 11.88Gbps Component, SMPTE 2082 |
| Impedance | 75ohm |

*Table 68 Technical Specifications — SDI Inputs (Continued)*

| Item | Specifications |
|---|---|
| Return Loss | >15dB to 1.485Gbps |
| | >10dB to 2.97Gbps |
| | >7dB to 5.94Gbps |
| | >4dB to 11.88Gbps |
| Equalization (Belden 1694A cable) | >220m (722ft) @ 1.485Gbps |
| | >140m (459ft) @ 2.97Gbps |
| | >50m (190ft) @ 11.88Gbps |
| Connection | HD-BNC |

## SDI Outputs Specifications

*Table 69 Technical Specifications — SDI Outputs*

| Item | Specifications |
|---|---|
| Number of Outputs | 6 |
| Impedance | 75ohm |
| Return Loss | >15dB to 1.485Gbps |
| | >10dB to 2.97Gbps |
| | >7dB to 5.94Gbps |
| | >4dB to 11.88Gbps |
| Signal Level | 800mV ±10% |
| DC Offset | 0V ±50mV |
| Rise and Fall Time (20-80%) | 1.485Gbps: <270ps, <100ps difference |
| | 2.97Gbps: <135ps, <50ps difference |
| | 11.88Gbps: <45ps, <18ps difference |
| Jitter | 1.485Gbps: <1.0UI jitter measured 10Hz-100kHz, <0.2UI above 100kHz |
| | 2.97Gbps: <1.0UI jitter measured 10Hz-100kHz, <0.3UI above 100kHz |
| | 11.88Gbps: <2.0UI jitter measured 10Hz-100kHz, <0.3UI above 100kHz, band limit @1188MHz |
| Overshoot | <10% (11.88Gpbs: <15%) |
| Connection | HD-BNC |

# AES Specifications

## MC1-UHD-A

***Table 70 AES Specifications — MC1-UHD-A***

| Item | Specifications |
|---|---|
| AES Standards Accommodated | AES-3id-2001, AES3 |
| Connector Type | HD-BNC |
| **Inputs** | |
| Impedance | 75ohm |
| Minimum Input | 50mV p-p |
| Maximum Input | 2.5V p-p @ 48kHz |
| | 1.5V p-p @ 96kHz |
| Minimum Audio Delay | SRC ON: 2ms |
| | SRC OFF: 1ms |
| Maximum Audio Delay | 1365 ms |
| Sampling Rate | 48kHz compliant with AES-3id or any rate from 32kHz to 96kHz with SRC on |
| Equalization | up to 800m (2,400ft) @ 48kHz |
| | up to 500m (1,500ft) @ 96kHz |
| **Outputs** | |
| Impedance | 75ohm |
| Output Level | 1V p-p |
| Sampling Rate | 48kHz |

## MC1-UHD-B

***Table 71 AES Specifications — MC1-UHD-B***

| Item | Specifications |
|---|---|
| AES Standards Accommodated | AES-3id-2001, AES3 |
| Connector Type | WECO |
| Impedance | 110ohm |
| Minimum Input | 100mV p-p |
| Maximum Input | 10V p-p |
| Minimum Audio Delay | SRC ON: 2ms |
| | SRC OFF: 1ms |
| Maximum Audio Delay | 1365 ms |
| Sampling Rate | 48kHz compliant with AES-3id or any rate from 32kHz to 96kHz with SRC on |

***Table 71 AES Specifications — MC1-UHD-B (Continued)***

| Item | Specifications |
|---|---|
| Equalization | >450m of Belden 1492 cable |
| Return Loss | >26dB 100KHz to 6MHz |
| Output Amplitude | 4Vp-p |
| Rise and Fall Times | 30ns |
| Jitter | 4.5mUI |

## Serial Port Specifications

✶ This section applies only to the R3A-GATOR or R3B-GATOR. The R4-GATOR does not include a **SERIAL** port.

***Table 72 Technical Specifications — Serial Port***

| Item | Specifications |
|---|---|
| **Maximum Cable Lengths** | |
| RS-232 Serial Interface | 10m (33ft) |
| RS-422 Serial Interface | 300m (984ft) |

Refer to **Table 73** and **Figure 50** for pin-outs for the **SERIAL** port on the MC1 rear modules.

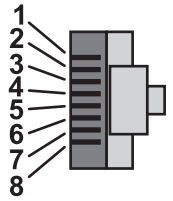



*Figure 50 Serial Port Pinouts*

***Table 73 Serial Pinouts on the MC1***

| RJ45 Pin | RS-232 | RS-422 |
|---|---|---|
| 1 | n/c | Tx+ |
| 2 | Rx | Tx- |
| 3 | Tx | Rx+ |
| 4 | n/c | n/c |
| 5 | n/c | n/c |
| 6 | n/c | Rx- |
| 7 | GND | GND |
| 8 | GND | GND |

## GPIO

*Table 74 Technical Specifications — GPIO*

| Item | Specifications |
|---|---|
| Absolute Maximum Voltage at Connector Pins | 1.0V to +6.0V to prevent damage |
| **GPI** | |
| Input | • 4.7K ohm resistor pull-up to 5V for High<br>• GND contact closure (or external logic) for Low<br>• High In is >= 2.5V<br>• Low In is <= 0.5V |
| **Tally** | |
| Output | • Pulled to 5V with 4k7 ohm resistor for High<br>• Driven to ground or Low through 30ohms<br>• Maximum sink current 50mA to drive an external relay<br>• To drive a logic gate input, sink current needs to be below 10mA (0.3V at pin) |

## Environment

*Table 75 Technical Specifications — Environment*

| Item | Specifications |
|---|---|
| Maximum Ambient Temperature | 40°C (104°F) |

## Power

*Table 76 Technical Specifications — Power*

| Item | Specifications |
|---|---|
| Maximum Power Consumption | 40W-80W (application dependent) |

# Service Information

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

1. **Visual Review** — Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the card, the frame, and any associated peripheral equipment for signs of trouble.
2. **Power Check** — Inspect 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. **Input Signal Status** — Verify that source equipment is operating correctly and that a valid signal is being supplied.
4. **Output Signal Path** — Verify that destination equipment is operating correctly and receiving a valid signal.
5. **Unit Exchange** — Exchanging a suspect unit with a unit that is known to be working correctly is an efficient method for localizing problems to individual units.

## Reloading the Software on the Card

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

**To reload the software on the card**

1. Eject the card from the frame.
2. Press and hold the **Bootload** button, while re-inserting the card into the frame.
3. Release the button.
   - The **OK/ERROR** LED flashes 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 re-start with its last operational software load.
   - Software loads can be sent to the card via the connection on the rear of the frame.

## Loading the Factory Defaults

If required, the card menu parameters can be reset to the factory default values using the option available in the **Setup** tab. All parameters are reset except those listed in **Table 22**.

**To reset the card to the factory default settings in DashBoard**

1. Navigate to the **Global** interface as outlined in "**To display the Global interface in DashBoard**".
2. Select the **Setup** tab.
3. Click **Load Factory Defaults** to display the **Confirm** dialog.
4. Click **Yes** to load the factory default values for all menu parameters, or **No** to cancel the load and close the dialog.

✶ To ensure that the DashBoard fields display the updated settings, it is recommended to click the **Refresh** button, located at the bottom of the DashBoard window, after the factory defaults are fully loaded.

## Warranty and Repair Policy

The MC1 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 card 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.

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### In Case of Problems

Should any problem arise with your card, 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 card. If required, a temporary replacement frame 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.

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# zlib

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files ftp://ds.internic.net/rfc/rfc1950.txt (zlib format), rfc1951.txt (deflate format) and rfc1952.txt (gzip format).

# Glossary

The following terms are used throughout this guide:

**Active image** — the portion of the video picture area (production aperture) that is being utilized for output content. Active image excludes letterbox bars and pillar-box bars.

**Auto Select Key** — a key in which two video signals are required to insert the key. The Key Alpha is used to cut the hole in the video, and the Key Video is used to fill that hole.

**Card** — openGear terminal devices within openGear frames, including all components and switches.

**DashBoard** — the DashBoard Control System.

**DTVCC captions** — CEA-708 captions.

**DVE** — Digital Video Effects.

**Frame** — the openGear frame that houses an openGear card unless otherwise noted.

**HTTP** — Direct Hypertext Transfer Protocol.

**LTC** — Linear Timecode.

**MC1** — refers to the MC1-UHD, MC1-UHD-A, and MC1-UHD-B.

**MIB** — management information base.

**Network Controller Card** — refers to the MFC-OG3-N and the MFC-OGX-N and any available options.

**NTSC captions** — the CEA-608-D: Line 21 Data Services captions.

**openGear frame** — refers to the OG3-FR series and OGX-FR series frames unless otherwise noted.

**PAL** — PAL-B and PAL-G unless otherwise noted.

**Production aperture** — the image lattice that represents the maximum possible image extent in a given standard (e.g. the full size of all active pixels and active lines). For example, the 1080i production aperture would be 1920x1080.

**Self Key** — a key in which the luminance, or brightness, values of the key source is used as the alpha for the key.

**System**— the mix of interconnected production and terminal equipment in your environment.

**TCP** — Transmission Control Protocol.

**TTL** — Time To Live.

**UDP** — User Datagram Protocol.

**User** — the person who uses the MC1.

**VGPI** — Virtual GPI feature of the Miranda™ Presmaster Automation and RossTalk protocols.