A · C · U · I · T · Y

Acuity
Setup Manual

v9.2

ROSS

Thank You For Choosing Ross

You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
   - offer the best product quality and support

2. Make Cool Practical Technology
   - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at *solutions@rossvideo.com*.

David Ross
CEO, Ross Video
dross@rossvideo.com

Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

Document Information

- Ross Part Number: **4820DR-120-09.2**
- Release Date: January, 2020. Printed in Canada

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

Copyright

©2022 Ross Video Limited, Ross®, Acuity™, OverDrive®, and any related marks are trademarks or registered trademarks of Ross Video Limited. All other trademarks are the property of their respective companies. PATENTS ISSUED and PENDING. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, photocopying, recording or otherwise, without the prior written permission of Ross Video. While every precaution has been taken in the preparation of this document, Ross Video assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

Microsoft®, Windows®, Windows XP®, and Internet Explorer® are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Macintosh®, and OS X® are trademarks of Apple Inc., registered in the U.S. and other countries.

Fedora® and the Infinity design logo are trademarks of Red Hat, Inc.

Oracle® and Java™ are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Python™ and PyCon™ are trademarks or registered trademarks of the Python Software Foundation.

Firefox® and Mozilla® are trademarks or registered trademarks of the Mozilla Foundation.

Google® and Google Chrome™ and the Google logo are registered trademarks of Google Inc.

VESA® and DisplayPort™ are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries.

This product includes software developed by Jordan Ritter.

Wireshark and the "fin" logo are registered trademarks of the Wireshark Foundation.

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; US D752,530 S; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

Ross Video Switchers Privacy Notice

Scope of this Notice

We at Ross Video Ltd. (" We " , " Us " , or " Our ") know that your privacy is important. This Notice is designed to give you notice of the categories of data that are collected, and the processing activities performed on that data when you use Our products and services (" Services ").

Your use of Our Services is covered by Our Privacy Policy which can be reviewed by navigating to *www.rossvideo.com/privacy-policy*. This Notice is intended to supplement the Privacy Policy and addresses pertinent data processing activities as you make use of Ross Video Switchers.

Use and Purpose

From time to time during the useful life of your Ross Video Services, you may experience technical issues with these products, depending on how you use these products and the environments in which they are used. To assist you to resolve these issues via our Technical Support Services (*Technical Support* on page viii), Ross Video may require certain data from your systems, such as:

- Kernel logs: baseOS (Operating System) logs like access logs, authorization logs, error logs, etc.
- System boot information: boot up, version information, hardware, start-up information, module discovery information.
- Device connection logs these can be specific to your device.

- Generic Information: Video Reference, Button presses (panel), Crosspoint state, temperatures, etc.

How to securely transfer the data to Ross Video's Technical Support Team

The log files can either be shared with the Technical Support Team via email or uploaded to a Ross Video customer portal. The information contained in these files, such as those listed above, may contain sensitive data.

Ross Video does not make use of this information other than for resolving technical issues. For further information pertaining to Ross Video's Customer data retention practices, please refer to Our Privacy Policy at *www.rossvideo.com/privacy-policy*.

Data Integrity and Security

We recommend that to maintain the data integrity of the information you share with US, you password protect the file when sharing with Ross Video or encrypt the data to ensure the confidentiality of your data remains intact. For more information on how to do this, please speak with your Ross Video representative.

Ross Video has implemented appropriate security controls to protect the confidentiality, integrity, and privacy of customers data.

Privacy Contact

For any additional questions, please reach out to *privacy@rossvideo.com* and refer to Our *Privacy Policy* for more details.

Important Regulatory and Safety Notices to Service Personnel

Before using this product and any associated equipment, refer to the " **Important Safety Instructions** " listed in the front of your *Setup Manual* to avoid personnel injury and to prevent product damage.

The switcher makes use of a number of individual component products to make up a complete system. The Important Safety Instructions section of this manual is intended to compliment individual OEM product manuals and the User must refer to, and heed, any safety instructions outlined in these supplementary product manuals. Separate manuals are included for the following component products:

- Acuity Rack Panel
- Evertz® IP Input Board
- Evertz® IP Output Board

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

This product has been determined to be compliant with the applicable standards, regulations, and directives for the countries where the product is marketed.

Compliance documentation, such as certification or Declaration of Compliance for the product is available upon request by contacting techsupport@rossvideo.com. Please include the product; model number identifiers and serial number and country that compliance information is needed in request.

Symbol Meanings

Protective Earth: *This symbol identifies a Protective Earth (PE) terminal, which is provided for connection of the supply system's protective earth (green or green/yellow) conductor.*

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

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

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

Warning Hazardous Voltages: *This symbol is intended to alert the user to the presence of uninsulated " dangerous voltage " within the product enclosure that may be of sufficient magnitude to constitute a risk of shock to persons.*

ESD Susceptibility: *This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from an ESD event.*

Important Safety Instructions

1. ⚠️ **Warning:** *Read these instructions.*

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with a dry cloth.

7. Do not block any ventilation openings. Install in accordance with manufacturer's instructions.

8. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Unplug this apparatus during lightning storms or when unused for long periods of time.

13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

14. Do not expose this apparatus to dripping or splashing, and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.

15. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

16. The mains plug of the power supply cord shall remain readily operable.

17. ⚠️ **Warning:** *Indoor Use: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.*

18. The safe operation of this product requires that a protective earth connection be provided. A grounding conductor in the equipment's supply cord provides this protective earth. To reduce the risk of electrical shock to the operator and service personnel, this ground conductor must be connected to an earthed ground.

19. ⚠️ **Warning:** *This apparatus, when equipped with multiple power supplies, can generate high leakage currents. To reduce the risk of electric shock, ensure that each individual supply cord is connected to its own separate branch circuit with an earth connection.*

20. ⚠️ **CAUTION:** *These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.*

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

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

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

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

25. Use only power cords specified for this product and certified for the country of use.

26. The safe operation of this equipment requires that the user heed and adhere to all installation and servicing instruction contained within the equipment's Setup Manuals.

27. ⚠️ *Warning:* *This product includes " Ethernet Ports " which allow this product to be connected to local area networks (LAN). Only connect to networks that remain inside the building. Do not connect to networks that go outside the building.*

28. The 8RU and 4RU frames are to be rack mounted only.

29. ⚠️ *CAUTION:* *These apparatus contain Lithium batteries, which if replaced incorrectly, or with an incorrect type, may cause an explosion. Replace only with the same type. Dispose of used batteries according to the manufacturer's instruction.*

30. ⚠️ *Warning:* *Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.*

31. For applicable Touchscreen Panel power supplies, see user instructions contained within the product's Setup manual.

32. ⚠️ *CAUTION:* *The Aux Power connectors PS1 and PS2 on the back of the Acuity™ control panels are for use with the following Acuity™ approved accessories: Touchscreen Display MN:AP-TOUCHSCREEN-A (PN:4820AR-243-01) and Auxiliary Control Panels MN:AP-AUX2RU40 (PN:4820AR-283-01), MN:AP-AUX2RU32 (PN:4820AR-282-01), and MN:AP-AUX2RU24 (PN:4820AR-281-01).*

⚠️ *ATTENTION :* *Les connecteurs d'alimentation auxiliaire PS1 et PS2 sur le dos des panneaux de contrôle d' Acuity™ sont pour une utilisation avec les éléments suivants Acuity™ accessoires approuvés: Écran tactile MN:AP-TOUCHSCREEN-A (PN:4820AR-243-01) et de Contrôle Auxiliaire Panneaux MN-AUX2RU40 (PN:4820AR-283-01), MN:AP-AUX2RU32 (PN:4820AR-282-01), et MN:AP-AUX2RU24 (PN:4820AR-281-01).*

33. ⚠️ *Warning:* *This product when equipped with ACU4-EXEIP-IN/ACU8-EXEIP-IN (Evertz® IPG-IPBLADE-IP-10GE) or ACU4-EXEIP-OUT/ACU8-EXEIP-OUT (Evertz® IPG-IPBLADE-OP-10GE) ethernet gateway options, will have fiber optic outputs. Never look directly into an optical fiber. Irreversible eye damage can occur in a matter of milliseconds.*

34. ⚠️ *CAUTION:* *The ACU4-EXEIP-IN/ACU8-EXEIP-IN (Evertz® IPG-IPBLADE-IP-10GE) or ACU4-EXEIP-OUT/ACU8-EXEIP-OUT (Evertz® IPG-IPBLADE-OP-10GE) ethernet gateway option(s) for this product have 12 SFP ports available. The Acuity™ system is designed to make use of only 8; 7 Dual LC Fiber and a single 1000BASE-T copper modules. The four*

additional ports are not indented for use with the Acuity™ product.

35. ⚠️ *CAUTION:* *RISK OF ABNORMAL SUPPLY LOADING: USB connected accessory loading not to exceed 5 USB unit loads. Each USB unit Load on Rear panel is limited to 250mA max.*

36. ⚠️ *CAUTION:* *The pressure in the panel struts diminishes over time. Check the panel strut locking mechanism before servicing. Stop maintenance work and contact the manufacturer if there is a failure of the panel strut locking mechanism.*

37. For use at altitude 2000m or lower.

38. For use in non-tropical locations.

39. ⚠️ *CAUTION:* *Do not make mechanical or electrical modifications to the equipment or add metallic items, such as metallic foil labels, to the printed circuit boards. Modifications can impair regulatory compliance, or performance and may void your warranty.*

EMC Notices

US/Canada

United States of America

FCC Part 15

This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a Commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada

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

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

ⓘ *Important:* *Changes or modifications to this equipment not expressly approved by Ross Video*

Limited could void the user's authority to operate this equipment.

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 Labelling (Electromagnetic Compatibility) Notice 2008.

International

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.*

General Handling Guidelines

- Careful handling, using proper ESD precautions, must be observed.
- Power down the system before PCB removal.

A Word About Static Discharge

Throughout the many procedures in this manual, please observe all static discharge precautions.

⚠️ **CAUTION:** *Avoid handling the switcher circuit boards in high static environments such as carpeted areas, and when synthetic fiber clothing is worn. Touch the frame to dissipate static charge before removing boards from the frame, and exercise proper grounding precautions when working on circuit boards. Exercise proper grounding precautions when working on circuit boards.*

Warranty and Repair Policy

Ross Video Limited (Ross) warrants its switchers and related options, to be free from defects under normal use and service for a period of ONE YEAR from the date of shipment. Fader handle assemblies are warranted for the life of the product. If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

Software upgrades for switchers may occur from time to time, and are determined by Ross Video. The upgrades are posted on the Ross Video website, and are free of charge for the life of the switcher.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross Video's notification of change of ownership.

Environmental Information

Waste Electrical and Electronic Equipment Directive (WEEE Directive)

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.

This appliance may contain a Coin type battery which should not be treated as household waste.

To ensure that the battery will be treated properly use the appropriate take-back systems in your area. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

Use of Hazardous Substances in Electrical and Electronic Products (China RoHS)

Ross Video Limited has reviewed all components and processes for compliance to:

" Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products " also known as China RoHS.

The " Environmentally Friendly Use Period " (EFUP) and Hazardous Substance Tables have been established for all products. We are currently updating all of our Product Manuals.

The Hazardous substances tables are available on our website at: *http://www.rossvideo.com /about-ross/company-profile/green-practices /china-rohs.html*

电器电子产品中有害物质的使用

Ross Video Limited 按照以下的标准对所有组件和流程进行了审查：

" 电器电子产品有害物质限制使用管理办法 " 也被称为中国RoHS。

所有产品都具有 " 环保使用期限 " （EFUP）和有害物质表。目前，我们正在 更新我们所有的产品手册。

有害物质表在我们的网站：
http://www.rossvideo.com/about-ross /company-profile/green-practices/china-rohs.html

Company Address

Ross Video Limited — 8 John Street Iroquois, Ontario, Canada, K0E 1K0

Ross Video Incorporated — P.O. Box 880, Ogdensburg, New York, USA, 13669-0880

General Business Office:	(+1)613-652-4886
Fax:	(+1)613-652-4425
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 (Support):	techsupport@rossvideo.com
E-Mail (General):	solutions@rossvideo.com
Website	www.rossvideo.com

Technical Support

At Ross Video, we take pride in the quality of our products, but if a problem does 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 are provided directly by Ross Video personnel. During business hours (eastern standard time), technical support personnel are available by telephone. Outside of normal business hours and on weekends, a direct emergency technical support phone line is available. If the technical support personnel who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. Our Technical support staff are available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

Supporting Documentation

Ross Video provides a wide variety of helpful documentation for the setup and support of your equipment. Most of this documentation can be found either on the Product Resources disk that

came with your equipment, on the Ross Video website, or on the Ross Video Community site.

- **Operation Manual (4820DR-110)** — operational instructions for all Acuity™ switchers.
- **Setup Manual (4820DR-120)** — setup and configuration instructions for Acuity™, 4RU, and 8RU frames.
- **Configuration Guide (4820DR-100)** — product description and marketing codes for switchers and options.
- **QuickStart Poster (4820DR-200)** — setup information and specifications for the Acuity™ control panel and frames.
- **Extended Tallies (4820DR-300)** — installation of the extended tallies hardware options in the control panel.
- **Control Panel Desk Mounting (4802DR-301)** — desk mounting instructions for Acuity™ control panel.
- **Auxiliary Control Panel Installation (4802DR-302)** — installation and mounting instruction for the auxiliary control panels.
- **Module Installation (4802DR-303)** — installation and mounting instruction for SideBox module.
- **Panel Row Addition (4820DR-304)** — installation of the panel row add option.
- **3G Video Processor Installation (4820DR-305)** — installation of the 3G Video Processor board in the frame.
- **Frame Board Installation (4820DR-306)** — installation of a new or replacement frame board.
- **Compact Flash Replacement (4820DR-307)** — replacement of the CompactFlash® in the control panel.
- **Power Supply Fan Replacement (4820DR-308)** — replace the fans in the frame power supply.
- **Frame Hard Drive Replacement (4820DR-309)** — replace the hard drive in the frame.
- **OSD Remote (4820DR-313)** — using the onscreen display for the touchscreen of the control panel.
- **GVG100 Supported Command (4802DR-401)** — connection and GVG100 commands supported by the switcher.
- **RossTalk Commands (4802DR-403)** — supported commands using RossTalk protocol.

- **Upgrade Notes (4820DR-500)** — upgrade instructions, new features, and known issues for a given software version.
- **Software Licenses (4820DR-502)** — third-party software licences
- **Acuity™ Dimensions (4820DR-503)** — dimensions of the Acuity™ control panels and frames.
- **4K-UHD Production (4820DR-508)** — setup instructions for a 4K-UHD production.
- **Evertz® IPG-IPBLADE-IP-10GE User Manual** — operation, installation, and configuration information for the Evertz® IP Input Blade product.
- **Evertz® IPG-IPBLADE-OP-10GE User Manual** — operation, installation, and configuration information for the Evertz® IP Output Blade product.

Contents

Frame Boards

The frame performs all the video routing and manipulation of the switcher and consists of a chassis with a midplane into which all the frame boards are installed. Boards are installed into both the front and the rear of the frame.

Frame CPU

- **Part Number:** 4810AR-002

The Frame CPU is the central processing until for the switcher and handles all high-level control functions, as well as manage any global resources. The RAM CACHE for the Global-Store is located on this board.

Video Input

- **Part Number:** 4810AR-060

The Video Input board passes all the input video sources to the switcher.

MultiProcessor Input

- **Part Number:** 4810AR-063

The MultiProcessor Input board provides initial video conversion on input video sources coming into the switcher.

12G MultiProcessor Input

- **Part Number:** 4810AR-065

The 12G MultiProcessor Input board supports UHDTV1 (3840×2160) 59.94Hz and 50Hz in quad link UHD-2SI (3Gb/s and 12Gb/s) and UHD-QSD for input processing and conversion.

Video Output

- **Part Number:** 4810AR-064A

The Video Output board provides the final video processing and output of the video sources from the switcher. Some options, like AuxKey, are generated on the this board.

12G Output

- **Part Number:** 4810AR-066

The 12G Output board supports UHDTV1 (3840×2160) 59.94Hz and 50Hz in quad link UHD-2SI (3Gb/s and 12Gb/s) and UHD-QSD for output processing and conversion.

8RU Crosspoint and 4RU Crosspoint

- **Part Number:** 4810AR-020 and 4410AR-020

The 8RU Crosspoint and 4RU Crosspoint board performs all the video routing in the switcher, connecting video sources to buses and the desired output.

3G Video Processor

- **Part Number:** 4800AR-043A

The 3G Video Processor board does all of the video processing, including the integrated 2D-DVE effects engine, and the XFX Extra Effects engine. The 3D-DVE effects engine installs onto this board.

Reference with Tally

- **Part Number:** 4810AR-061

The Reference with Tally board does passes the external video reference to the switcher as well as providing addition GPIs, frame based tallies, and contact closures.

Network Setup

If the frame is using the default network settings, the control panel will automatically detect the frame on power up. No network setup is required. Once connected, you can change the network settings of each control panel. You must restart the switcher each time you want to apply different network settings.

You can connect up to nine control panels to a single frame. In either a single panel or MultiPanel configuration, you must configure a master panel. Once the master panel is configured, up to eight satellite panels can be configured.

Frame Network Setup

From the frame web interface, you can set up the IP Address of the frame, as well as selecting the IP addresses of all the control panels, and SoftPanel, that can access the frame.

To Set the Frame Network Settings

Tip: *If you do not know the IP address of the frame, you can set the IP address to the default. Refer to* Default Network Settings *on page 17.*

1. Open a web browser and navigate to the IP address of the switcher frame. You are prompted to enter a user name and password. The defaults are **user** and **password**.
2. Click **Other...** > **Network**.

   This page allows you to change the network configuration of the frame network ports, as well as enter the current IP Address of the master panel, and satellite panels.

3. In the LAN1 section, enter the **IP Address** and **Network Mask** for the frame.

   This is the IP address that you will connect to from the control panel(s).

4. Optional: Set an IP address and network mask for the LAN2 port if required.

   By default, the LAN2 port is turned off. You can use the LAN2 port to connect to an external device or graphics suite.

5. Optional: Enter the **Default Gateway** for the frame.
6. Click **Change and Reboot**.

The switcher restarts with the new network settings.

Control Panel Network Setup

To configure the network settings of the control panel, you must have the IP address for both the frame that you want to connect to, and each of the control panels. If you are not connecting any satellite panels to your switcher, only configure the master panel.

To Set the Panel Network Settings

Note: *The control panel and frame must be on the same subnet to communicate properly.*

Note: *The Acuity Rack Panel ships with a static IP address (192.168.0.129) as default.*

1. Press **HOME** three times to place the control panel in diagnostic mode.
2. Press **HOME** > **Setup** > **Network Setup** > **Configure Frame/Panel IPs**.

   Tip: *Set* **Defaults** *on (**On**) to set the control panel to the default IP address and to look for the frame at the default IP address of the frame.*

3. In the Frame area, enter the **IP Address** of the frame using a keyboard or the keypad on the Global Memory module.
4. In the Panel area, enter the **IP Address**, **Subnet Mask**, and **Gateway** of the control panel using a keyboard of the keypad on the Global Memory module.
5. Use the **Panel ID** knob to select the role you want to assign to the control panel.
   - **Master Panel** — assign the control panel as the master panel in a MultiPanel setup, or the only control panel.
   - **Satellite Panel** *X* — assigns the control panel as one of the satellite panels in a MultiPanel setup.
6. Press **Save** and **Yes** to reboot the control panel and use the new network settings.
7. Open a web browser and navigate to the IP address of the switcher frame. You are prompted to enter a user name and password. The defaults are **user** and **password**.
8. Click **Other...** > **Network**.
9. In the Panel area, enter the IP address for the panel you are connecting to the frame.

- **Master Panel** — enter the IP address of the master panel in the **IP Address Master Panel** field.
- **Satellite Panel** — enter the IP address of a satellite panel in the **IP Address Satellite *X*** field.

> *Note:* *The IP address for the control panel must be the same for the satellite number on the control panel and frame. For example, if you assign a control panel Satellite 5, you must enter the IP address of that control panel in the **IP Address Satellite 5** field.*

10. Click **Change and Reboot**.

To Set the Panel DNS Resolver

The control panel comes configured with default DNS entries. You can enter new ones for your facility or delete the existing ones if you do not have a DNS server for your network.

Before you begin, you will need the nameserver IP addresses of your local DNS and any domain names you want to use.

> *Note:* *If the network settings for the control panel are set to DHCP, the DNS entries are gathered from the server and the local settings are overwritten.*

> *Tip:* *If the control panel cannot reach the IP address set for the DNS nameserver, network connection may slow down.*

1. Press **HOME** > **Setup** > **Network Setup** > **DNS Setup**.

> *Tip:* *The **Current DNS Settings** area lists the domain name entries and nameserver IP addresses currently stored on the panel. You can remove these entries by using the **IP/Domain Name Selection** knob to select each entry and pressing **Remove**.*

2. Use the **IP/Domain Name Selection** knob to select the IP address you want to edit or remove.

3. Use the **IP Address** keypad to enter a the IP address of a nameserver on your network. Enter the value for each segment and press **Enter** on the keypad.

> *Note:* *If you are using a mouse with the keypad, the value you enter will default back to the current segment value if the mouse leaves the keypad.*

4. Press **Add** to add the new IP address to the list or **Replace** to replace the currently selected IP address.

> *Note:* *The DNS resolver can have a maximum of 3 nameserver entries.*

5. Use the **IP/Domain Name Selection** knob to select the domain name you want to edit or remove.

6. Enter a new domain name in the **Domain Name** field.

> *Tip:* *If you do not have a keyboard connected to the control panel, press **Show Keyboard** and use the internal keyboard to enter the new name.*

7. Press **Add** to add the new domain name to the list or **Replace** to replace the currently selected domain name.

> *Note:* *The DNS resolver can have a maximum of 6 domain name entries.*

8. Press **Save** and **Yes** to save the DNS settings and restart the panel.

Default Network Settings

The control panel and frame are set with default network addresses from the factory. The frame can be manually configured to these settings using a DIP switch on the Frame CPU board.

Table 1: Default Network Settings

	Frame	**Panel**
IP Address	192.168.1.1	192.168.1.2
Subnet Mask	255.255.0.0	
Gateway	0.0.0.0	

To Default the Frame Network Settings

1. Power off the frame.
2. Remove the Frame CPU board and place on a clean, dry, and static-free surface.
3. Locate the DIP switch.
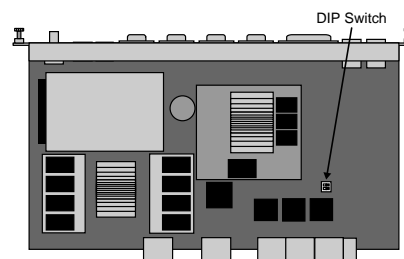
Figure 1: DIP Switch

4. Move DIP switch **1** to the **ON** position.
5. Re-install the Frame CPU into the frame and power the frame up.
   The frame boots up with the default IP address.

You can now log into the frame and set a new IP address. The new IP address will not be used until the DIP switch 1 is moved back to **OFF** position.

Network Security

The switcher uses a standard ethernet connection for communication between the control panel and the frame, as well as between some external devices and the switcher. Any time your switcher is connected to a public network, it is important to follow certain precautions to ensure that your switcher is not vulnerable.

- **Limit Access** — Anyone who can access your network could also have access to your sensitive data and equipment. Limit network access by keeping your production equipment on a separate network segment or use a firewall. Contact your IT department for more information about how your network is set up.
- **Change Default Passwords** — Change the web interface password for your switcher.
- **Disable Unused Services** — The switcher provides access to a number of default services as listed below. These services can be disabled by Ross Video Technical Support if required for added security.
  - **Web Server** — This service is used for the web interface and is required for upgrades.
  - **FTP** — This service is used to transfer images and animations to the switcher for use with the internal Media-Stores.
  - **Telnet Server** — This service is used for diagnostic and maintenance purposes.

To Set Up User Accounts and Passwords

The control panel and frame share the same set of user names and passwords. This information is stored on the frame and is sent to a control panel when it connects to the frame.

Note: *Once you create a user account, the default user and password are not available.*

1. Press **HOME** > **Setup** > **More** > **User Accounts**.

    Custom user accounts that have been created on the switcher are shown in the **User Name** list.

2. Enter the new name and password you want to create in the **Username** and **Password** fields.

    Tip: *If you do not have a keyboard, press **Show Keyboard** to display a virtual keyboard.*

3. Press **Add User**.
4. Edit existing user accounts as required.
   - **Delete** — use the knob to select the account you want to delete and press **Delete User**.
   - **Change Password** — use the knob to select the account you want to change the password for, enter a new password in the **Password** field, and press **Change Pwd**.

System Time

The system time allows you to set the current date and time on the hardware clocks on both the frame and the control panel.

The time can be set manually from the master panel, or automatically from a Network Time Protocol (NTP) server.

To Set System Time Manually

Note: *If the switcher is using a Network Time Protocol Server (NTP) to set the system time. You must remove the NTP servers via the Web UI to be able to set the time manually.*

1. Press **HOME** > **Setup** > **More** > **Set System Time**.
2. Press **Date** and use the **Year**, **Month**, and **Day** knobs to set the current date.
3. Press **Time** and use the **Hour**. **Minute**, and **Second** knob to set the current time.
4. Press **Set**.

To Set System Time Automatically

The system time can be set automatically by entering the IP address of up to three (3) Network Time Protocol (NTP) servers. The switcher must be able to access the IP addresses to get the time from an NTP server.

1. Open a web browser and navigate to the IP address of the switcher frame. You are prompted to enter a user name and password. The defaults are **user** and **password**.
2. Click **Other** > **Time**.

All NTP servers that have been set up on the switcher are listed here.

3. In the blank **Time Servers** field, enter the IP Address of the NTP server you want to add.

    IP addresses in the range of 169.254.x.x are reserved by the switcher and cannot be used as a time server address.

4. Click **ADD**.

    > **Tip:** To remove an NTP server from the list, click **DELETE** next to the time server you want to remove.

    You are asked to confirm the addition of the time server once it is validated, click **OK** to add the server.

Once the switcher is synchronized to the new NTP server, Okay appears in the Status column. If Okay is not shown next the IP address, check that the IP address is correct, or that the switcher has access to the address.

Video Reference

The flexible reference system in the switcher allows you to use an Interlaced video format as the reference to operate the switcher in a video format of the same frequency. Choosing a progressive video format as a reference limits you to operating the switcher only in that same video format and frequency. For example, if you have a 1080i 59.94Hz input reference you can operate the switcher in 720p 59.94Hz, but not 1080i 50Hz. However, if you have a 720p 59.94Hz input reference, you can only operate the switcher in 720p 59.94Hz. If you need to change frequencies, you can have multiple input references and switch between them as needed.

Supported Reference Formats

Depending on the input reference format you use, you will only be able to operate the switcher in certain formats. References to 1080p 59.94Hz (A) and 1080p 50Hz (A) refer to 1080p Level A only.

Table 2: Compatible Video Formats

Input Reference	Usable Format
480i	480i
	480i 16:9
	720p 59.94Hz[1]
	1080i 59.94Hz[1]
	1080p 59.94Hz (A/B)[2]
	UHDTV1 59.94Hz (UHD-2SI)[3]
576i	576i
	576i 16:9
	720p 50Hz[1]
	1080i 50Hz[1]
	1080p 25Hz
	1080p 50Hz (A/B)[2]
	UHDTV1 50Hz (UHD-2SI)[3]
720p 50Hz	720p 50Hz
720p 59.94Hz	720p 59.94Hz

Input Reference	Usable Format
1080i 50Hz	576i
	576i 16:9
	720p 50
	1080i 50Hz
	1080p 25Hz
	1080p 50Hz (A/B)[2]
	UHDTV1 50Hz (UHD-2SI)[3]
1080i 59.94Hz	480i
	480i 16:9
	720p 59.94Hz
	1080i 59.94Hz
	1080p 29.97Hz
	1080p 59.94Hz (A/B)[2]
	UHDTV1 59.94Hz (UHD-2SI)[3]
1080i 60Hz	1080p 60Hz
	UHDTV1 60Hz (UHD-2SI)[3]
1080p 24Hz	1080p 24Hz
1080pSF 23.98Hz	1080pSF 23.98Hz
1080pSF 24Hz	1080pSF 24Hz

Notes

[1] It is not recommended that you operate the switcher in these video formats when you are using a composite sync (480i or 576i) reference signal. SMPTE® recommends using a tri level sync reference signal for high-definition video.

[2] The 1080p 50Hz Level B and 1080p 59.94Hz Level B video formats are only accepted by the MultiProcessor Input and 12G MultiProcessor Input boards where they are converted to level A automatically.

[3] Only the MultiProcessor Input and 12G MultiProcessor Input boards can process UHDTV1 UHD-2SI video signals. Only the 12G MultiProcessor Input can process UHDTV1 UHD-2SI (single link) at 12Gb/s.

> **Important:** *Format conversion of Level B to A causes a 2-line delay in the MultiProcessor Input board for that input. All Level B inputs must be advanced by 2-lines before they come into the switcher.*

The switcher allows you to use any interlaced video format to operate the switcher in any

format of the same frequency; however, the use of 480i or 576i (Composite Sync) reference signals for High Definition (720p, 1080i, or 1080p) video modes is not recommended. Using a composite sync reference signal for High Definition video modes results in excessive jitter on the video output of the switcher, falling outside the range specified by SMPTE-292M. This may result in downstream equipment being unable to properly receive these signals.

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.

UHDTV1 Mode

When the switcher is operating in a UHDTV1 video format, the number of available resources is reduced to provide the additional processing power required for UHDTV1 production. The following table provides a quick overview of how the resources are re-allocated.

	SD/HD	UHDTV1
Max MEs (4RU/8RU)	6/8	3/4
Keys per ME	8	4
Chroma Keys per ME	2	1
2D DVE Channels per ME	16	8
3D DVE Channels per ME	2	1

Refer to *Switcher Resources* on page 120 for a complete list of available resources.

Reference Setup

The current input reference format (Reference mode) and video format (Video mode) that the switcher is operating in are shown on the **Main Menu**. The status of the reference signal is shown by the color of the **Reference mode** text.

- **White** — reference signal is locked and good.
- **Yellow** — reference signal has been lost or can't lock for less than 10 seconds.
- **Red** — reference signal has been lost or can't lock for more than 10 seconds.

To Set a Reference Format

1. Press **HOME** > **Setup** > **Installation** > **More** > **Reference**.

2. Toggle **Reference** to select between an internal reference (**Int**) or an external reference (**Ext**).

   If you select an external reference, you must select the board that the reference signal is connected to.

3. Use the **Ref Board** knob to select the board you have connected reference to.

4. Use the **Ref Format** knob to select the format of the input reference.

5. Use the **Video Format** knob to select the video format you want the switcher to operate in.

   Note: When you select a UHDTV1 video mode, the entire switcher is reconfigured to process UHDTV1 video.

6. Use the **Color Gamut** buttons to set the color gamut you want the switcher to operate in.

   Note: There are restrictions on the types of HDR and color gamut conversion you can do, and you can adjust the scaling of the conversion. Refer to High Dynamic Range (HDR) and Wide Color Gamut (WCG) Conversion on page 90 for more information.

   - **BT.709** — color gamut recommended for HD video signals.
   - **BT.2020** — wide color gamut recommended for UHDTV1 video signals.

7. Use the **Dynamic Range** buttons to set the dynamic range you want the switcher to operate in.

   - **SDR** — Standard Dynamic Range.
   - **HLG** — Hybrid Log Gamma.
   - **PQ** — Perceptual Quantizer.
   - **S-Log3** — Sony® S-Log3.

8. Press **HOME** > **Confirm**.

To Reset All Video Input Reference Formats

You can reset the video format, dynamic range, and color gamut of all video inputs to the video format of the switcher.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Reference**.

2. Press **Reset Input Formats** to have the switcher set all the video inputs to the same video format that the switcher is currently operating in.

3. Press **HOME** > **Confirm**.

To Reset All Video Output Reference Formats

You can reset the video format, dynamic range, and color gamut of all video outputs to the currently selected video format.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Reference**.
2. Use the **Video Format** knob to select the video format that you want to set all video outputs to.
3. Press **Reset Output Formats**.
4. Press **HOME** > **Confirm**.

Frame Synchronization / Format Conversion (FSFC)

The MultiProcessor Input board has input frame synchronizer / format converter (FSFC) and input de-interlacers that can be used to convert video input signals to the format that the switcher is operating in, as well as correct mistimed, or drifting, video input signal. The frame synchronizers cannot completely correct badly formatted video, mistimed switches, signal drops, or similar issues.

Each FSFC channel maintains a separate setting for different video formats. This lets you change between video formats without losing FSFC channel configurations.

The switcher has up to 8 FS or FC channels that can be assigned to any input. FS and FC resources are shared. For example, if you assign a FS you will have 7 remaining channels to be assigned as a FS or FC.

Frame synchronizers are only available on the MultiProcessor Input board and cannot be used on an input that is not on that board.

> **Note:** *Frame synchronizers and format converters share resources but work independently. If you are using a format converter to convert 1080p Level B, you can also apply a frame synchronizer to that input.*

Supported FSFC Input Mode Video Formats

FSFC can only convert between specific video formats at a given frequency. The available conversions also depends on the switcher mode you are in.

Table 3: Supported FSFC Input Mode Video Formats for Conversion

Input Format	Switcher Format
UHDTV1 UHD-2SI 59.94Hz[3]	UHDTV1 UHD-2SI 59.94Hz
1080p 59.94Hz (A)	
1080p 59.94Hz (B)	
UHDTV1 UHD-2SI 50Hz[3]	UHDTV1 UHD-2SI 50Hz
1080p 50Hz (A)	
1080p 50Hz (B)	
1080p 59.94Hz	1080p 59.94Hz
1080i 59.94Hz[1]	
720p 59.94Hz	
480i 59.94Hz	
1080p 50Hz	1080p 50Hz
1080i 50Hz[1]	
720p 50Hz	
576i 50Hz	
1080p 29.97Hz	1080p 29.97Hz
1080p 59.94Hz[2]	
1080p 25Hz	1080p 25Hz
1080p 50Hz[2]	
1080i 59.94Hz	1080i 59.94Hz
1080p 59.94Hz	
720p 59.94Hz	
480i 59.94Hz	
1080i 50Hz	1080i 50Hz
1080p 50Hz	
720p 50Hz	
576i 50Hz	
720p 59.94Hz	720p 59.94Hz
1080p 59.94Hz	
1080i 59.94Hz	
480i 59.94Hz	
720p 50Hz	720p 50Hz
1080p 50Hz	
1080i 50Hz	
576i 50Hz	

Input Format	Switcher Format
576i 50Hz[4]	576i 50Hz
1080p 50Hz	
1080i 50Hz	
720p 50Hz	
480i 59.94Hz[4]	480i 59.94Hz
1080p 59.94Hz	
1080i 59.94Hz	
720p 59.94Hz	

Notes

[1] Converted using either a simple line-doubler or 4-line interpolater and may result in lower quality video.

[2] Converted by dropping frames and may result in lower quality video.

[3] Only the 12G MultiProcessor Input board can process UHDTV1 at 12Gb/s.

[4] Aspect ratio conversion.

To Set Up an FSFC

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **BNC Configuration**.

2. Use the **Physical BNC** knob to select the BNC that you want to sync or delay.

3. Use the **Video Format** knob to select the format of the video signal being fed in on the selected BNC.

4. In the **Frame Sync** area, select how you want to apply the frame sync.
   - **OFF** — no frame sync is applied to the input.
   - **Sync** — a frame sync is applied to the input.
   - **Delay** — use the **Delay** knob to select the number of frames that you want to delay the input.

5. In the **Framing** area, select how to apply aspect ratio conversion between 4:3 and 16:9.
   - **Full** — video signal is scaled disproportionately to fill the display of the new aspect ratio. Aspect distortion occurs as the image is stretched/compressed to fit in the new aspect ratio.

- **Zoom** — video signal is zoomed to fill the display of the new video format. No aspect distortion is introduced but the edges of the video signal may be cropped
- **Letterbox** — black bars are added to the top and bottom of a 16:9 image to display correctly in a 4:3 video format.
- **Pillarbox** — black bars are added to the right and left of a 4:3 image to display correctly in a 16:9 video format.

6. In the **UHD QUAD to 2SI Conversion** area, select whether to convert the input video from UHD-QSD to UHD-2SI.

7. Press **HOME** > **Confirm**.

SmartConversion

The switcher can only operate in a single video format at a time. In order to mix and manipulate video signals of different video formats, the SmartConversion option is required. Once set up, SmartConversion automatically assigns up/down converters to the various inputs to ensure that all the video signals are in the same format. SmartConversion can also be applied to outputs to convert the output of an ME or Aux Bus to a different video format.

SmartConversion operates automatically when you select a source on an ME or Aux Bus. SmartConversion determines if there is a video format mismatch between the selected source and the ME or Aux Bus output formats. If there is a video format mismatch, the appropriate conversion loop is used to convert the input source to the correct output format to match the ME or Aux Bus.

For information on setting up SmartConversion, refer to *SmartConversion* on page 93.

To View the Current Status of Conversion Loops

You can view the status of all the up/down converters that SmartConversion is managing either in the display on the Fade to Black Module, or on the **Converter Status** menu. The FTB Display personality option must be set to display the number of free up/down converters.

1. Double-press the crosspoint button for the video source that you want to view the up/down converter status for. This can be on an ME or an Aux Bus.

2. Press **SmartConversion**.

3. Press **Converter Status**.

The current status of the conversion loops is displayed on the menu.

- **Converter** — up/down converter (displayed as the Aux Bus that is connected to the up/down converter).
- **Input** — name of the input source currently being converted. If the source is not currently on-air, this displays the last source that was converted and on-air.
- **In Use** — Yes if the current source is on-air and the up/down converter is unavailable for use by another source. No if the source is not on-air and the up/down converter is available for use.
- **Locked** — the name of the bus-pair the up/down converter is locked to. If the up/down converter is not locked to a specific bus-pair, Not Locked is displayed.
- **Converters** — the number of assigned up/down converters out of the total number of each specific video format.

To View the Current Assignment of Conversion Loops

1. Double-press the crosspoint button for the video source that you want to view the up/down converter status for. This can be on an ME or an Aux Bus.
2. Press **SmartConversion**.
3. Press **Allocation Status**.

The current assignment of the conversion loops is displayed on the menu.

- **Bus** — The bus that is using the converter.
- **Converter** — The up/down converter being used by the specified bus (displayed as the Aux Bus that is connected to the up/down converter).
- **Input** — The name of the input source currently being converted. If the source is not currently on-air, this displays the last source that was converted and on-air.

To Override a Conversion Loop

You can change the conversion setting for an video source without having to change the installation settings for that BNC by temporarily overriding the conversion settings for that source.

1. Double-press the crosspoint button for the video source that you want to override. This can be on an ME or an Aux Bus.
2. Press **SmartConversion**.
3. Select the video format by pressing the associated button. If the video format is not displayed, press **Input is Other Type** and use the **Type** knob to select the video format.

Switching Field

The switching field is the field in an interlaced video format that the switcher uses to transition from one video source to another. An interlaced video format is made up of two fields, field 1 (odd lines) and field 2 (even lines).

To Set the Switching Field

1. Press **HOME** > **Setup** > **Installation** > **Output** > **More**.
2. Toggle **Switch on** to select between field 1 (**F1**) or field 2 (**F2**) as the switching field.
   - **F1** — transitions are performed after the odd field of the source video is drawn.
   - **F1** — transitions are performed after the even field of the source video is drawn.
3. Press **HOME** > **Confirm**.

Video Input Setup

Video sources come into the switcher through the input BNCs. Depending on how you want to use these video sources, or where they come from, you may want the switcher to pair them together, or associate an external device with them. Pairing two video sources together is usually used for an auto select key where an external device, such as a character generator, outputs both a key video and key alpha. Associating a video source with an external device allows special control over that device to become active when you select the source on a bus.

Input Sources

Video inputs coming into the switcher are assigned the video format that they are coming into the switcher in, and the type of device they are coming from. Assigning a video format allows SmartConversion to identify the conversion loop required to convert this video input. Assigning a device type allows you to associate a device you are controlling from the switcher with an input.

Note: *Refer to the documentation that came with your Evertz® IP Input for information on setting up video inputs.*

Each input BNC on the switcher can have one or multiple input sources assigned to it. This can allow configurations such as multiple device control or device redundancy. For example, to access both the CG and clip functionality of your graphics processor you can assign two input sources, one set up as a CG and the other as a video server, to the physical BNC from the device. You can then use two source buttons to access the different functionalities of the same device.
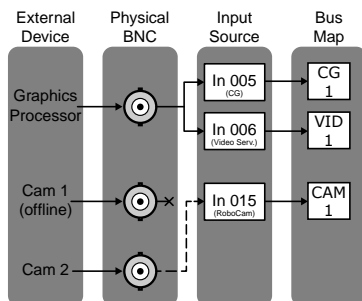
To Set Up Video Sources

Tip: *You can see if there is a valid video signal on an input BNC from the **Input Status** menu.*

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **Input Type**.
2. Use the **Input** knob to select the input source that you want to configure.
3. Use the **Physical BNC** knob to select the physical BNC that you want to assign the input source to. Physical BNCs that appear gray are on Video Inputs boards that are not installed.
4. In the **Input Type** area, select how you want the input source configured. Input types are assigned to the input sources, and not the physical BNC.

   Note: *All input sources must be assigned to **Video** or **Alpha** unless the device connected to that input source is controlled by the switcher.*

   - **Alpha** — alpha signal to be paired with a fill, or video, signal for an auto select key.
   - **Char Gen** — video signal from a character generator.
   - **Off** — no video signal, or to temporarily turn an input off.
   - **Robotic Cam** — video signal from a robotic camera.
   - **Router** — video signal from a router.
   - **Video** — video signal from any source you are not controlling from the switcher.
   - **VTR** — video signal from a VTR or video server.

5. Use the **Video Mode** knob to select the HDR and WCG of the input video source. If the dynamic range and/or color gamut of the video source are different than the those the switcher is operating in, the input video will be converted to the values the switcher is operating in.

   - **SDR BT.601** — Standard Dynamic Range in an SD video format. (SD default)
   - **SDR BT.709** — Standard Dynamic Range in an HD/UHDTV1 video format. (HD/UHDTV1 default)
   - **HLG BT.709** — Hybrid Log Gamma in an HD/UHDTV1 video format.
   - **PQ BT.709** — Perceptual Quantizer in an HD/UHDTV1 video format.

- **S-Log3 BT.709** — Sony® S-Log3 in an HD/UHDTV1 video format.
- **SDR BT.2020** — Standard Dynamic Range using Wide Color Gamut in an HD/UHDTV1 video format.
- **HLG BT.2020** — Hybrid Log Gamma in an HD/UHDTV1 video format.
- **PQ BT.2020** — Perceptual Quantizer in an HD/UHDTV1 video format.
- **S-Log3 BT.2020** — Sony® S-Log3 in an HD/UHDTV1 video format.

> *Note: There are restrictions on the types of HDR and color gamut conversion you can do, and you can adjust the scaling of the conversion. Refer to High Dynamic Range (HDR) and Wide Color Gamut (WCG) Conversion on page 90 for more information.*

> *Note: The MultiProcessor Input board must be in Mode 2 for HDR and color gamut conversion. Refer to MultiProcessor Input Mode on page 26 for more information.*

6. Press **BNC Configuration**.
7. Use the **Video Format** knob to select the video format of the input video signal on the selected input source.

> *Note: If you are selecting a UHD-2SI format, only BNCs 1, 5, 9, 13, or 17 can be selected. The remaining three video inputs are grayed out.*

> *Note: The MultiProcessor Input board must be in Mode 0 or 1 for Level B to A conversions. Refer to MultiProcessor Input Mode on page 26 for more information.*

8. Press **HOME** > **Confirm**.

UHDTV1 Sources

The switcher can accept UHDTV1 inputs in either 3Gb/s UHD-2SI or UHD-QSD, or 12Gb/s UHD-2SI. Each input consumes 4 input BNCs, even with the single 12Gb/s input.
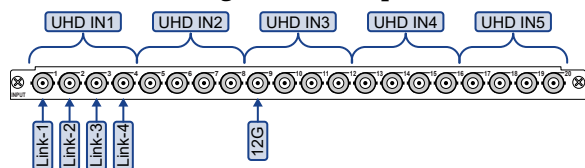
> *Note: Only 2 UHDTV1 inputs on the MultiProcessor Input and 12G MultiProcessor Input boards can import UHD-QSD 3Gb/s video signals.*

> *Note: Only the 12G MultiProcessor Input and 12G Output boards can process UHDTV1 12Gb/s video signals.*

MultiProcessor Input Mode

The MultiProcessor Input and 12G MultiProcessor Input boards can operate in different modes. Each mode provides a different number of resources, depending on how you want to use the switcher. The number of resources available in each mode is listed below.

Each processing video input board in the frame can operate in a different mode.

	Mode 0	Mode 1	Mode 2
Input MultiViewers	1	0	0
Proc Amps/Color Correctors	20		
HDR/WCG	0		20
Level B to A Converters	8		0
Frame Syncs/Format Converters (FS/FC)	8		
UHD-QSD to UHD-2SI Converters	0	2	0

To Set the MultiProcessor Input Mode

The mode to select the number of resources the board provides.

1. Press **HOME** > **Setup** > **Installation** > **More** > **More** > **MultiProcessor Input**.
2. Press a **Mode *X*** button to select the mode that you want each MultiProcessor Input or 12G MultiProcessor Input to operate in.

> *Note: Mode 1 is only available when the switcher is operating in a UHDTV1 video mode.*

> *Note: If you change the mode a board is operating in, the board will be restarted to load the new configuration and will not be available during this time.*

The slot that the board is installed in is indicated at the end of the name. For example, **MultiProcessor Input F** refers to the board installed in Slot F at the back of the frame. If a MultiProcessor Input or 12G MultiProcessor Input board is not installed in the slot, the **Mode** buttons are grayed out. If the slots are not present in the frame, `Not Available` is shown next to the **Mode** buttons.

3. Press **HOME** > **Confirm**.

Auto Key Setup

An auto key allows you to associate a key alpha with a key video source in the switcher. When the video source is selected as a keyer, the key alpha is automatically used.

You must set a video source as an alpha before you can use it as an alpha for an auto select key.

Tip: You can associate one Global-Store, or ME-Store, channel as the alpha for another Global-Store, or ME-Store, channel. This means that if you load a still that has alpha information in the file, the switcher uses the associated channel to load the alpha still. Only Global-Store and Global-Store, or ME-Store and ME-Store, channels can be used in the auto-key.

To Set Up an Auto Key Association

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **Input Type**.
2. Use the **Input** knob to select the input source that is your key alpha.
3. In the **Type** area, select **Alpha**.
4. Use the **Video Format** knob to select the video format of the input video signal on the selected input source.
5. Press **Auto Key Setup**.
6. Use the **Source** knob to select the input source that has the fill of the auto key you want to set up.
7. Use the **Alpha** knob to select the input source that has the alpha of the auto key you want to set up.
8. Use the **Mode** knob to assign the alpha as **Shaped** or **Unshaped**.
   - **Unshaped** — switcher performs a multiplicative key. The key alpha cuts a hole based on the gradient values of the alpha. Shades of gray are translated into transparency levels, giving the key a soft edge. Unshaped key alphas can also be considered true linear alphas.
   - **Shaped** — switcher perform an additive key. With shaped keys, the key alpha cuts a hole based on the monochrome value of the alpha. Shades of gray are translated into either white or black, giving the key a hard edge. Shaped Key alphas are sometimes used with Character Generators to cut very precise holes for the fill.
9. Press **HOME** > **Confirm**.

Source, Bus, and Aux Names

Each video source and output on the switcher can be given a unique name that is used on the mnemonics for that source, as well as internal menus. These names can be customized for how they appear on the mnemonics by adjusting the size or the font and the background color.

Internally generated video sources, such as MEs, matte generators, aux buses, MultiViewer, and Global-Store channels can also be given unique names.

You can assign an video source to an under monitor display (UMD) input address to provide the mnemonic names. If an video source is assigned to a UMD input address, any source name you enter is replaced with the UMD input name for all the mnemonics and menus.

To Name a Video Source

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **Source Names**.
2. Use the **Source** knob to select the input source that you want to change the name for.
3. Enter the new name in the **New Name** field.
4. Use the **Font** knob to select the size and layout of the font you want to use on the mnemonic displays.
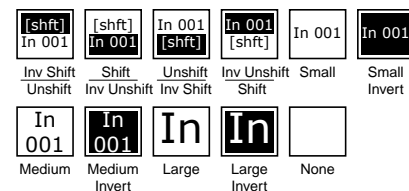
*Tip: The **Standard** font allows you to adjust the default appearance of all the source mnemonics. Refer to To Set the Default Mnemonic Appearance on page 62 for more information.*

5. Use the **Color** knob to select the color you want to use for the mnemonics. This can be the background or text color, depending on whether you have selected an invert font.
   - **Standard** — use the standard mnemonics color.
   - **Green** — use a green color.
   - **Red** — use a red color.
   - **Blue** — use a blue color.
   - **Yellow** — use a yellow color.
   - **Orange** — use an orange color.
   - **Purple** — use a purple color.

- **ME *X* Glow** — use ME Glow color *X*.
- **Aux Glow** — use the aux glow color.
- **CC Glow** — use the CC glow color.
- **User Color *X*** — use User Color *X*.
- **None** — don't use a color for the mnemonic.

6. Press **Accept New Name**.

Control Panel Button Inserts

Insert films can be installed into most buttons on the control panel. Insert films allow you to label specific source buttons, control buttons, or replace the default button names with those of a different language.

Button insert templates can be downloaded from Ross Video.

To Install a Button Insert

1. Remove the Cap Assembly from the Switch Assembly by grasping it firmly and pulling away from the control panel surface.
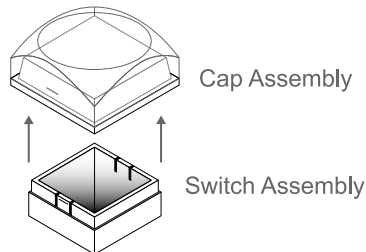
Figure 2: Removing Cap Assembly

2. Remove the Lens from the Diffuser using a common end micro screwdriver.
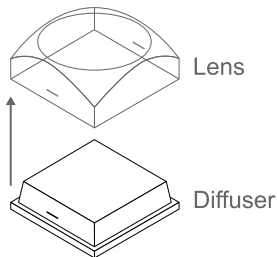
Figure 3: Removing Lens from Diffuser

3. Place the Insert Film into the Lens so the readable side is facing up. The notches on the sides of the Lens must be at the sides of the text on the Insert Film.
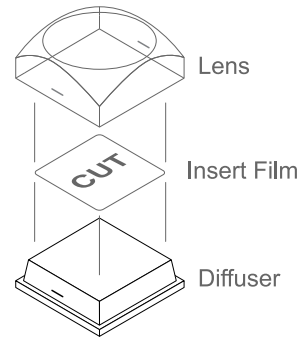
Figure 4: Inserting Film

4. Aligning the notches on the sides of the Lens and Diffuser, press the Lens and Diffuser together until they click.

5. Aligning the notches on the sides of the Cap Assembly to the tabs on the side of the Switch Assembly, press Cap Assembly down onto the Switch Assembly with a rolling motion until they click together.
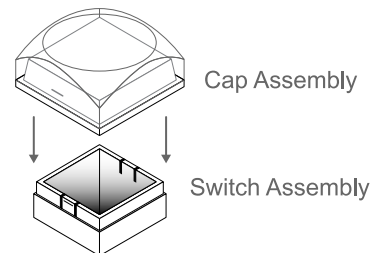
Figure 5: Removing Lens from Diffuser

Bus Maps

Any video input can be mapped to any source button on the control panel using a bus map. Bus maps can be assigned to individual buses on a specific ME, or to the entire panel. Each source button can have up to eight inputs assigned (a standard source and shifted sources).

In a MultiPanel configuration, all control panels share the same bus maps, but which bus maps are assigned to each ME is specific to the panel. For example, on satellite panel 1 you can assign bus map 5 to ME 3. On satellite panel 4 you can also assign bus map 1 to ME 3, as long as both panels have ME 3 assigned to them.

Keep the following in mind:

Keep the following in mind when working with bus maps.

- You can map an input to more than one crosspoint.

- Associate your primary inputs first, followed by your shifted inputs.
- To save a button, you can assign Global-Store channel 2 to the shifted button of Global-Store channel 1.
- You do not need to assign alpha signals to crosspoint buttons. These signals are used automatically when you select the video crosspoint of the auto key.
- A different bus map can be assigned to the same ME from each control panel.

Editing Bus Maps

Bus maps define the video source, or internal video signal, that is assigned to each crosspoint button on a bus.

To Edit a Bus Map

> *Tip: You can edit a bus map for a control panel of a different size than the current one by pressing **Select Panel Type** and selecting a different size of panel.*

1. Press **HOME** > **Setup** > **Bus Maps** > **Edit**.
2. Use the **Map** knob to select the bus map you want to edit.

   > *Tip: Press **More** > **Default Map** to default the selected map, or **Default ALL Maps** to default all maps.*

3. Select or edit the button on the shift level that you want to assign a video signal to. Use the middle knob to scroll the list. The button lights on the program bus of all panel rows.

   - **Insert** — insert a source at the selected button and shift the remaining sources to the right.
   - **Delete** — delete a source at the selected button and shift the remaining sources to the left.
   - **Clear** — remove the source from the selected button and not shift the remaining sources. **None** is selected for the cleared buttons and the last button when a source is deleted.
   - **Copy** — copy the source from the selected button.
   - **Paste** — paste the copied source to the selected button.

4. Use the **Source** knob to select the video source that you want to assign to the selected source button.

   - **NONE** — no video source is assigned to the button.

- **BKGD 1-2** — the color background from the matte generator.
- **BLCK** — internally generated black.
- **ME *X*** — the program output of another ME for re-entries. Button is blank if it is the same ME.
- **SHFT *X*** — switch the source buttons to the selected shifted bus row.
- **STIL *X*** — the output of the selected Global-Store channel.
- **ME *X* ST *Y*** — the ME-Store channel (*Y*) of select ME (*X*).
- **ME*X* PGM *Y*** — the configurable program output (*Y*) of ME (*X*).
- **ME *X* PV *Y*** — the configurable preview output (*Y*) of ME (*X*).
- **PV OVL** — the preview with overlay output of the program ME of the switcher.
- **Key Cut** — perform a cut of the AuxKey key on the aux bus that the source button is pressed on.
- **KeyTrans** — perform an auto transition of the AuxKey key on the aux bus that the source button is pressed on.
- **BKGDCUT** — perform a cut of the AuxKey background on the aux bus that the source button is pressed on.
- **BKGDTRANS** — perform an auto transition of the AuxKey background on the aux bus that the source button is pressed on.
- **K+B CUT** — perform a cut of the AuxKey background and key on the aux bus that the source button is pressed on.
- **K+B TRANS** — perform an auto transition of the AuxKey background and key on the aux bus that the source button is pressed on.
- **Bus Hold** — the currently selected source on the bus that you select the Bus Hold for, does not change when a memory recall is performed. This is the same as holding the crosspoint button when performing a memory recall. On an Aux Bus, the Bus Hold toggles the Aux Bus Lock on and off.
- **MV*X*** — the output of the selected MultiViewer channel.
- **BNC** — the video source on the selected input BNC.

5. Press **HOME** > **Confirm**.

To Name a Bus Map

1. Press **HOME** > **Setup** > **Bus Maps** > **More**.
2. Use the **Map** knob to select the bus map you want to rename.
3. Press **Rename Map**.
4. Enter the new name in the **New Name** field.
5. Press **Accept New Name**.

To Copy a Bus Map

1. Press **HOME** > **Setup** > **Bus Maps** > **More** > **Copy Map**.
2. Use the **Copy From** knob to select the bus map you want to copy from.
3. Use the **Copy To** knob to select the bus map you want to copy to.
4. Press **Copy Map**.

Assigning Bus Maps

Bus maps can be assigned to the program/preset, key, or utility buses of each ME, or to each Aux Bus. Bus Maps can be assigned to individual buses, ME, Aux Buses, or to the entire panel. Bus map assignment are control panel specific and do not affect the Bus Map assignments on other control panels.

Bus map assignments are stored in the personality register of the switcher.

To Assign a Bus Map to An Individual Bus

1. Press **HOME** > **Setup** > **Personality** > **Bus Maps** > **More** > **Assign Maps** > **Individual Buses**.
2. Use the **Bus** knob to select the bus you want to assign the bus map to.
   * **ME*X* PGM/PST** — program and preset bus of the selected ME.
   * **ME*X* Key *Y*** — selected key bus of the selected ME.
   * **ME*X* Utility** — utility bus of the selected ME.
   * **Bnk *X* Aux *Y*** — selected aux bus and bank.
   * **RmtAuxPnl L*X*** — remote aux panel on selected External Link port.
   * **RmtAuxPnl P*X*** — remote aux panel on selected Peripheral port.
   * **Extern Row *X*** — auxiliary control panel on selected external panel row.
3. Use the **Map** knob to select the bus map you want to assign.

4. Press **Perform Assign**.

To Assign a Bus Map to Multiple Buses

1. Press **HOME** > **Setup** > **Personality** > **Bus Map** > **More** > **Assign Maps**.
2. Press **Entire Panel**, **All ME Buses**, **All Buses On ME**, or **All Aux Buses** to assign the bus map.
   * **Entire Panel** — all buses assigned to the panel.
   * **All ME Buses** — all ME buses assigned to the panel.
   * **All Buses On ME** — all the buses on the selected ME (program, preset, keys, etc.).
   * **All Aux Buses** — all Aux buses assigned to the control panel.
3. Use the **Map** knob to select the bus map you want to assign.
4. Press **Perform Assign**.

Non-Sync Detection

You can disable the detection and reporting of non-synchronized video sources. Non-synchronised video sources are either not properly timed, or use a different reference format than the one the switcher is operating in.

The non-sync detection can be set for individual video sources, or can be turned all on or all off.

Refer to *Non-Sync Status* on page 98 for information on reading the non-sync status of a source.

To Set Non-Sync Detection For All Sources

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **BNC Configuration**.
2. In the **Non-Sync Detection** area select whether to apply non-sync detection to all input BNCs (**All On**) or to none of the input BNCs (**All Off**).
3. Press **HOME** > **Confirm**.

To Set Non-Sync Detection For An Individual Source

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **BNC Configuration**.
2. In the **Non-Sync Detection** area press **Individual**.

3. Use the **Physical BNC** knob to select the physical input BNC that you want to set the non-sync detection for.

4. Press **Individual**.

5. Press **On** to turn non-sync detection on for the selected input BNC.

6. Press **HOME** > **Confirm**.

Tallies and Contact Closures

Tallies and contact closures are simple open collectors (tallies) or relays (contact closures) that the switcher uses to signal other devices, and users, that a particular video source is on-air. Typically, tallies are used to light a red light on a camera to show people that they are on-air and what camera they should be looking at.

You can only assign a single source to a tally/contact closure, but you can assign multiple tallies/contact closures to the same source.

To Assign a Tally/Contact Closure to a Source

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **Tally**.

2. Press **Panel Tallies**, **Frame Tallies**, or **Contact Closures** to select which tally port or contact closure you want to set up.

3. Use the **Panel Tallies**, **Frame Tallies**, or **Contact Closures** knob to select the tally or contact closure you want to assign to a video source.

   If you are assigning a frame tally or contact closure, the number is preceded by the slot that the Reference with Tally board is installed in.

4. Use the **Source** knob to select the video source that you want to assign the tally or contact closure to.

   • **OFF** — tally is turned off
   • **ME*X* PGMA** — ME *X* Program A
   • **Still *X*** — Global-Store *X*
   • **ME*X* PGMB** — ME *X* Program B
   • **ME*X* PVWA** — ME *X* Preview A
   • **ME*X* PVWB** — ME *X* Preview B
   • **ME*X* PGMC** — ME *X* Program C
   • **ME*X* PGMD** — ME *X* Program D
   • **ME*X* PGME** — ME *X* Program E
   • **ME*X* PGMF** — ME *X* Program F

• **ME*X* ST *Y*** — ME-Store *Y* on ME *X*
• **Bnk*X*Aux*Y*** — Aux Bus *Y* on Bank *X*
• **MV*X* ST*Y*** — MultiViewer *X* Media-Store *Y*
• ***Input*** — physical video inputs

5. Use the **Mode** knob to select when you want to tally the selected source.

   • **On Air** — when the source is on-air. The source is on-air when it is included in the program output of an ME that is tallied.
   • **Preview** — when the source is on preview.
   • **Bnk*X*Aux*Y*** — when the source is active on the selected aux bus.
   • **Any Aux Bus** — when the source is active on any aux bus.
   • **Preset** — when the source is active on the preset of any ME.
   • **ME *X* PGM *Y*** — when the source is active on the selected program output of the selected ME.
   • **ME *X* PST *Y*** — when the source is active on the selected preset output of the selected ME.

6. Press **HOME** > **Confirm**.

To Set Up When a Tally is Triggered

By default, the highest number ME in the switcher is tallied as the program ME. Anything selected or re-entered on this ME is considered on-air.

1. Press **HOME** > **Setup** > **Installation** > **Output** > **More** > **ME / Aux Tally**.

2. Use the **Bus** knob to select the type of bus you want to tally.

   • **ME** — select an ME
   • **Aux** — select an aux bus
   • **Aux Mix/Key** — select an AuxKey

3. Use the **ME/Aux/Aux Mix/Key** knob to select the ME, aux bus, or AuxKey that you want to set up the tally for.

   > **Tip:** *The **ME X B** selections represent the B-side of a split ME.*

4. Use the **Tally** knob to select how sources selected on the bus are tallied.

   • **Always** — sources on the bus are always tallied.

- **On Air** — sources on the bus are only tallied when they are selected or re-entered on the program ME.
- **Never** — sources on the bus are never tallied.

Video Output Setup

The frame has a number of output BNCs that can be assigned to any video source in the switcher, including media-store channels, and aux bus.

Output Sources

The number of output BNC your switcher has depends on the number of Video Output boards you have installed in the frame.

> **Note:** *Refer to the documentation that came with your Evertz® IP Output for information on setting up video outputs.*

Keep the following in mind:

Keep the following in mind when setting up video outputs:

- If you have the Mix/DSK or AuxKey options installed, certain output BNCs are locked to specific outputs. In some cases, only these output BNCs can be used for the output of this option.
- If you are setting up the Program output for a control panel that does not have the highest number ME assigned to it, you must use the ME *X* PGM or ME *X* PGM *Y*.
- Only the main preview output (ME *X* PV A) of the highest number ME supports the preview overlay.
- If you are using Aux buses to pass non-native video format signals through the switcher, output BNC C03 and C04 on the 4RU frames cannot be used. Output BNC C03 and C04 cannot pass video that is of a format other than what the switcher is operating in.
- The Evertz® IP Output does not support internally generated black or the Fade to Black functionality.
- Preview with Overlay is not available when the switcher is operating in a UHDTV1 video format.

To Assign an Output Source to an Output BNC

1. Press **HOME** > **Setup** > **Installation** > **Output** > **Output BNCs**.
2. Use the **Output** knob to select the output BNC you want to set up.
3. Use the **Source Group** and **Source** knobs to select the source you want to assign to the output.

Table 4: Video Sources

Group	Source	Description
System Outputs	Program	The main program output, the output of the highest number ME.
	Preview	The main preview output, the output of the highest number ME.
	PV w/ OVL	The main preview output with preview overlay, the output of the highest number ME. (not available in UHDTV1)
	PV w/o OVL	The main preview output without preview overlay, the output of the highest number ME.
ME Outputs	ME *X* PGM *Y*	The configurable program outputs A through F of the selected ME.
	ME *X* PV *Y*	The configurable preview output A or B of the selected ME.
	ME *X* ST *Y*	The output of the selected ME-Store.
	ME *X* LkAhd	The Look Ahead Preview output of the selected ME.
MultiViewers	MV*X*A/B	The output of head A/B of the select MultiViewer.
Global-Stores	GlobalStore*X*	The output of the selected Global-Store channel.
Aux Monitor	Aux Monitor	The program output of the active aux bus. This only applies to an aux bus selected on an internal panel row.
Aux Bus Follows	Aux Bus Outputs *X:Y*	The output of the selected aux bus.
Inputs	BNC *X*	The output of the selected input video source. The input source is routed directly to the output.

Group	Source	Description
ME Bus Follows	**ME *X* PGM**	The same source as is active on the program bus of the selected ME.
	ME *X* PST	The same source as is active on the preview bus of the selected ME.
	ME *X* KEY*Y*	The video, or fill, of the same source as is active on the selected key bus of the selected ME.
	ME *X* KEY*Y*Alpha	The alpha of the same source as is active on the selected key bus of the selected ME.
	ME *X* UTIL1/2	The same source as is active on the selected utility bus.
Input MultiViewers	**MV In*X***	The output of the input MultiViewer for the video input board in the selected slot.
Extended Inputs	***X*21**	The output of the extra input 21 on the Evertz® IP Input board. The input source is routed directly to the output.
Aux Mix Outputs	(fixed)	These items are fixed to the outputs of the AuxKey assigned to the selected output BNCs.
Mix/DSK Output	(fixed)	These items are fixed to the outputs of the Mix/DSK option.
MultiViewer 3D DVE	**MV*X* DVE*Y***	The output of each DVE channel resource from the Floating 3D DVE.

4. Use the **Color Gamut** buttons to set the color gamut conversion you want to apply to the output.

   > *Note:* *There are restrictions on the types of HDR and color gamut conversion you can do, and you can adjust the scaling of the conversion. Refer to High Dynamic Range (HDR) and Wide Color Gamut (WCG) Conversion on page 90 for more information.*

   - **BT.709** — color gamut recommended for HD video signals.
   - **BT.2020** — wide color gamut recommended for UHDTV1 video signals.

5. Use the **Dynamic Range** buttons to set the dynamic range conversion you want to apply to the output.

   - **SDR** — Standard Dynamic Range.

   - **HLG** — Hybrid Log Gamma.
   - **PQ** — Perceptual Quantizer.
   - **S-Log3** — Sony® S-Log3.

6. Press **HOME** > **Confirm**.

To Confirm a Video Output

The **Aux Bus Outputs (2-2)** menu lists all video outputs on the switcher and the video source that is assigned to each. The **Aux Bus Outputs (1-2)** menu lists the video source selected on each aux bus.

1. Press **HOME** > **More** > **Effects** > **More** > **More** > **Aux Bus** > **More** > **More**.

2. Press **Output *X##-X##*** for the Video Output board (**X**) and output BNC range (**##**) that you want to confirm the video outputs for.

UHDTV1 Video Output

The switcher must be configured to output UHDTV1 at 12Gb/s. Output BNCs are assigned to a UHDTV1 output in groups of four (4). If you want to output UHDTV1 at 12Gb/s, you must set the output group to 12G. If you want to output UHDTV1 in UHD-2SI at 3Gb/s, the switcher will automatically output the four sub images to the four output BNC in the output group.
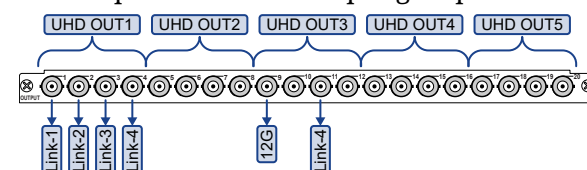
When the output group is set to 12Gb/s, the first BNC in the group outputs the 12Gb/s UHDTV1 stream and the third BNC outputs one of the sub images (links) at 3Gb/s as a camera return.

> *Note:* *Only the 12G Output can output UHDTV1 at 12Gb/s video.*

Table 5: UHDTV1 Output BNC Assignments

Output BNC	UHD-2SI 3Gb/s	UHD-2SI 12Gb/s
1	Group 1 - Sub Image 1 (image at quarter scale)	Group 1 - Image
2	Group 1 - Sub Image 2 (image at quarter scale)	--
3	Group 1 - Sub Image 3 (image at quarter scale)	Group 1 - 3G Camera Return (Link 3)
4	Group 1 - Sub Image 4 (image at quarter scale)	--

Output BNC	UHD-2SI 3Gb/s	UHD-2SI 12Gb/s
5	Group 2 - Sub Image 1 (image at quarter scale)	Group 2 - Image
6	Group 2 - Sub Image 2 (image at quarter scale)	--
7	Group 2 - Sub Image 3 (image at quarter scale)	Group 2 - 3G Camera Return (Link 3)
8	Group 2 - Sub Image 4 (image at quarter scale)	--
9	Group 3 - Sub Image 1 (image at quarter scale)	Group 3 - Image
10	Group 3 - Sub Image 2 (image at quarter scale)	--
11	Group 3 - Sub Image 3 (image at quarter scale)	Group 3 - 3G Camera Return (Link 4)
12	Group 3 - Sub Image 4 (image at quarter scale)	--
13	Group 4 - Sub Image 1 (image at quarter scale)	Group 4 - Image
14	Group 4 - Sub Image 2 (image at quarter scale)	--
15	Group 4 - Sub Image 3 (image at quarter scale)	Group 4 - 3G Camera Return (Link 4)
16	Group 4 - Sub Image 4 (image at quarter scale)	--
17	Group 5 - Sub Image 1 (image at quarter scale)	Group 5 - Image
18	Group 5 - Sub Image 2 (image at quarter scale)	--
19	Group 5 - Sub Image 3 (image at quarter scale)	Group 5 - 3G Camera Return (Link 4)
20	Group 5 - Sub Image 4 (image at quarter scale)	--

To Set Up A UHDTV1 Output

1. Press **HOME** > **Setup** > **Installation** > **Output** > **Output Boards**.
2. Use the **Output Group** knob to select the output group of 4 BNCs that you want to use as a single UHDTV1 12Gb/s output. Only the first BNC in the group will output active video.
3. Use the **Configuration** knob to select **12G Output**.
4. Press **HOME** > **Confirm**.

Configurable Program Outputs (MultiFeed)

Each ME can have multiple program and preview outputs that can be configured to include only select keys or replace the background and preset buses with the utility buses.

Note: Configurable program outputs are not available for a Mix/DSK (half ME).
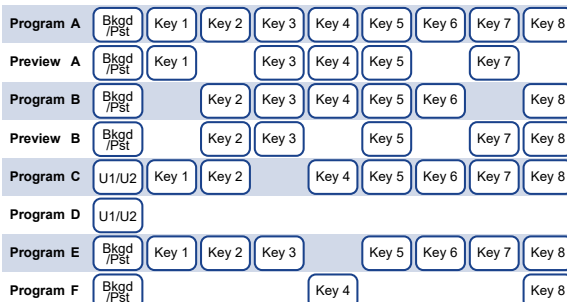
Figure 6: Configurable Program Output Example

Including or excluding a key from a program output does not change the on-air status of the key, only whether the key is included in a particular output when the key is on-air. The key must still be transitioned on or off-air from the transitions area.

To Configure a Program Output

*Tip: To configure a program output that is set to FlexiMode, press the **SEL** button for the ME that you want to configure an output for and press **Program Assignment**. Individual keys can be included or excluded from each program output from this menu.*

1. Press **HOME** > **Setup** > **Installation** > **Program Assignment**.
2. In the **Select ME** area, press **ME X** for the ME that you want to configure the output for.

   All the outputs for the selected ME are listed to the right.
3. Select **FlexiMode** for an output to allow it to be configured from outside of the **Installation** menu.

   *Tip: Including or excluding keys for a program output from the **Installation** menu is stored in the Installation register and becomes the default state of that output.*

4. Select the keys that you want included in each output for the ME.
5. Select the buses to use for the background of each output.

- **Bkgd/Pst** — sources selected on the background and preset buses of the ME are used.
- **U1/U2** — sources selected on utility bus 1 and utility bus 2 of the ME are used.

Note: *You cannot override the Program A output or any of the Preview outputs.*

6. Press **HOME** > **Confirm**.

Configurable Program Output Mode

The last two configurable program outputs (Program E and Program F) can be set as either a standard ME output or as a custom output. Custom outputs include ME Layer Mode and Chroma Key Alpha.

- **Program** — the configurable program output of the ME
- **ME Layer Mode** — a composite alpha from the keys on the configurable program output A or B that is then available to another ME as a single alpha source. Program E uses Program A as the source for the key alphas and Program F used Program B. If the ME is in ME Layer Mode, this output is used for the composite alpha from the ME.
- **Chroma Key Alpha** — the key alpha that the switcher generated for the chroma key. This allows you to inspect the alpha to check for adjustments that can be made.

To Set the Configurable Program Output Mode

Tip: *To set the mode for a program output that is set to Flexi Mode, press the **SEL** button for the ME that you want to configure the mode for and press **ME Modes**.*

1. Press **HOME** > **Setup** > **Installation** > **Output** > **Program/Utility Configuration**.
2. Select the ME that you want to set the mode for.
3. Select the mode you want to apply to the Program E and Program F outputs of the ME.
   - **Flexi Mode** — all modes are available from a menu outside of the **Installation** menu.
   - **Program *X*** — the output is set to a standard program output.
   - **Layer Mode** — the output that is used for the combined alpha.
   - **Chroma Key *X* Color Map** — the output is set to the key alpha of the indicated chroma key.

Tip: *Setting the mode from the **Installation** menu is stored in the Installation register and becomes the default state of that output.*

4. Press **HOME** > **Confirm**.

Split ME Functionality

The Split ME functionality allows you to take advantage of the configurable program outputs feature to create two semi-independent MEs (Program A and Program B) in a single ME. To set up the split ME, you must assign the Program B program and preset outputs to the Utility 1 and 2 buses. This gives the B-side of the ME independent outputs.
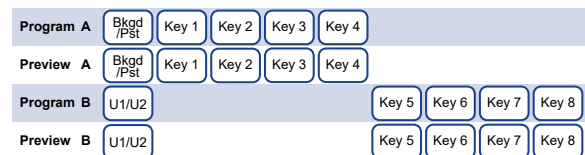
Figure 7: Split ME Configuration Example

The configurable program output functionality also allows you to further split the MEs by separating the keyers to one program output or the other, or have them applied to both MEs.

Keep the following in mind:

Keep the following in mind when working with a split ME.

- Sources selected on the background and preset buses of the A-side or B-side are independent of each other.
- You can transition the A-side separately, the B-side separately, or both together.
- Keys are independent of the A-side or B-side and appear in the output of either side depending on whether they are included in the configurable program output.
- The A-side and B-side can have different ME transition rates. If both sides are selected and a transition is performed, the A-side and B-side will use their set transition rates.
- If the A-side and B-side are both performing a sequence they must start transitioning at the same time.
- Both the A-side and B-side tally independently when re-entered on-air. However, only the A-side can tally sources selected on it.
- The utility buses and B-side are included with the A-side for TSL tallies. You can select to

have the B-side/utility buses no included with the TSL tallies.

- The B-side uses the User Colors (ME 1 = User 1, ME 2 = User 2 and so on) for the glow color.

ME Layer Mode

The ME Layer Mode uses an ME configurable program output to create a composite alpha from the keyers on that ME that is then available to another ME as a single alpha source. This allows you to re-enter the background bus of an ME into the key bus of another ME as a single Auto Select key. The key video comes from the output of the source ME and the key alpha comes from the configurable program output that is set to Layer Mode for the source ME.
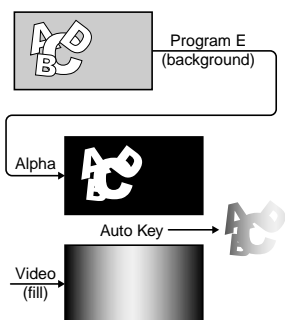
Tip: You must set up the auto key with the configurable program output as the alpha and whatever source you want as the fill.

To Set an ME to Layer Mode

*Note: The layer mode output is only fed out of the configurable program output that is set to **Layer Mode**. The Program A layer mode output is fed out of the Program E output and the Program B layer mode output is fed out of the Program F output.*

1. Press the **SEL** button on the panel row you want to set the ME Mode for.
2. Press **ME Modes**.
3. Select the ME Layer Mode you want to use.
   - **Program *X*** — selected ME operates normally.
   - **Layer Mode** — combined key alphas that are included in the configurable program output of the ME are used as the video source.

Ancillary Data

You can select which lines in the vertical and horizontal blanking area are stripped or passed, as well which line the video image starts on.

This allows you to protect and pass information such as embedded audio, or closed captioning, with the video signal.
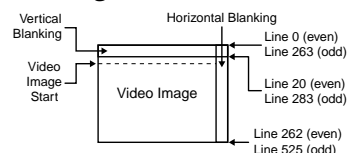
Figure 8: Vertical and Horizontal Blanking Area (480i)

Field and frame line numbers depend on the video format the switcher is operating in. If the switcher is operating in a Progressive Scan video format, no even or odd information is displayed.

Ancillary data parameters are set independently for each video format. Changing video formats recalls the last saved parameters for the selected video format.

Tip: Refer to To Edit a MultiViewer Layout on page 39 for information on setting the ancillary data source for the MultiViewer outputs.

To Set Up the Ancillary Data

1. Press **HOME** > **Setup** > **Installation** > **Output** > **More** > **Ancillary Data**.
2. Use the **Field (Line)** knob to select a particular lines in the even and odd fields, or the entire horizontal blanking region, that you want to set up.
3. Use the **Pass/Strip** knob to select whether to pass (**Pass**) the data in the selected fields, or strip (**Strip**) it.
   - **Pass** — data is not removed from the video stream. Use this setting if you have embedded audio.
   - **Strip** — data is removed from the video stream.
4. Use the **Image Start** knob to select the first lines of active video. If closed captioning is present in the video signal, set the **Image Start** to the line after the closed captioning line.
5. Press **HOME** > **Confirm**.

SMPTE® 352 Payload Identification

The SMPTE® 352 payload identifier is inserted into the ancillary data and carries information to identify such things as the video format and scanning method, interface standard, and aspect ratio for the current video signal. Some upstream devices will insert this information, and others may not. This can result in the

SMPTE® 352 payload identifier appearing and disappearing as you transition between video signals, causing problems for downstream devices such as monitors.

The SMPTE® 352 payload identifier is inserted after the passing or stripping of the ancillary data by the switcher.

To Insert the SMPTE® 352 Payload Identifier

1. Press **HOME** > **Setup** > **Installation** > **Output** > **More** > **More**.

2. Press **SMPTE 352** to select whether the switcher inserts the SMPTE® 352 payload identification (**On**), or do not insert it (**Off**).

   Setting SMPTE® 352 to **Off** does not strip the SMPTE® 352 payload identifier that was added by an upstream device.

MultiViewer

The switcher supports both a multi-headed video processor MultiViewer and a single-headed input MultiViewer. Both types of MultiViewer generators allow you to view up to 20 video sources in one of 41 different grids and include mnemonic source names and red and green tallies on every box.

- **Video Processor MultiViewer** — has access to every input on the switcher, has four heads (A,B,C,D), and replaces an ME in the switcher. Each Video Processor MultiViewer can also be configured to provide 2 floating 3D DVE keys that can be accessed from any ME on the switcher.

- **Input MultiViewer** — has access to only the input sources fed into the MultiProcessor Input board, and is not available on the standard Video Input board.
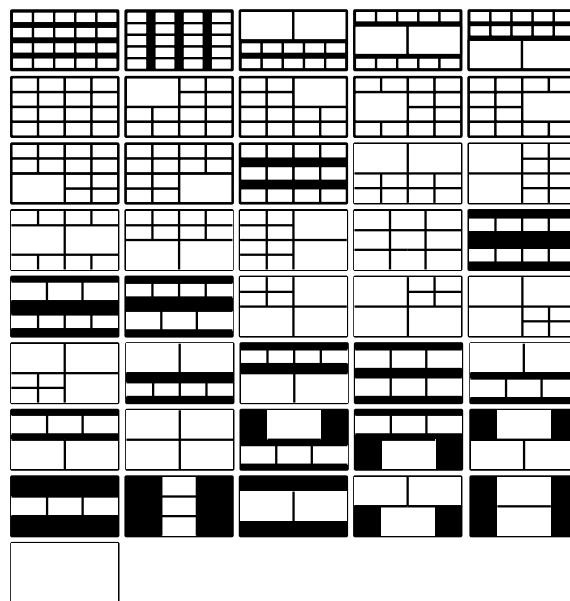
Figure 9: MultiViewer Grids

Video Processor MultiViewer Activation

Each Video Processor board supports up to two MultiViewer generators. The resources provided by a Video Processor board can be assigned to either an ME or a MultiViewer. The other ME/MultiViewer on the Video Processor board is unaffected.

When you activate a MultiViewer, you have the option of activating a standard MultiViewer or a MultiViewer with floating DVE keys. These additional DVE keys are available to any ME in the switcher.

Note: *Floating DVEs use MultiViewer channels on the same Video Processor board to route video. The last four sources into the MultiViewer will show black.*

The Input MultiViewer does not need to be activated.

To Activate a MultiViewer

Each Video Processor board provides resources for up to 2 ME outputs, up to 2 MultiViewer generators, or up to 2 MultiViewer generators and 4 3D DVE keys. A single ME and a single MultiViewer is also supported.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Video Processor**.

2. Press **ME *X* ME *Y*** for the Video Processor board that you want to activate a MultiViewer on.

   Tip: *If a Video Processor is already supporting a MultiViewer the **ME** is replaced with **MultiViewer**.*

3. Select the type of MultiViewer you want to activate:

- **MultiViewer** *X* — the MultiViewer is activated and the ME is turned off.
- **MultiViewer** *X* **3D DVE** — the MultiViewer and floating 3D DVE are activated and the ME is turned off.

4. Press **HOME** > **Confirm**.

MultiViewer Layouts

Each MultiViewer generator is assigned a layout that specifies how the boxes are arranged and what source is assigned to each box in the layout. The size and number of boxes in the layout depends on the layout that is selected.

To Assign a Layout to a MultiViewer

1. Press **HOME** > **Setup** > **MultiViewer**.

2. In the **Layouts** area, select the layout that you want to assign to a MultiViewer.

3. Press **Input/Video Processor** to select whether you want to set up an Input MultiViewer (**Input**) or a Video Processor MultiViewer (**Video Processor**).

4. In the **Input/Video Processor MultiViewers** area, select a MultiViewer.

This is the MultiViewer that the layout will be assigned to.

To Assign Sources to a Video Processor MultiViewer Layout

Note: The Input MultiViewer is restricted to the 20 inputs to the MultiProcessor Input board.

1. Press **HOME** > **Setup** > **MultiViewer**.

2. In the **Layouts** area, select the layout that you want to assign video sources to.

3. Press **Layout Editor** > **Source**.

4. Use the **Id** knob to select the MultiViewer source that you want to assign a video source to.

Each layout has access to 32 sources. These MultiViewer sources must be selected for the layout before they can be assigned to any of the boxes on the layout.

Note: The ancillary data of the first source in the list is embedded in Head A and the ancillary data of the first or second source is embedded in Head B. This only applies to the Video Processor MultiViewer.

5. Use the **Source Group** and **Source** knobs to select the video source you want to assign to the selected MultiViewer source (Id).

Note: Some internal video sources cannot be routed to the MultiViewer directly (using the ME Bus Follows for example). When this occurs the video is replaced with a `Source Not Supported By MultiViewer` *message.*

Note: If you are selecting a UHD-2SI input, only BNCs 1, 5, 9, 13, or 17 can be selected. The UHD-2SI encoding method uses four 1080 video streams to create the UHDTV1 image. The remaining three video inputs are not shown on the list. The MultiViewer only outputs in 1080.

Note: If you assign a UHD-2SI source to a MultiViewer box, only sub image 3 of the source is shown.

Tip: Look Ahead Preview can be used as a source in the MultiViewer to replace both ME PV, and ME PGM. When assigned to a MultiViewer box, the Look Ahead Preview displays the program output of the ME if the ME is not on air. When the ME is on-air, the Look Ahead Preview displays the preview output of the ME; however, the box is not tallied green for preview. This reduces the need to dedicate multiple boxes the program and preview outputs. Refer to Look Ahead Preview for more information on this feature.

Note: Sources 21 to 32 are fixed and available to all heads.

To Edit a MultiViewer Layout

1. Press **HOME** > **Setup** > **MultiViewer**.

2. In the **Layouts** area, select the layout that you want to edit.

3. Press **Layout Editor** > **Head** *X* (**Head** for an Input MultiViewer), depending on which head you want to edit the layout for.

4. Use the **Grid** knob to select the arrangement of the boxes that you want to use.

5. Select the box that you want to assign a video source to and use the **Source List** knob to select the video source that you want to assign to the box.

6. In the **Current Layout** area, select the element you want to display for the selected box.

- **Label Bottom** — show the source label at the bottom of the box and not at the top.
- **Label Top** — show the source label at the top of the box and not at the bottom.
- **White Border** — show a white border around the box. The border masks a

small portion of the edges of the image in the box.

- **Black Border** — show a black border around the box. The border masks a small portion of the edges of the image in the box.
- **4:3/16:9 Marker** — show a 4:3 safe area marker on the box.
- **Follow Name** — show the mnemonic source names and tally state for the video shown in the box (ON), or show the name of the bus and BNC, or internally generated source, that the video comes from.

> **Note:** *If the source is from a router that is being controlled by the switcher, the mnemonic name from the router is used. You can turn this off from the* **Source Configuration** > **Input Type** *menu.*

- **Red Tally** — show red tallies when on-air.

> **Note:** *The B-side and utility buses of a split ME are included with the A-side for MultiViewer tallies. Refer to* To Exclude the B-Side from TSL Tallies *for information on excluding B-side/utility bus tallies.*

- **Green Tally** — show green tallies when on preview.
- **Tally Label** — red or green boxes are shown inside the label area of the MultiViewer box
- **Tally Label Rev** — the same as Label, but the placement of the tally boxes is swapped
- **Box Off** — turns the box off in the layout. When a box is turned off it appears black on the MultiViewer and none of the other elements for that box are available.
- **Input Status** (Input MultiViewer Only) — show the link number for non-sync or missing video inputs to the right of the source name. The SD, HD, and 12G UHDTV1 video signals show 1 in either yellow or red. The 3G UHDTV1 video signals (UHD-2SI and UHD-QSD) show the number of the link 1234 in either yellow or red (1=link 1, 2=link 2, etc.). A number is not shown if the video source is present and properly timed.
  - **Yellow** — the video source for this link is out of sync.
  - **Red** — the video source for this link is not present.

7. Use the **Transparency** knob to adjust the transparency of the source label background.
8. If you are setting up **Head B**, toggle the **Anc Input** button to select the source for the ancillary data that is embedded in the video stream for Head B.
   - **Id02** — the ancillary data from the second source in the list is embedded in the video stream.
   - **Id01** — the ancillary data from the first source in the list is embedded in the video stream.

> **Note:** *The ancillary data of the first source in the list is embedded in* **Head A**.

To Name a MultiViewer Layout

1. Press **HOME** > **Setup** > **MultiViewer**.
2. In the **Layouts** area, select the layout that you want to name.
3. Press **Layout Name**.
4. Enter the new name in the **New Name** field.

   The name can contain letters, numbers, spaces, dashes, underscores, and, periods, but should not contain symbols.
5. Press **Accept New Name**.

Copying and Pasting MultiViewer Layouts

A MultiViewer layout can be copied to another layout.

To Copy and Paste a MultiViewer Layout

1. Press **HOME** > **Setup** > **MultiViewer**.
2. In the **Layouts** area, select the layout that you want to copy.
3. Press **Copy Layout**.
4. In the **Layouts** area, select the layout that you want to paste the layout to.
5. Press **Paste Layout**.

Fade to Black

Fade to Black allows you to have one, or all, of the ME outputs fade to black with a single button press. Pressing the button again returns the ME output from black to the previous state.

In an MultiPanel configuration, the fade to black only affects the ME outputs that are assigned to the control panel that the fade to black is performed on, and that fade to black is turned

on for. Each control panel has a unique fade to black rate, but which ME outputs that fade to black is turned on for is common across all control panels.

To Set Fade to Black

1. Press **HOME** > **Setup** > **Installation** > **Output** > **Fade To Black**.
2. Press **ME X** to turn fade to black on (**On**) or off (**Off**) for each ME.
3. Press **HOME** > **Confirm**.

Mix/DSK

The Mix/DSK option provides an additional half ME that supports up to 4 Auto Select or Self keys and can perform basic dissolves and cuts. Only a single Mix/DSK can be added to a switcher and the video outputs of the Mix/DSK cannot be re-entered back into the switcher.

> **Note:** *The Half ME option is not supported on the Evertz® IP Output board or when the switcher is operating in a UHDTV1 video format.*

The number of keys depends on how the Mix/DSK option is set up. If Mix/DSK is set to **Mix2K** there are 2 keys and if it is set to **Mix4K** there are 4 keys. Both of these options lock specific output BNCs to the video signals being output by the Mix/DSK option.

> **Note:** *The Mix/DSK option is applied to the highest number ME in the switcher.*
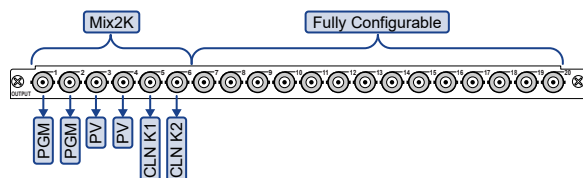
Figure 10: Mix2K

Table 6: Mix2K Output BNC Assignment

Output	4RU Frame	8RU Frame
Program	C01, C02	K01, K02
Preview	C03, C04	K03, K04
Clean (before key 1)	C05	K05
Clean (before key 2)	C06	K06
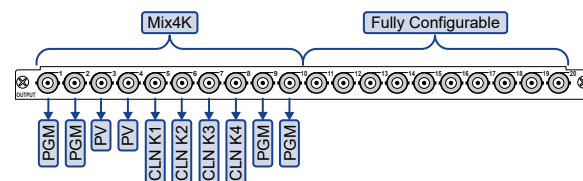
Figure 11: Mix4K

Table 7: Mix4K Output BNC Assignment

Output	4RU Frame	8RU Frame
Program	C01, C02	K01, K02
Preview	C03, C04	K03, K04
Clean (before key 1)	C05	K05
Clean (before key 2)	C06	K06
Clean (before key 3)	C07	K07
Clean (before key 4)	C08	K08
Program	C09, C10	K09, K10

To Turn On The Mix/DSK Option

> **Note:** *The Mix/DSK option is only available on specific outputs.*

1. Press **HOME** > **Setup** > **Installation** > **Output** > **Mix/DSK**.
2. Use the **Mix/DSK** knob to turn on the features.
   - **None** — turn off both options.
   - **Mix2K** — turn on Mix/DSK with 2 keys.
   - **Mix4K** — turn on Mix/DSK with 4 keys.
3. Press **HOME** > **Confirm**.

AuxKey

The AuxKey option can be used as either a simple Mixer (dissolve between two Aux buses) or a Mix/Keyer (simple mixer and Auto Select key). Output BNCs are assigned to an AuxKey in groups of four (4). The video sources fed out of these output BNCs is locked to the AuxKey outputs.

> **Note:** *The AuxKey option is not supported on the Evertz® IP Output board or when the switcher is operating in a UHDTV1 video format.*
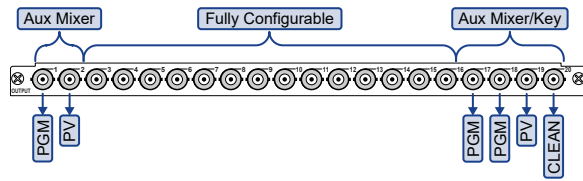
Figure 12: AuxKey Configuration

Table 8: AuxKey Output BNC Assignments

Output BNC	Aux Mix	Aux Mix/Key
1	Program	Program
2	Preview	Program
3	(configurable)	Preview
4	(configurable)	Clean Feed

Mix or Key operations can be previewed, similar to an ME.

> **Note:** *An AuxKey cannot pass or manipulate non-native video format signals. If you are using an Aux Bus as a video pass-through for a non-native video format signal, you cannot set up an AuxKey on that Aux Bus.*

An AuxKey cannot be re-entered on another bus except by using an external loop. You must set the AuxKey up as a Pre-Mixer/Keyer if you are using an external loop to ensure that video timing is compensated for the loop.

To Set Up An AuxKey

1. Press **HOME** > **Setup** > **Installation** > **Output** > **Output Boards**.

2. Use the **Output Group** knob to select the group of 4 BNCs that you want to assign to the AuxKey.

    > **Note:** *If an aux bus is assigned to a SmartConversion loop, you cannot set it up as an AuxKey.*

3. Use the **Configuration** knob to select the configuration you want.

    • **Outputs** — assign the selected output group as standard outputs. This frees up the output group to allow you to assign standard switcher outputs to all the BNCs in the group.

    • **Aux Mix** — assign the selected output group as an Aux Mixer. This will allow you to perform Background dissolves in the aux bus.

    • **Aux Mix/Key** — assign the selected output group as an Aux Mixer/Keyer. This allows you to perform Background and Key 1 dissolves in the aux bus.

• **Aux Mix/Pre** — assign the selected output group as an Aux Mixer/Keyer that is re-entered into the switcher. This allows you to perform Background and Key 1 dissolves in the aux bus and have them properly timed to be available as a source for the rest of the switcher. Refer to *AuxKey Pre-Mixer/Keyer* on page 42 for cabling information.

4. Press **AuxKey Configuration**.

5. Use the **Aux Keyer** knob to select the AuxKey you want to set up.

6. Use the **Bus** knob to select the bus that you want to assign an Aux bus output to.

    When you select a video source on the selected bus, that video source will be sent out of the Aux bus you assign to the bus.

    > **Important:** *You must assign each bus of the AuxKey to an Aux bus for it to function properly.*

7. Use the **Aux Bus** knob to select the Aux bus output that you want to assign to the selected bus.

AuxKey Pre-Mixer/Keyer

The Aux/Mix Pre setting pre-times the Aux bus output so that it can be re-entered back into the switcher from an external loop and be properly timed for selection on another bus. An AuxKey can only be re-entered this way once, attempting to re-enter an AuxKey onto another AuxKey that is being re-entered onto another bus will result in timing errors in the output.

The AuxKey is re-entered into the switcher by physically connecting cables from the output BNCs of the AuxKey to input BNCs on the switcher. These sources can then be selected on any bus on the switcher as an input.

Personality

There settings allow you to configure the switcher for your own work-flow or personal preferences. Personality settings are stored in the personality register and can be stored and recalled without changing other aspects of the switcher setup.

Personality Options

All personality options are stored in the Personality Setup register and can be stored and recalled independently.

Assign ME

Allows you to disable the ability to assign a control panel row to a different ME. The control panel row will be locked to the currently assigned ME.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Assign ME**.

- **On** — allows a panel row to be assigned to a different ME.
- **Off** — disables the ability to assign a different panel row to an ME. The Assign ME button on the **ME Selection** menu is grayed out.

Audio Cut Only

Sets whether audio transitions occur at the same rate as the video transition, or whether the audio transitions cut. Note that this is not a true cut as the speed that one channel is taken off-air and the next channel is take on-air depends on the Audio Mixer.

When **Editor Remote Enable** is Enabled, and OverDrive® is controlling the switcher, the audio transition rate for the PGM ME is set from OverDrive®.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Audio Cut Only**.

- **On** — audio transitions cut, regardless of the type or rate of the video transition.
- **Off** — audio transitions at the same rate as the video or at the Audio Fade rate. (used with OverDrive®)

Audio Transition

Depending on how you want audio transitions to be performed, you can set up the switcher so that it will either perform an audio transition when a transition is performed on any ME, or only when a transition is performed on an on-air ME.

If OverDrive® is controlling the switcher, this is locked to **All**.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Audio Transition**.

- **All** — the switcher performs an audio transition when any ME is transitioned.
- **PGM** — the switcher performs an audio transition only when an on-air ME is transitioned. An ME is considered to be on-air when it is re-entered onto the Program/Preset ME.

Auto Key Alpha

Allows you to select how the switcher treats the alpha when the internally generated Black is assigned to an auto key.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Auto Key Alpha**.

- **Relaxed** — the switcher treats the alpha as if it is white (The key is not transparent.)
- **Strict** — the switcher treat the alpha as if it is black. The key is fully transparent.

Auto Recall

Sets whether or not the switcher includes switcher settings, such as Keys Only, Effects Dissolve, on or off and DVE wipe settings, with the memory.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Auto Recall**.

- **Off** — memories do not recall Keys Only, Effects Dissolve and DVE Wipe settings with the memory. These attributes must be turned on manually before the memory is recalled.
- **On** — memories also recall the Keys Only, Effects Dissolve, and DVE Wipe settings stored with the memory from the Global Memory Module.

Auto Remove Key

Allows you to have the switcher remove a Keyer from the Next Transition after that keyer has been transitioned off-air from the Keyers Module. For example, Key 2 is on-air and it is selected as part of the next transition on the Transition Module. If you cut or dissolve key 2 off-air from the Keyers Module, key 2 will be de-selected for the next transition on the Transition Module. If key 2 was the only selected

item for the next transition, the background will be selected instead.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Auto Remove Key**.

*   **Off** — not remove the keyer from the next transition selection if it has just been transitioned off-air from the Keyers Module.
*   **On** — remove the keyer from the next transition selection if it has just been transitioned off-air from the Keyers Module.

Aux Bus Names

Allows you to select whether the switcher uses the aux bus number or name in the menu system and bus map.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Aux Bus Names**.

*   **Aux N:M** — use the number of the aux bus (for example, Aux 4:3).
*   **Name** — use the name of the aux bus.

Aux Bus Source

Allows you to select whether the switcher uses the aux bus name and source, or only the name.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Aux Bus Source**.

*   **Name** — use only the name of the aux bus.
*   **Name & Source** — use the name of the aux bus and the source on the aux bus.

Bank 0 Lit

Sets whether or not the **BANK** button on the Memory Modules is lit when bank 0 is selected.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Bank 0 Lit**.

*   **Off** — the **BANK** button is not lit when bank 0 is selected.
*   **On** — the **BANK** button is lit when bank 0 is selected in the Memory Module, or Global Memory Module.

BKGD Double Press

Allows you to have a double-press of the **BKGD** or **KEY X** button on a Transition Module set up the next transition to take the keys off-air. Double-press the **BKGD** button to select background and all on-air keys as part of the next transition. Double-press any **KEY X** button to select all on-air keys as part of the next transition, and not include background.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **BKGD Double Press**.

*   **Off** — not include the on-air keys with the next transition when the **BKGD** or **KEY X** button is double-pressed.
*   **On** — include all on-air keys with the next transition when the **BKGD** or **KEY X** button is double-pressed.

CC/Macro Attachments

Sets whether or not custom controls that are attached to control panel buttons using the Attach Custom Controls Menu are run when the button is pressed.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **CC/Macro Attachments**.

*   **Off** — custom controls attached to control panel buttons are not run when the button is pressed.
*   **On** — custom controls attached to control panel buttons are run when the button is pressed.

CC Global Recall

Sets whether or not the **RECALL CLIP/CC** button on the Global Memory module can be used to run a custom control.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **CC Global Recall**.

*   **Off** — only allow clips to be recalled from the Global Memory module using the RECALL CLIP/CC button.
*   **On** — only allow custom controls to be run from the Global Memory module using the RECALL CLIP/CC button.

CC Held/Paused Display

Sets whether the mnemonic of a custom control show Held or Pause when the custom control is at that state (**Held/Paused**), only shows the name of the custom control (**CC Name**), or shows both the Held or Paused and the name of the custom control (**Both**).

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **CC Held Display**.

*   **Held/Paused** — shows Held or Paused in the mnemonic for a custom control that is at a held or paused state.
*   **CC Name** — shows the name of the custom control when the custom control is at a held or paused state.

- **Both** — shows both the name of the custom control and Held or Paused when the custom control is at a held or paused state.

CC Memory State

Sets whether the Effects Dissolve and Keys Only settings of a memory are used when the memory is recalled with a custom control. Recalling the memory directly is not affected. This allows the custom control to recall a single memory and override the Effects Dissolve and Keys Only on or off settings of how the memory was stored. This setting overrides the Auto Recall personality option.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **CC Memory State**.

- **Off** — Effects Dissolve and Keys Only are recalled how they are stored in the memory.
- **On** — Effects Dissolve and Keys Only can be overridden in a custom control that recalls the memory.

Clear Bus Hold on All-All

Sets whether or not the Bus Hold selection on a bus is cleared when a soft-reset is performed.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Clear Bus Hold**.

- **Off** — Bus Hold feature not cleared when a software reset is performed.
- **On** — Bus Hold feature cleared on every bus when a software reset is performed.

DD Key Delegation

Sets how the keys on the key bus of a Double-Down panel are configured.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **DD Key Delegation**.

- **Even On Top** — Even numbered keyers (2,4,6,8) are on the top row and odd numbered keyers (1,3,5,7) on the bottom row of the key bus.
- **Odd On Top** — Odd numbered keyers (1,3,5,7) are on the top row and even numbered keyers (2,4,6,8) on the bottom row of the key bus.
- **On Top** — The top row of the key bus follows the key selection and the bottom row must be set manually.
- **On Bottom** — The bottom row of the key bus follows the key selection and the top row must be set manually.

Default Trans Active

Allows you to set a default transition rate for switcher transitions, effects, and sequences.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Default Trans Active**.

- **Off** — use the video format based default transition rates when you default an ME or the entire switcher.
- **On** — use the selected default transition rates when you default an ME or the entire switcher.

Default Trans Eff Rate

Allows you to set a default effects dissolve rate.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Default Trans Eff Rate**.

Note: This rate is only used if the Default Trans Activefeature is on.

- Use the **Rate** knob to set a default rate, in frames.

Default Trans FTB Rate

Allows you to set a default fade to black rate.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Default Trans FTB**.

Note: This rate is only used if the Default Trans Activefeature is on.

- Use the **Rate** knob to set a default rate, in frames.

Default Trans Key Rate

Allows you to set a default keyer transition rate.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Default Trans Key Rate**.

Note: This rate is only used if the Default Trans Activefeature is on.

- Use the **Rate** knob to set a default rate, in frames.

Default Trans ME Rate

Allows you to set a default ME transition rate.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Default Trans ME**.

Note: This rate is only used if the Default Trans Activefeature is on.

- Use the **Rate** knob to set a default rate, in frames.

Default Sequence Rate

Allows you to set a default sequence rate.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Dflt Trns Seq**.

> **Note:** *This rate is only used if the Default Trans Activefeature is on.*

- Use the **Rate** knob to set a default rate, in frames. If you set the rate to 1, the sequence uses the duration set in the sequence.

Double Press Rate

Sets the length of time that you have to press a button a second time in order for the switcher to treat it as a double-press.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Double Press Rate**.

- Use the **Value** knob to select the amount of time, in frames, that you are given to press a button again for the switcher treat it as a double-press.

DSK Auto Cut

Sets whether or not the DSKs are cut off-air when a source is selected directly on the main Program Bus of the switcher.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **DSK *X* Auto Cut**.

- **Off** — DSK not affected by selections made directly on the Program Bus of the Program/Preset ME.
- **On** — DSK automatically taken off-air when any source is selected directly on the Program Bus of the Program/Preset ME.

Editor Pattern Codes

Sets whether or not the GVG100, GVG100/200, or GVG4000 editor pattern codes are displayed on the pattern buttons. When active for a particular editor protocol, the plain or hexadecimal pattern code is shown on the pattern buttons on the **Pattern Selection** menu.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Editor Pattern Codes**.

- **None** — no pattern code numbers on the pattern buttons.
- **GVG100 Bttn#** — GVG100 button number, for the pattern, displayed on the pattern button.

- **GVG100 Bttn#H** — GVG100 button number, for the pattern, displayed in hexadecimal on the pattern button.
- **GVG100/200** — GVG100/200 pattern code displayed on the pattern button.
- **GVG100/200 H** — GVG100/200 pattern code displayed in hexadecimal on the pattern button.
- **GVG4000** — GVG4000 pattern code displayed on the pattern button.
- **GVG4000 H** — GVG4000 pattern code displayed in hexadecimal on the pattern button.
- **OverDrive** — Ross pattern code displayed on the pattern button. Use this number to select a pattern in OverDrive®.

Editor Trans Rate

Sets whether transition rates that are set from an external editor are doubled or not.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Editor Trans Rate**.

- **Normal** — transition rates that are set from an external editor not changed.
- **Double** — transition rates that are set from an external editor doubled.

ExCamMoveOnTrans

Allows you to select whether the camera move will be triggered with a transition or not.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **ExCamMoveOnTrans**.

- **Off** — camera move does not execute on a transition.
- **On** — camera move executes on a transition.
- **Roll Clip** — use the Roll Clip functionality to have a camera move execute on a transition. The set Preroll time is be used.

Fixed Memories

Allows you to select whether memories are recalled on the MEs that they were recorded on, or whether they are recalled on MEs relative to the PGM ME.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Fixed Mem**.

- **Off** — memories are recalled on MEs that are the same relative distance from the PGM ME as they were recorded. For example, if ME 4 is the Program ME and you store a memory

on ME 2. If you change the Program ME to ME 8, the memory is recalled on ME 6.

- **On** — memories are recalled on same ME they were recorded on.

FTB Display

Sets whether the display on the Fade to Black module will display the current fade rate, or the number of up/down converters available on the switcher.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **FTB Display**.

- **SmrtConv** — the display on the Fade to Black module show the number of available up/down converters for SmartConversion to use.
- **FTB** — the display on the Fade to Black module show the transition rate for a Fade to Black transition.

Global Mem Num Entry

Sets whether the keypad on the Global Memory module can be used to enter punchpad values.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Global Mem Num Entry**.

- **Off** — cannot use the keypad on the Global Memory module to enter Punchpad values.
- **On** — can use the keypad on the Global Memory module to enter Punchpad values.

Global-Store 4 Mode

Sets whether or not the 4th channel of Global-Store is available or not. This channel is shared by the Preview Overlay. When Global-Store channel 4 is active, the Preview Overlay is not available.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Global-Store 4 Mode**.

- **Still-Store** — enable Global-Store channel 4. Preview Overlay is disabled.
- **Pvw Overlay** — enable Preview Overlay. Global-Store channel 4 is disabled.

Grab Camera Time

Allows you to have the switcher select the first camera on the preview bus a set amount of time (in seconds) after a transition has been performed. This allows you to automatically have menu and positioner control over the camera when OverDrive® prepares the next shot. A duration of 0 seconds turns this feature off.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Grab Camera Time**.

This feature is only active when Editor is turned on.

- Use the **Time** knob to set the time (in seconds) after a transition that the switcher selects the camera.

GUI Scroll Controls

Sets whether the menu system uses graphical knobs for selections or up and down buttons.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **GUI Scroll Controls**.

- **Buttons** — use up and down arrow buttons instead of the virtual knobs on the menus.
- **VKnobs** — use the virtual knobs on the menu system.

Key Cut Then Fade

Change the behavior of the **CUT** button on the Keyers module. When this feature is active, the **CUT** button on the Keyers module will cut a key on-air, but dissolve, or fade, the key off-air. This allows you to use the same button to cut a key on-air and then transition it off-air.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Key Cut Then Fade**.

If you press **CUT** as the key is being transitioned off-air, a cut is immediately performed to take the key off-air.

- **Off** — the **CUT** button on all Keyers modules operate normally.
- **On** — the **CUT** button on all Keyers modules will cut keys on-air, but dissolve them off-air.

Keypad Clip IDs Entry

Sets whether the Global Memory or Effects Memory keypads allow you to select a clip on a video server.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Keypad Clip IDs Entry**.

- **None** — keypads do not allow you to load a clip on the selected video server.
- **ME** — only the Effects Memory keypad allows you to load a clip on the selected video server.

- **Global** — only the Global Memory keypad allows you to load a clip on the selected video server.
- **Both** — all keypads allow you to load a clip on the selected video server.

Keypad DVE Num Entry

Sets whether the Global Memory or Effects Memory keypads allow you to select a DVE wipe pattern for a transition.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Keypad DVE Num Entry**.

- **None** — keypads do not allow you to load a DVE wipe.
- **ME** — only the Effects Memory keypad allows you to load a DVE wipe.
- **Global** — only the Global Memory keypad allows you to load a DVE wipe.
- **Both** — all keypads allow you to load a DVE wipe.

Keypad Still Num Entry

Sets whether the Global Memory or Effects Memory keypads allow you to load a still in a Global-Store or ME-Store.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Keypad Still Num Entry**.

- **None** — keypads do not allow you to load a still.
- **ME** — only the Effects Memory keypad allows you to load a still.
- **Global** — only the Global Memory keypad allows you to load a still.
- **Both** — all keypads allow you to load a still.

Keypad Wipe Num Entry

Sets whether the Global Memory or Effects Memory keypads allow you to select a wipe pattern for a wipe transition.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Keypad Wipe Num Entry**.

- **None** — keypads do not allow you to load a wipe transition.
- **ME** — only the Effects Memory keypad allows you to load a wipe transition.
- **Global** — only the Global Memory keypad allows you to load a wipe transition.
- **Both** — all keypads allow you to load a wipe transition.

Key Priority Display Order

Allows you to select the order that the keys are shown in the display on the panel row.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Key Priority Display**.

- **Left to Right** — keys are displayed in order from lowest to highest numbered.
- **Right to Left** — keys are displayed in order from highest to lowest numbered.

Knob List Expansion

Allows the knob list you are scrolling to expand to the full size of the area for a period of time. This allows you to see more of the list at one time.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Knob List Expansion**.

- **Rate** — select the amount of time, in frames, that the knob list stays expanded. Select **0** to have the list not expand.

Matte Limit

Sets whether or not the matte generators on the switcher are limited to the RGB color space or not.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Matte Limit**.

- **Off** — the color range of the matte generators is not limited.
- **On** — the color range of the matte generators is limited to the RGB color space.

ME B-Side Color

Sets the glow color for the B-Side of a split ME.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **ME B Side Color**.

1. Use the **ME** knob to select the ME that you want to set the B-Side color for.
2. Use the **Color** knob to select the color that you want to apply to the selected B-Side. Refer to *Color Schemes* on page 61 for information on the specific colors.

Memory Bank Cycle

Sets the maximum number of memory banks that you will cycle through when pressing the Bank button on a Memory Module.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Memory Bank Cycle**.

- Use the **Value** knob to select the maximum number of memory banks you want to cycle through, starting from Bank00. By repeatedly pressing the **BANK** button on the keypad of the Effects Memory modules or Global Memory module, you can jump from bank to bank.

Menu Module Indicator

Adds an icon (**On**) to the upper left corner of the upper or lower menu region to indicate which menu the Menu Module is showing.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Menu Mod Indicator**.

Menu Numbers

Adds a menu number (**On**) to the left of the menu title on each branch of the menu system. Click the menu number to enter a new menu number to navigate to. Only the first page of a menu has a number.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Menu Numbers**.

Mouse Sensitivity

Set the speed that the mouse pointer moves around the screen when you move the mouse.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Mouse Sensitivity**.

- Use the **Value** knob to select a sensitivity, or speed, for the mouse.

Multiple Customs

Set whether the switcher can run multiple custom controls simultaneously or only one at a time.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Multiple Customs**.

Note: If OverDrive® is controlling the switcher, this feature is locked to off.

- **Off** — allow multiple custom controls to run simultaneously. Starting a custom control while a custom control is running does not stop the other custom control and the currently selected one starts.
- **On** — allow only one custom control to run at a time. Starting a custom control while a custom control is running stops the running custom control and starts the new one.

Use Old DVE Color

Set whether the switcher uses the old or new color converter for DVE borders. The new color converter is similar to the one used by the matte color generator.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Use Old DVE Color**.

- **Off** — use the OLD color converter for 2D and 3D DVE borders.
- **On** — use the NEW color converter for 2D and 3D DVE borders.

Open Shortcut on Top

Forces the menus launched from the quick navigation bars on the left of the menu to open in the top menu region.

*Important: Forcing the **Installation** menu to open in the top menu region does not lock out the menu system when the **Installation** menu is open. This can cause unexpected behaviour and is not recommended.*

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Open Shortcut on Top**.

- **Off** — menus open in the bottom menu region.
- **On** — menus open in the top menu region.

Panel Sleep Time

Sets the length of time before the switcher goes into sleep mode.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Panel Sleep Time**.

Note: An Audio Control Module that is installed on an external panel row will not go into sleep mode, and using the module will not wake the rest of the panel.

- Use the **Value** knob to select the amount of time, in minutes, that the control panel will go without being use before entering sleep mode. Selecting a sleep time of 0 prevents the control panel from entering sleep mode.

Pbus Memory

Allows you to store or recall memories on a Pbus device when you store or recall memories on the switcher.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Pbus Memory**.

- **No Send** — the switcher does not tell the Pbus devices to store or recall memories.

- **Send** — the switcher tells all connected Pbus devices to perform a memory store or recall when one is performed on the switcher. The memory number is the same as the one used on the switcher.

Quick Bank Select

Allows you to select a memory bank by either holding the **BANK** button and selecting the bank, or by pressing the **BANK** button, and then selecting the bank.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Quick Bank Select**.

> *Note:* *You can always select a bank by pressing and holding the **BANK** button and selecting the bank.*

- **Off** — select a memory bank by pressing and holding the BANK button, and selecting the bank.
- **On** — select a memory bank by pressing and releasing the BANK button, and selecting the bank.

Recall Empty Memory

Sets whether you can recall a memory that has no content, has been deleted, or has been marked as Don't Recall.

> *Note:* *This personality option is disabled when OverDrive® is active as an editor.*

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Recall Empty Memory**.

- **On** — memories will be recalled even if they are empty or marked as Don't Recall.
- **Off** — memories that have no content, have been deleted, or are marked as Don't Recall are not recalled.

> *Tip:* *You can mark a memory as Don't Recall from the **Memories Setup** menu (Press **HOME** > **Attributes** > **Memories Setup**).*

Recall Global-Store

Sets whether the Global-Store settings are included with memory recalls always, only when turned on from the ME Memory Attributes menu, or never.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Recall Global-Store**.

- **Never** — Global-Store settings are never included during memory recalls. The stills loaded in the Global-Store channels are not replaced with those included in the memory.

- **Always** — Global-Store settings are always included during memory recalls. The stills loaded in the Global-Store channels are replaced with those included in the memory.
- **Attributes** — Global-Store setting are included during memory recalls if the Global-Store channel is turned on from the ME Memory Attributes menu.

Recall ME-Store

Sets whether the ME-Store settings are included with memory recalls always, only when turned on from the ME Memory Attributes menu, or never.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Recall ME-Store**.

- **Never** — ME-Store settings are never included during memory recalls. The stills loaded in the ME-Store channels are not replaced with those included in the memory.
- **Always** — ME-Store settings are always included during memory recalls. The stills loaded in the ME-Store channels are replaced with those included in the memory.
- **Attributes** — ME-Store setting are included during memory recalls if the ME-Store channel is turned on from the ME Memory Attributes menu.

Recall WhiteFlash

Sets whether the WhiteFlash settings are included with memory recalls always, only when turned on from the ME Memory Attributes menu, or never.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Recall WhiteFlash**.

- **Never** — WhiteFlash settings are never included during memory recalls.
- **Always** — WhiteFlash settings are always included during memory recalls.
- **Attributes** — WhiteFlash setting are included during memory recalls if the Transition Area option is turned on from the ME Memory Attributes menu.

Re-entry Depth

Allows you to have the switcher either prevent or allow re-entry chains of more than 4 MEs. For example, ME 1 -> ME 2 -> ME 3 -> ME 4.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Re-entry Depth**.

Note: *Re-entry chains of more than 4 MEs can cause line drops.*

- **Prevent** — can only create re-entry chains up to 4 MEs deep.
- **Warn** — can create re-entry chains over 4 MEs deep, but a pop-up is displayed.
- **Allow** — can create re-entry chains over 4 MEs deep.

Re-entry Loops

Allows you to have the switcher either prevent or allow an ME re-entry feedback loop. If Re-entry Loops is set you On, you are able to re-enter ME 1 into ME 2, and re-enter ME 2 into ME 1.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Re-entry Loops**.

- **Off** — the switcher block re-entry loops. If a crosspoint is selected that would cause a re-entry loop, a popup is displayed and the crosspoint is not selected. If the crosspoint selection is contained in a memory, Black is selected instead.
- **On** — the switcher not block re-entry loops. A popup is displayed.

Roll Clip Mode

Determines how the **ROLL CLIP** button behaves when a server is selected on the preview bus. This setting is applied to all MEs on the switcher.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Roll Clip Mode**.

Note: *The option is locked to **Arm** if OverDrive® is controlling the switcher.*

- **Play** — allows you to play a server clip directly by pressing the **ROLL CLIP** button on the Transition module. Once pressed, the clip will start to play and will have to be taken on-air manually with a transition.
- **Arm** — allows you to have the server play the clip with the next transition performed in the Transition module that the **ROLL CLIP** button is on, or lit, in. This can be used to roll multiple servers if they are re-entered. Once pressed, the clip will only start to play when a cut or auto transition is performed. You can also play the clip by double-pressing the crosspoint button on the same ME.
- **Armed Always** — locks the switcher in Arm mode and does not allow the **ROLL CLIP** button to be turned off.

Roll Clip On-Air Only

Determines how to play a clip based on the ME On-Air status.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Roll Clip On-Air Only**.

- **Always** — always play a server clip even if the ME is not On-Air.
- **On-Air Only** — play a server clip only when the ME is On-Air.

Router Name on MV

Set whether the MultiViewer shows the router mnemonic names or the switcher names for video sources.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Router Name on MV**.

- **Router Name** — MultiViewer uses router mnemonic names.
- **Set Name** — MultiViewer uses switcher source names.

Shift All Buses on a Row

Sets whether all buses on a panel row are shifted when a **SHIFT** button on that row is pressed.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Shift All Buses**.

- **Off** — the shift button only affects the bus it is pressed on.
- **On** — the shift button affects all the buses on the same panel row. All the buses are shifted.

Shift Locking

Sets whether double-pressing the **SHIFT** button on a crosspoint bus toggles shift on.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Shift Locking**.

Note: *If shift lock is active on an ME, the mnemonics for that ME switch to a two-line format.*

- **Off** — the shift button function normally.
- **On** — the bus remain shifted when the shift button is double-pressed. Pressing the shift button again returns the bus to unshifted.

Show Attached CCs

Allows you to light all buttons that have a custom control attached to them.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Show Att'd Macros**.

- **Off** — buttons with attached custom controls are not lit.
- **On** — buttons with attached custom controls are lit with the **Attached Macros** color scheme color.

Show CCs on Key Bus

Sets whether or not custom controls that are attached to crosspoint buttons on the keyer bus are shown on the keyer mnemonics.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Show CC on Key Bus**.

- **Off** — show the source name in the source mnemonics.
- **On** — show the name of the custom control attached to a source button on the mnemonic.

Show Last CC Pressed

Allows you to keep the last pressed custom control button lit after the custom control has finished. The button remains lit until another custom control is pressed or the switcher is reset. This is shown for each custom control bank independently.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Show Last CC Pressed**.

1. Use the **Value** knob to turn the feature on or off.
   - **Off** — do not continue to light the custom control button after the custom control has finished.
   - **On** — continue to light the custom control button after the custom control has ended.
2. Use the **Color** knob to select the color you want the custom control button to be lit with.

Show Last Mem Recalled

Allows you to keep the last pressed memory number lit after you have recalled a memory on the same bank. The button remains lit until another memory is recalled or the switcher is reset. This is shown for each effects memory module independently.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Show Last Mem Recalled**.

- **Off** — do not light the last memory number you have recalled.

- **On** — light the last memory number you have recalled, if the memory is in the same bank.

Store Mode

Sets whether or not a memory module remains in store mode after a memory has been stores, or switch to recall mode.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Store Mode**.

- **Hold** — Global Memory module or the Effects Memory module stay in store mode after a memory has been stored.
- **1-Time** — Global Memory module or the Effects Memory module switch to recall mode after a memory has been stored.

Swap Keyer Cut & Auto

Allows you to swap the behavior of the **CUT** and **AUTO TRANS** buttons on the Keyers module. When this feature is set to swap, the **CUT** button performs an auto transition, and the **AUTO TRANS** button performs a cut.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Swap Keyer Cut&Auto**.

- **Swap** — CUT and AUTO TRANS buttons on all keyers modules swap their functions. The CUT button performs an Auto Trans.
- **Normal** — transition buttons on the keyers modules keep their original functions.

Swap PGM/PST Buses

Allows you to swap the functions of the Program bus to the Preset bus on all MEs. When this feature is turned on, the sources that you select on the preset bus act as if they are being selected on the program bus, and the sources selected on the program bus act as if they are being selected on the preset bus.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Swap PGM/PST Buses**.

- **Swap** — Program and Preset buses on all MEs swapped.
- **Normal** — Program and Preset buses keep their original functions.

Swap Trans Cut & Auto

Allows you to swap the behavior of the **CUT** and **AUTO TRANS** buttons on the Transition module. When this feature is set to swap, the **CUT** button

performs an auto transition, and the **AUTO TRANS** button performs a cut.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Swap Trans Cut&Auto**.

- **Swap** — **CUT** and **AUTO TRANS** buttons on all Transition modules swap their functions. The **CUT** button performs an Auto Trans.
- **Normal** — transition buttons on the Transition modules keep their original functions.

Time Clock Source

Allows you to set the source for the Preview Overlay Time Clock. This source can either be internally generated, or generated from an external UMD device.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Time Clock Source**.

> *Note:* *An external UMD device must be set up on a Remote port in order for the switcher to receive time clock data.*

- **Internal** — switcher use the internally generated time clock data.
- **UMD Input** — switcher use data from an external UMD device for the time clock. You must use the Time Clock UMD Number feature to set which UMD Address that the time clock data should come from.

Time Clock UMD Number

Allows you to set the specific address of the UMD input that you want to get the time clock data from.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Time Clock UMD Number**.

- Use the **Value** knob to select the address, or UMD input number, that you want to get the time clock data from.

UltraChrome Dflt Color

Allows you to set the default color that the UltraChrome will be set to when the keyer has been defaulted. Once a different color is set for the UltraChrome, that new color remains until the keyer is defaulted, or until a different UltraChrome color is set manually.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **UltraChrome Color**.

- Use the **Value** knob to select the default color you want to use for UltraChrome.

UltraChrome Dflt Mode

Allows you to set the default mode that UltraChrome operates in. Once a different mode is set for the UltraChrome, that mode remains until the keyer is defaulted, or until a different UltraChrome mode is set manually.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **UltraChrome Mode**.

- Use the **Value** knob to select the default mode for UltraChrome. Refer to *Chroma Key Modes* for more information on the UltraChrome modes.

UltraChrome Dflt Width

Sets whether or not the Edge Sensitivity is set to High or Low when the chroma key is initialized.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **UltraChrome Edge**.

- **On** — Additive Keying set to Off and the Width set to 2 when the key is initialised.
- **Off** — Additive Keying set to On and the Width set to 0 when the key is initialised.

Virtual Panel Enable

Allows you to specify whether users can access the Acuity Virtual Panel hosted from the current panel. When enabled (**On**) a user can connect to the control panel from a web browser and control the panel remotely.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Virtual Panel Enable**.

- **On** — a user can connect to the panel remotely and control it.
- **Off** — a user cannot connect to the panel remotely (default).

Virtual Panel Positioner Reset

Allows you to specify whether the positioner on the virtual panel returns to the neutral position automatically (**On**), or if you have to click the positioner to have it return to the neutral position (**Off**).

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Virt Panel Pos Reset**.

- **On** — positioner returns to the neutral position after 0.5 seconds.
- **Off** — you must click on the positioner to have it return to the neutral position.

VTR POL On-Air Display

Allows you to specify whether the current timecode or the remaining time (for a video server) of the currently loaded clip is displayed on the On-air line on the Preview Overlay when VTR TC is active.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **VTR POL On-Air**.

- **Current** — use the current timecode of the VTR, or Video Server.
- **Remaining** — use the remaining time of the currently loaded clip. Cannot be used for VTRs, or Video Servers.

VTR POL Prepped Display

Allows you to specify whether the current timecode or the remaining time (for a video server) of the currently loaded clip is displayed on the Prepared line on the Preview Overlay when VTR TC is active. The option to remove the prepared line entirely is also available.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **VTR POL Prep'd**.

- **Off** — remove the prepared timecode from the preview overlay.
- **Current** — use the current timecode of the VTR, or Video Server.
- **Remaining** — use the remaining time of the currently loaded clip. Cannot be used for VTRs, or Video Servers.

Wake Up On Command

Allows you to specify whether the control panel will wake from sleep mode when it receives a command from OverDrive®.

Press **HOME** > **Setup** > **Personality** and use the **Option** knob to select **Wake Up On Command**.

- **On** — control panel wakes up when it receives a command from OverDrive®.
- **Off** — control panel does not wake up when it receives a command from OverDrive®.

Default ME Map

You can specify the default ME that each row on the switcher, and external row, is assigned to.

To Set Up a Default ME Map

The default ME map assignment is only applied after a restart or **ALL+ALL** software reset.

1. Press **HOME** > **Setup** > **Personality** > **ME Maps**.
2. Use the **Panel Row** knob to select the internal control panel row (**Row X**) or external row (**Ext Row X**) that you want to assign an ME to.
3. Use the **Mapped to ME** knob to select the ME that you want to assign to the selected row to.

Auto Follow

You can set parts of an ME or Aux Bus to follow the operation of another part. For example, you can have one Transition module follow another, a Keyer bus follow another Keyer bus, or have an entire ME or Aux Bus follow another. Both parts of the auto follow must be of the same type, a crosspoint bus can only follow another crosspoint bus.

Operations, such as crosspoint selection or transitions, that are performed on one part are repeated on the other part.

Table 9: Supported Auto Follow Actions

Module	Action
Memory	Memory Recall
	Memory Store
	Reset ME (Store+Recall)
Keyer	Cut and Auto Transitions
	Next Transition Selection on same ME only
Transition	Next Transition Selection
	Transition Type
	Cut, Auto, Fader Transitions
	Preset Black
	Key Priority
	Transition Limit
	Roll Clip
	Transition PV
Bus	Source Selection

Auto follow actions only echo commands, and do not echo the state. For example, if a transition is performed on an ME, the auto follow ME also performs a transition, regardless of what is currently on-air on that ME. If key 1 is on-air on ME 1 but off-air on ME 2, the transition takes key 1 off-air on ME 1, but on-air on ME 2.

If a memory register contains different setting on each ME, the local settings will be used. Auto Recall for memories only ensures that the same memory register is recalled on the **Echo To ME**. For example, if memory register 09 is recalled on the **Echo From ME**, memory register 09 is also recalled on the **Echo To ME**. These two memory registers may contain different settings.

To Turn On Auto Follow

1. Press **HOME** > **Setup** > **Personality** > **Autofollow Setup** > **Config**.
2. Turn on auto follows for custom controls (**Auto Follow CustCtrl**), editor commands(**Auto Follow Editor**), or control panel button presses(**Auto Follow Panel**).
   - **Auto Follow CustCtrl** — includes custom control events in command echoing. Events for ME, buses, or transitions are echoed.
   - **Auto Follow Editor** — includes external editor commands in command echoing.
   - **Auto Follow Panel** — includes control panel button presses in command echoing. Events for memory recalls, transitions, and source selections are echoed. Custom control or editor based commands are not included.

To Set Up An ME Auto Follow

1. Press **HOME** > **Setup** > **Personality** > **Autofollow Setup**.
2. Press **ME** and use the **Echo From** and **Echo To** knobs to select which ME you want to follow another ME.
   - **Echo From** — the ME to be followed. This is the ME that actions will be performed on.
   - **Echo To** — the ME that is following the selected ME. Actions performed on the other ME are echoed on this ME.
3. Press **Set**.

   > *Tip:* *Press* ***Clear*** *to clear the currently selected auto follow.*

To Set Up An Individual Auto Follow Component

1. Press **HOME** > **Setup** > **Personality** > **Autofollow Setup** > **More**.

2. Press **Buses**, **Keyers**, **Transition**, or **Mem Stores/Recalls** to select the individual component that you want to set up an auto follow for.
   - **Buses** — echo the source selections from one bus to another. The buses include aux buses, utility buses, ME, and Keyer (video and alpha) buses.
   - **Keyers** — echo the settings from one keyer to another. Keys on the same ME will follow selections in the next transition area of the Transition module.
   - **Transition** — echoes the settings on one transition module to another.
   - **Mem Stores/Recalls** — echoes the memory stores and recalls from one ME to another.
3. Press **Set Bus/Keyer/Trans/Mem Follow** to store each auto follow.

   Auto follows that are already set up are listed on the menu.

   > *Tip:* *Press* ***Clear All Bus/Keyer/Trans/Mem Follows*** *to clear all of the currently selected auto follow.*

User Wipes

User wipes allow you to select from the pre-loaded additional wipes and assign them to the user wipe buttons. The user wipe buttons are essentially presets that can be programmed to your favorite patterns. Once set up, the user wipe button operates in the same manner as any of the other wipe pattern buttons.

To Assign a User Wipe

> *Note:* *Pattern modifiers cannot be applied to user wipes. You must use memories to store pattern modifiers with the user wipe.*

1. Press **HOME** > **More** > **Effects** > **Pattern Selection** > **Modify Pattern** > **Pattern Options** > **User Wipes**.
2. Use the **User Wipe** knob to select the user wipe button that you want to assign a wipe to.
3. Use the **Category** knob to select the category of wipe you want assign to the button.
4. Use the **Pattern** knob to select the wipe you want to assign to the button.
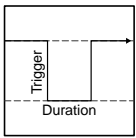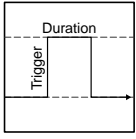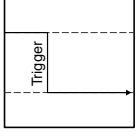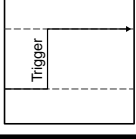
GPI Control

General Purpose Interface (GPI) is a high/low voltage signalling protocol that allows the switcher to send simple commands to an external device, or receive commands from a device. Each pin on the GPI is set as either high (+5 Volts), or low (0 Volts), and it is the switching between high and low that sends commands to the external device, or to the switcher.

The switcher has both fixed and configurable GPIs. The 10 fixed GPI inputs and 10 fixed GPI outputs are located on the Frame CPU board. The 24 GPIs on each Reference with Tally board can be configured as either an input, or an output.

GPI Trigger Types

There are four trigger types supported by the switcher. These can be either output triggers, or input triggers.

Trigger	Description	
Pulse Low	The output level is set high, and momentarily goes low for the trigger.	
Pulse High	The output level is set low, and momentarily goes high for the trigger.	
Level Low	The output level toggles from the base high level to the low level. The output signal remains at this level until reset.	
Level High	The output toggles from the base low level to the high level. The output signal remains at this level until reset.	

To View the Status of a GPI

1. Press **HOME** > **Setup** > **Installation** > **GPI Input/Output** > **More**.
2. Press **View GPI Inputs** or **View GPI Outputs** to view the status of the GPI inputs or outputs.
3. Use the middle knob to scroll the list.

Tip: Double-tap an item on the list to edit it.

To Name a GPI

1. Press **HOME** > **Setup** > **Installation** > **GPI Input/Output** > **GPI Name**.
2. Use the bottom knob to select the GPI output you want to name.
3. Enter the new name in the **New Name** field.
4. Press **Accept New Name**.
5. Press **HOME** > **Confirm**.

To Set the Direction of a GPI

Note: Only the GPIs on the Reference with Tally board support setting a direction.

1. Press **HOME** > **Setup** > **Installation** > **GPI Input/Output** > **GPI Direction**.
2. Use the **GPI** knob to select the GPI that you want to set as an input or output.
3. Use the **Control** knob to select **Individual**.

*Tip: Use the **Control** knob to select **All Input** or **All Output** to switcher all the GPIs on all blades to that direction.*

4. Use the **Direction** knob to set the GPI as an **Input** or an **Output**.
5. Press **HOME** > **Confirm**.

GPI Inputs

GPI inputs can be used to trigger a number of events on the switcher from a GPI I/O device. An example of a commonly used GPI input is the small, hand-held, trigger a weather forecaster uses to advance though the different backgrounds in the weather forecast.

When the switcher receives a trigger on the selected GPI input, it runs the events that have been assigned to the GPI input.

To Set Up a GPI Input

1. Press **HOME** > **Setup** > **Installation** > **GPI Input/Output** > **Inputs**.
2. Use the **GPI Input** knob to select the GPI input that you want to assign an event to.
3. Use the **Function** knob to select the type of event that you want to assign to the selected GPI input.

*Tip: The **Cut** and **Auto** event start a transition in the transition area of the selected ME. Use a memory recall to set up the transition area with the keys and/or*

- **Off** — no event is triggered.
- **Auto** — an auto transition is performed on the selected ME or Fade To Black module. Use the **Area** knob to select where you want to transition performed.
- **Cut** — a cut transition is performed on the selected ME or Fade To Black module. Use the **Area** knob to select where you want to transition performed.
- **Cust Ctrl** — a custom control is run. Use the **Cust Ctrl** knob to select the custom control you want to run.
- **Mem Recall** — a memory is recalled. Use the **Memory** knob to select the memory you want to recall.

4. Press **GPI Level** and use the **Level** knob to select the trigger signal level that you want to use.

- **Low** — the GPI input is triggered when a low signal is received. The GPI input should be receiving a constant high signal. When the signal goes low (0 Volts), the GPI input will respond to the trigger.
- **High** — the GPI input triggered when a high signal is received. The GPI input should be receiving a constant low signal. When the signal goes high (+5 Volts), the GPI input will respond to the trigger.

5. Press **HOME** > **Confirm**.

GPI Tallies

You can associate a particular GPI input with a standard parallel tally. This allows you to force the switcher to toggle a tally on or off when an GPI input signal is received, even if the tally is associated to a BNC that is not on-air.

To Set Up a GPI Input Tally Override

Force a tally or GPI output on when a GPI input signal is received.

1. Press **HOME** > **Setup** > **Installation** > **GPI Input/Output** > **Tally on GPI**.
2. Press **HOME** > **Setup** > **Installation** > **Aux Bus**
3. Use the **Tally Location** knob to select the tallies that you want to configure.
4. Use the **Tally** knob to select the tally that you want to assign to a GPI input.

5. Use the **GPI Input** knob to select the GPI input that you want to use to turn on the selected tally.

   The tally remains on as long as the GPI input is triggered.

6. Press **HOME** > **Confirm**.

GPI Outputs

You can trigger events on an external GPI I/O device from the switcher. An example of would be the use of an GPI output to trigger a transition on a Character Generator. Refer to the documentation that came with your device for more information on what commands you can trigger on your device.

To Set Up a GPI Output

1. Press **HOME** > **Setup** > **Installation** > **GPI Input/Output** > **Outputs**.
2. Use the **GPI Output** knob to select the GPI output that you want to set up.
3. Use the **Trigger** knob to select the type of trigger signal you want to use.

   Refer to *GPI Trigger Types* on page 56 for information on trigger types.

4. For pulse triggers, use the **Pulse Dur'n** knob to set the length of time, in frames, that the GPI pulse output remains triggered.
5. Press **HOME** > **Confirm**.

GPI Device Control

You can assign a GPI output to a video source for basic external device control. When a video source is taken on-air, the switcher can be set to trigger a GPI output, with a pre-delay. The external device can be set up to cue a clip, or load a page when it receives the GPI input trigger.

To Assign a GPI Output to a Video Source

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **More** > **More** > **GPIs**.
2. Use the **Input** knob to select the input source that you want to assign a GPI output to.

   If you are using the GPI to control the device, the video source should be video output coming from the device.

3. Use the **GPI Output** knob to select the GPI output that you want to assign to the video source.

4. Use the **Preroll** knob to select the pre-delay time, in frames, you want to use with the GPI output.

   When you transition a video source with a GPI assigned to it, and the Roll Clip feature is active, the switcher triggers the GPI output, and then waits the pre-delay time before performing the transition. The length of the pre-delay is usually the length of time your video server requires to start playing a clip or your character generator requires to load a page.

5. Press **HOME** > **Confirm**.

Live Edit Decision Lists

Edit Decision Lists are files used by non-linear editing (NLE) suites to aid in post-production. Your switcher can capture EDL data in a file that you load into your NLE suite.

The switcher supports the **CMX3600** format for recording EDL files.

> **Note:** *The CMX3600 specification only supports a maximum of 999 events per ME or aux bus. If another event occurs beyond the 999 limit, a new file is created using the incremental file number.*

To Set Up LiveEDL

1. Press **HOME** > **Attributes** > **More** > **LiveEDL** > **Set Up LiveEDL**.
2. Select the timecode source you want to use.
   - **LTC Time Code** — the external timecode signal connected to the **LTC** port on the back of the frame. If a signal is not present on the **LTC** port this option in not available.
   - **Internal Time Code** — an internally generated timecode signal starting at 0. This option is not available if an external LTC source is detected.
   - **Switcher Time Code** — an internally generated timecode signal starting at the current time of day set on the switcher. This option is not available if an external LTC source is detected.
3. Press **Rename File Prefix** and enter the name you want to use for your LiveEDL file. You have the option of continually overwriting the same file, or using the file name as a prefix so that a new file is created every time.

   > **Note:** *The file name can only include letters, numbers, and underscores (_).*

4. Toggle **Overwrite Pfx** on or off to select whether a LiveEDL file with the same name is overwritten.
   - **On** — the file is overwritten if it has the same name.
   - **Off** — a new file is created with a sequential number appended to the end of the file name.

   > **Tip:** *For example, if the file is named* `LiveEDL` *and you have already created it, the switcher will either overwrite the exiting file (**On**), or create a new file named* `LiveEDL001` *(**Off**).*

To Start Capturing EDL Data

> **Tip:** *You can create custom controls to start and stop recording EDL files.*

1. Press **HOME** > **Attributes** > **More** > **LiveEDL**.
2. Press **Start Recording**.

   The switcher starts recording events to the EDL files.
3. Run through the events you want recorded to the EDL files.
4. Press **Stop Recording**.

To Manage EDL Files

1. Press **HOME** > **Attributes** > **More** > **LiveEDL** > **Manage Files**.
2. Select the files in the **Existing Files** list that you want to manage.

   > **Tip:** *Use **Ctrl** or **Shift** on a keyboard to select multiple files. You can only select up to 50 files.*

3. Manage the selected files as required.
   - **Delete Selected LiveEDL Files** — delete the selected files
   - **Delete All LiveEDL Files** — delete all files
   - **Transfer Selected LiveEDL Files To USB** — copy selected files
   - **Transfer All LiveEDL Files To USB** — copy all files

To Delete EDL Files

1. Press **HOME** > **Attributes** > **More** > **LiveEDL** > **Manage Files**.
2. Select the files in the **Existing Files** list that you want to delete.

   Use **Ctrl** or **Shift** on a keyboard to select multiple files. You can only select up to 50 files.

   > **Tip:** *Press **Delete All LiveEDL Files** to delete all the LiveEDL files on the hard drive.*

3. Press **Delete Selected LiveEDL Files**.

MultiPanel

You can connect one master panel and up to eight satellite panels to a single frame. Each of the control panels can control some, or all, of the MEs. Only the Master Panel supports all device control or OverDrive®.

MultiPanel Setup

To set up a MultiPanel system, you must configure the network settings on each of the control panels and frame. Refer to *Control Panel Network Setup* on page 16 for more information. Once the frame and control panels are able to communicate, you must assign MEs to the control panels and set up permissions.

The ME assignment sets which MEs a specific control panel has access to, and can control. The highest number ME assigned to a control panel is the program ME for that control panel. This ME is tallied for the control panel. The highest number ME assigned to a control panel in the entire switcher is the Program ME for the switcher. This is the ME that has the Mix/DSK and Preview Overlay options.

The Program and Preview outputs for the switcher are locked to the highest ME assigned to the switcher. If you are using different Program MEs for different control panels, you must assign an output BNC to the ME Program and ME Preview outputs for that ME.

To Assign an ME to a Panel.

1. Press **HOME** > **Setup** > **Installation** > **More** > **MultiPanel**.
2. Press the **Master Panel** or **Satellite X** button for the control panel that you want to assign MEs to.
3. Next to **ME Permissions**, press the **ME X** button for each ME that you want to assign to the selected control panel.

   The master panel (**MP**) or satellite panels (**PX**) that are already assigned to MEs are shown on the buttons.

4. Next to **Virtual Program ME**, press the **ME X** button for the ME that you want to use as the program ME for the selected control panel.

   > *Note: The ME that has the Mix/DSK and Preview Overlay options is indicated with **Pgm ME** (full ME) or **Pgm Mix** (Mix/DSK).*

5. Press **HOME** > **Confirm**.

To Set Up Installation Menu Permission

> *Tip: Only one control panel can be in the **Installation** menus at a time. Press **HOME** > **Setup** > **More** > **Installation Menu Status** to see which control panel is currently in the menu. Press **Force Inst Menu Change** to force the other control panel out of the **Installation** menu.*

1. Press **HOME** > **Setup** > **Installation** > **More** > **MultiPanel** > **System Permissions**.
2. Press the **Satellite X** button for each satellite panel that you want to allow to access the **Installation** menu (on). Toggle the button off for the satellite panels that you do not want to allow to access the **Installation** menu.

MultiPanel Operation

Keep the following in mind when working with a MultiPanel configuration:

- All control panels share the same Bus Maps, but which Bus Maps are assigned to each ME is specific to the panel. For example, on Satellite Panel 1 you can assign Bus Map 5 to ME. On Satellite Panel 4 you can also assign Bus Map 1 to ME 3, as long as both panels have ME 3 assigned to them.
- If you want the Program ME of a panel to tally, and it is not the highest numbered ME, then you must set that ME to tally on that panel. Control panel tallies are control panel specific.
- The fade to black only affects the MEs that are assigned to the control panel that the fade to black is performed on, and that fade to black is turned on for. Each control panel has a unique fade to black rate, but which MEs that fade to black is turned on for is common across all control panels.
- The highest number ME assigned to each panel is tallied as the Program ME by default.
- Custom controls only record actions for the MEs that are assigned to the control panel that the custom control is being recorded on. If that custom control is run on a different control panel, with different MEs assigned to it, the custom control still performs actions on the MEs that were assigned to the original control panel.
- Only the Master panel has permission to access the **Frame Diagnostics** menu.

Color Schemes

The switcher can be customized for menu appearance, button colors, and mnemonic colors.

Menu Skins

The appearance of the menus, including colors and icons, can be customized by using one of the skins provided with your switcher.

To Select a Menu Skin

1. Press **HOME** > **Setup** > **Personality** > **Color Scheme** > **More** > **More** > **Select Skin**.
2. Use the **Monitor Skin** knob to select the skin you want to use.
3. Press **Select This Skin**.

Control Panel Button Colors

You can change the glow color for MEs and AuxKeys, as well as the on-air crosspoints, or apply a specific color to an input. The color of the control buttons on the control panel modules can also be edited.

To Select a Button Color

1. Press **HOME** > **Setup** > **Personality** > **Color Scheme** > **Select Buttons**.
2. Use the **Color** knob to select the item you want to change the color for.

   > **Note:** *The B-side of a split ME uses the User Color 9.*

3. Press **Modify Color** and use the color picker to select the color you want to use..

To Set Button Colors

1. Press **HOME** > **Setup** > **Personality** > **Color Scheme**.
2. Press **Color Settings**.
3. Use the **Option** and **Use** knobs to select how the buttons are colored.

Button	Color
Selected Xpts	The color used when a source button is selected. • **Item On Color** — use the Item On Color. • **ME Color** — use the ME Glow color.

Button	Color
Selected Bttns	The color used when a non-source button is selected. • **Item On Color** — use the Item On Color. • **Item On Color** — use the Item On Color.
Custom Controls	The color used for custom control buttons. • **CC Color** — use the CC Glow color. • **ME Color** — use the ME Glow color.
Re-entry Glow	The color used for ME re-entry. • **No** — use the ME Glow color for the ME that the ME is re-entered on. • **Yes** — use the ME Glow Color for the ME that is being re-entered.
ME Glow	The color used for an ME. • **MEs Use Own Glows** — use the ME Glow color for each ME. • **All MEs Use Glow 1** — use the ME Glow 1 color for all MEs.
Xpt Colors	The color used for source buttons. • **No** — use the ME Glow color. • **Yes** — use Xpt Color assigned for each video source.
Keyer Colors	The color used for each key. • **Same as ME** — use the ME Glow color. • **User Colors** — use the user colors for the keys. For example, Key 1 gets User Color 1, Key 2 gets User Color 2, etc. • **ME Colors** — use the ME glow colors for the keys. For example, Key 1 get ME Glow 1, Key 2 gets ME Glow 2, etc. • **Split ME Colors** — use the B-side color for the keys on the B-side of a split ME (User Color 9). If a keyer is assigned to both the A and B side it uses the color assigned to the A-side (ME Glow color).

Button	Color
Attached Macros	The color used to show that a custom control is attached to a button. Use the Show Attached CCs Personality option to apply this color to buttons with a custom control attached to them. • **ME Glow *X*** — use the ME *X* glow color. • **Aux Glow** — use the aux glow color. • **CC Glow** — use the custom control glow color. • **Item On Color** — use the item on color. • **User Color *X*** — use one of the user colors.

To Set Source Button Colors

1. Press **HOME** > **Setup** > **Personality** > **Color Scheme** > **Setup Xpt Colors**.
2. Use the **Input** knob to select the source that you want to assign a custom color to.
3. Use the **Color** knob to select the user color, or default, for the input.

To Load a Button Color Scheme

1. Press **HOME** > **Setup** > **Personality** > **Color Scheme** > **Load Color Scheme**.
2. Use the **Scheme** knob to select the color scheme you want to load.
3. Press **Select This Scheme**.

To Save a Button Color Scheme

1. Press **HOME** > **Setup** > **Personality** > **Color Scheme** > **More** > **More** > **Save Color Scheme**.
2. Enter a name for the new color scheme.
3. Press **Accept Name**.

Mnemonic Color Schemes

By adjusting the brightness of the color LEDs in the mnemonics, you can create a new and custom color for the mnemonics.

> **Note:** *The Carbonite Black control panels do not have the same mnemonics as the Acuity® control panels. Mnemonic color selections will not appear the same on the Carbonite Black control panel as they do on the Acuity® control panel, or the menus.*

To Set the Mnemonic Colors

1. Press **HOME** > **Setup** > **Personality** > **Color Scheme** > **More** > **Fixed Mnemonics**.
2. Press **Red** and use the **Red Gain** knob to adjust the gain of the red LED in the mnemonics.
3. Press **Green** and use the **Green Gain** knob to adjust the gain of the green LED in the mnemonics.
4. Press **Blue** and use the **Blue Gain** knob to adjust the gain of the blue LED in the mnemonics.
5. Press **Orange** and use the **Orange Gain** knob to adjust the gain of the orange LED in the mnemonics.
6. Press **Yellow** and use the **Yellow Gain** knob to adjust the gain of the yellow LED in the mnemonics.
7. Press **Purple** and use the **Purple Gain** knob to adjust the gain of the purple LED in the mnemonics.
8. Press **More**.
9. Press **Panel Mnemonic Bright/Contrast** and use the **Mnemonic Brightness** and **Mnemonic Contrast** knobs to adjust the brightness and contrast of the mnemonic displays on the control panel.
10. Press **Ext. Mnemonic Bright/Contrast** and use the **Mnemonic Brightness** and **Mnemonic Contrast** knobs to adjust the brightness and contrast of the mnemonic displays on the external modules, such as a Auxiliary Control Panel or a SideBox.

To Set the Default Mnemonic Appearance

1. Press **HOME** > **Setup** > **Personality** > **Standard Mnemonics**.
2. Use the **Font** knob to select the size and layout of the font you want to use on the mnemonic displays.

[shft] In 001	[shft] **In 001**	In 001 **[shft]**	**In 001** [shft]	In 001	In 001
Inv Shift Unshift	Shift Inv Unshift	Unshift Inv Shift	Inv Unshift Shift	Small	Small Invert
In 001	**In 001**				
Medium	Medium Invert	None			
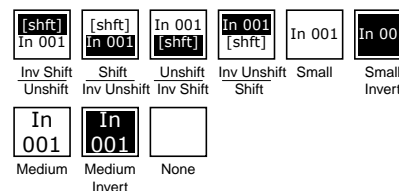
3. Use the **Color** knob to select the color you want to use for the mnemonics. This can be the background or text color, depending on whether you have selected an invert font.

- **Green** — use a green color.
- **Red** — use a red color.
- **Blue** — use a blue color.
- **Yellow** — use a yellow color.
- **Orange** — use an orange color.
- **Purple** — use a purple color.
- **ME *X* Glow** — use ME Glow color *X*.
- **Aux Glow** — use the aux glow color.
- **CC Glow** — use the CC glow color.
- **User Color *X*** — use User Color *X*.
- **None** — don't use a color for the mnemonic.

4. Use the **Xpt Mode** knob to select whether the mnemonic show just the source name (**1 Name**), or the source name and shifted source name (**2 Names**).
5. Press **HOME** > **Confirm**.

Control Panel Display Brightness

You can adjust the brightness of the control panel displays. These displays include all the module displays found on the control panel, but not the Touchscreen display.

> **Tip:** *Lower brightness settings will prolong the life of the displays.*

To Set the Brightness of the Displays

1. Press **HOME** > **Setup** > **Personality** > **Color Schemes** > **More** > **Display Bright./Contrast**.
2. Use the **Display Brightness** and **Display Contrast** knobs to adjust the brightness and contrast of the displays on the control panel.

Device Control

The switcher can interface with a number of peripheral devices, such as video servers, audio mixers, routers, character generators, and robotic cameras. These devices interface with the switcher using either serial or ethernet communication. Devices that use serial communication and can be connected to either the control panel or the frame. Ethernet devices must be connected to the same network as the switcher.

Some devices, or classes of devices, can only be controlled from the control panel (REMOTE port) or frame (PERIPH port). The following table is a guideline for the classes of devices supported from either the control panel or frame. For information on a particular device, refer to the *Acuity Device Setup* website (http://help.rossvideo.com/acuity-device/index.html).

Class	Panel	Frame
Audio Mixer	Yes	No
Audio Server	Yes	No
Automation	Yes	No
Character Generator	Yes	No
DVE	No	Yes
Editor	No	Yes
FlexCam	Yes	No
FlexClip	Yes	No
Monitor Wall	Yes	No
OGP	Yes	No
Pbus	Yes	No
Remote Aux	Yes	Yes
Robotic Camera	Yes	Some*
RossTalk	Yes	No
Router	Yes	No
Serial Tally	Yes	Yes
UMD Input	Yes	No
VTR (Clip)	Yes	Some*

*Note: * Only a subset of devices are supported from the frame.*

Basic Serial Communications

The switcher supports both the RS-232 and RS-422 transmission standards on all of the serial ports on the control panel and frame. This section provides a general overview of the steps for setting up the switcher to communicate with a device. For specific information on setting up the switcher to communicate with a particular device, refer to the device setup sheets for your device.

To Set Up Basic Serial Communications

Note: Devices should always be set up on the same communications port (remote, pan/frm net, periph) in different switcher sets. If different devices are set up on the same communications port in different sets and you load one of those sets, messages for one device can be sent to the other resulting in invalid messages or unexpected behavior.

1. Press **HOME** > **Setup** > **Installation** > **Com Setup**.

   *Tip: You can rename a port by pressing **More** > **Rename Com Port** and entering the new name. This new name is used when referencing the port on the menus.*

2. Press **Type** and use the **Com Port** knob to select the port that you want to set up for your device.

   - **REMOTE X** — the 8 DB9 ports on the back of the control panel
   - **ExtLnk 2-4** — the RJ-45 ports on the back of the control panel
   - **PERIPH X** — the 4 DB9 ports on the back of the frame

3. Use the **Device** knob to select the class of device you want to set up on the selected port.

4. Press **Select Device** and use the **Device** knob to select the particular device or protocol you are using to interface with your device.

   *Note: If you are setting up a VTR or Video Server, use the **VTR Preroll** knob to set the time the switcher will wait before performing a transition. This time can be used for a tape machine to get ready, or a video server to load a clip.*

5. Press **Com Type** and use the **Type** knob to select the communications standard (**RS-232** or **RS-422**) that your device supports.

6. Press **Com Settings** and use the **Baud** and **Parity** knobs to select the settings that your device supports.

7. Press **Extra Options** and set the options as indicated on the device setup sheet.

8. Press **HOME** > **Confirm**.

Basic Ethernet Communications

The switcher supports both the UDP/IP and TCP/IP transmission standards. This section provides a general overview of the steps for setting up the switcher to communicate with a device. For specific information on setting up the switcher to communicate with a particular device, refer to the device setup sheets for your device.

To Set Up Basic Ethernet Communications

Note: Devices should always be set up on the same communications port (remote, pan/frm net, periph) in different switcher sets. If different devices are set up on the same communications port in different sets and you load one of those sets, messages for one device can be sent to the other resulting in invalid messages or unexpected behavior.

1. Press **HOME** > **Setup** > **Installation** > **Com Setup**.

> *Tip: You can rename a port by pressing **More** > **Rename Com Port** and entering the new name. This new name is used when referencing the port on the menus.*

2. Press **Type** and use the **Com Port** knob to select the port that you want to set up for your device.

- **REMOTE** *X* — the 8 DB9 ports on the back of the control panel
- **PERIPH** *X* — the 4 DB9 ports on the back of the frame
- **NET** *X* — the 64 ethernet ports

Note: Some ethernet devices must be assigned to Remote or Peripheral ports to be controlled properly. When an ethernet device is assigned to remote or ethernet port, that port is consumed and cannot be used for another device. You can use a port expander to increase the number of available ports.

3. Use the **Device** knob to select the class of device you want to set up on the selected port.

4. Press **Select Device** and use the **Device** knob to select the particular device or protocol you are using to interface with your device.

5. Press **Com Type** and use the **Type** knob to select the communications standard (**Network UDP** or **Network TCP**) that your device supports.

6. Press **Com Settings** and use the **Client/Server** knob to select whether the switcher acts as a client or a server.

- **Client** — Enter the IP address of your device in the **Remote IP Address** field and the port on your device that the switcher must connect to in the **Remote Port** field.
- **Server** — Select the IP address of the switcher in the **Local IP Address** field that you want to use to connect to your device and the port on the switcher that your device must connect to in the **Local Port** field.

7. Press **HOME** > **Confirm**.

Alternate Devices

You can have two identical devices and quickly switch to the alternate device, on the other IP address, without having to change your memories or custom controls. The alternate device is treated exactly as the primary device, only the IP address is changed. This feature is only available for ethernet devices.

Note: The Primary and Alternate devices must be identical.

To Set up an Alternate Device

The alternate device setting allows you to provide the IP address of an alternate device that you want switch to if the primary device is unavailable. This feature is only available for ethernet devices.

Note: The Primary and Alternate devices must be identical.

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **Com Settings** and use the **Com Port** knob to select the primary device that you want to set an alternate for.

2. Use the **Primary/Alternate** knob to select **Alternate** and enter the IP settings for the alternate device in the fields.

3. Use the **Disable/Enable** knob to select whether the alternate device is available(**Enable**) or not (**Disable**).

*Tip: You can view which primary or alternate devices are in use from the **Alternate Device Menu** (Press **HOME** > **More** > **Remote Enables** > **Alternate Device**).*

To Switch to an Alternate Device

When an alternate device has been assigned to a device, you can quickly switch between the two if the primary device is not operable.

Note: You must have an alternate device assigned to be able to switch to it.

1. Press **HOME** > **More** > **Remote Enables** > **Alternate Device**.

2. Press the button for the port the primary device is assigned to.

3. Select the action you want to take on the device:

   > *Note:* *If a lock is shown next to the port name, the alternate device is not enabled on the **Communications** menu and you cannot switcher to it.*

   - **Primary** — select the primary device.
   - **Alternate** — select the alternate device.
   - **Toggle** — toggle between the active device and the other.

   > *Tip:* *Toggle swaps between the primary and alternate depending on which is active. If the alternate is active, the primary is selected. If the primary is active, the alternate is selected.*

Disable/Enable Device

Communications with a device can be temporarily stopped. The switcher will not attempt to connect to the device when the device is disabled. This can be useful if a device is temporarily out of service and you don't want to remove the device. This prevents the switcher from repeatedly attempting to connect to the device and logging the failed connection event.

To Disable/Enable a Device

Disable a device to prevent the switcher from attempting to connect to a device that is unavailable.

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **More** > **Enable/Disable**.

2. Use the **Com Port** knob to select the device you want to disable or enable.

3. Use the **Status** knob to enable **Enable** or **Disable** the device.

   > *Note:* *When a device is disabled, the Status column shows Disabled.*

Custom Device Communication

You can program serial command protocols for controlling external devices not otherwise supported by the switcher. Custom devices are also useful in testing currently unsupported commands to external devices, as well as other communications testing.

Custom device commands allow you to select the signals that the switcher sends to the custom device when you select a command on the switcher.

Keep the following in mind:

Keep the following in mind when working with custom device commands:

- The custom device protocol supports only one way communication. The switcher will not record or act upon signals being returned from the custom device. Therefore, queries for Current-time-sense (such as grab timecode), Inpoint, Outpoint and Clip-ID-names are not supported.

- Some protocol signals may exceed the maximum number of bytes (19) allocated per command. In cases where a custom control is used, 2 command slots (and 2 tags) can be used and a custom control programmed to run both of them in immediate succession. Each user-programmed device supports a maximum of 10 command slots. There may be other practical problems with the protocol you are trying to reproduce that may render custom devices unsuitable.

- The custom device system was designed to control VTRs, Video Servers, or Audio Servers. To control something other than these devices, you can re-use the existing command-tag names but substitute different commands. For example, the Play command tag could be used to cue a camera shot.

- The commands can be run manually from the **VTR Remote** menu or recorded into custom controls.

To Program a Custom Device Command

1. Press **HOME** > **Setup** > **Installation** > **Com Setup**.

2. Press **Custom Device** and use the **Custom** knob to select the custom device (**CUSTOM0** or **CUSTOM1**) that you want to create a command for.

3. Press **Modify**.

4. Use the **Command Tag** knob to select the command you want to program.

   - **SEEK TIMECODE** — sends the clip time as a packed BCD of the form HHMMSSFF.
   - **REWIND**
   - **FRAME REVERSE**
   - **PAUSE**
   - **STOP**

- **PLAY** — requires the **Roll Clip** feature to tie the command to a transition.
- **FRAME ADVANCE**
- **FAST FORWARD**
- **RECORD**
- **FADER POSITION** — not supported at this time.
- **DIAGNOSTIC 1** — can only be run from a custom control
- **DIAGNOSTIC 2** — can only be run from a custom control
- **DIAGNOSTIC 3** — can only be run from a custom control

5. Press **Insert Line** to insert a line, or byte, into the command signal.

6. Insert a hexadecimal byte into a new line as follows:
   a) Use the **Set Nibble** knob to set a Hexadecimal value for the first nibble in the byte.
   b) Press **Toggle Nibble** to switch between the first and second nibble in the byte.
   c) Use the **Set Nibble** knob to set a Hexadecimal value for the second nibble in the byte.
   d) Press **Insert Line** do add additional bytes to the signal.

7. Insert a special command into a new line as follows:
   a) Press **Toggle Special**.
   b) Use the **Command Flag** knob to select the flag you want to insert or press **Special Options** and use the knobs to select the flag you want to insert.

8. Press **HOME** > **Confirm**.

Special Commands and Parameters

Besides strings of constant Hex values (bytes), commands can be programmed with special characters and with converted parameter values. Examples of the special characters include the two special values to perform a communications break. The communications break is formed by a data zero event that extends beyond the normal data bit length permitted in the serial data word (for example, serial word length of 8-Odd-1Stop bit is 1+8+1+1 = 11 bits long). The commonly used minimum length for break is 17 bits long or one and a half to two data-words. To implement a break in custom devices, there needs to be a **[Break On]**, a **[Break Off]**, and an optional delay in between.

Certain commands pass a parameter to the custom device driver that can be converted into a string of bytes using a special packed command in place of a single byte. Only one of these special command lines may appear in any given command slot (since only one parameter is ever passed). This command line is converted during runtime into the specified one to four bytes of parameter data, and included at that location in the command string. One command tag that gets a parameter is the Cue to Clip command. The value passed when a Cue to Clip command is triggered is the desired cue time as represented in a packed word timecode format. Typically, this value must then be converted into some representation of packed timecode bytes to be sent to the external device.

Table 10: Packed Command Flags

Special Name	Function
[Break On]	Force the outputs to data low value (for RS-232 data low is a positive voltage).
[Break Off]	Release the outputs from a forced data low.
[Checksum]	Insert the checksum byte (currently supports only simple 8-bit additive checksum).
[Posn X]	Not currently supported.
[Posn Y]	Not currently supported.
[Posn Z]]	Not currently supported.
[Param...]	Parameter from *Table 11: Parameter Formatting Flags* on page 67.

Table 11: Parameter Formatting Flags

Special Name	Function
Hex	Parameters are taken as-is and are converted into string of bytes (1-4). If the parameter is already in a packed BCD format, then using Hex format will preserve the BCD format of the parameter.
ASCII Hex	Text representation of the above Hex format.
BCD	Binary Coded Decimal (each nybble represents 1 digit 0-9). This command converts a parameter that is in non-BCD format to a BCD format.

Special Name	Function
ASCII BCD	Text representation of the above "BCD" format. This command converts a parameter from a non-BCD format to a text representation of the equivalent BCD format.
Mot	Motorola ordering. Most Significant Byte (MSB) first, LSB last.
Int	Intel ordering. Least Significant Byte (LSB) first, MSB last.
Scaled (Sca)	Re-scales a 12-bit parameter to fit output range.
ASCII Extended (Ext)	Extends up the output to an even number of digits/characters without changing the output range.
Signed (Sign)	Internal use — sign conversion.

Table 12: BCD Width Description

BCD Width	Motorola Description
1 Digit	1 byte of 1 digit, [00] to max [09]
2 Digit	1 bytes of 2 packed digits each, [00] to max [99]
3 Digit	1 bytes of 2 packed digits and 1 byte of 1 digit, [00][00] to max[09][99]
4 Digit	2 bytes of 2 packed digits each, [00][00] to max[99][99]
5 Digit	2 bytes of 2 packed digits and 1 byte of 1 digit, max [09][99][99]
6 Digit	3 bytes of 2 packed digits each, max [99][99][99]
7 Digit	3 bytes of 2 packed digits and 1 byte of 1 digit, max [09][99][99][99]
8 Digit	4 bytes of 2 packed digits each, max [99][99][99][99]

Table 13: Hexadecimal Width Description

Hex Width	Motorola Description
4 Bits	[00] to [0F]
8 Bits	[00] to [FF]
12 Bits	[00][00] to [0F][FF] (or Intel [FF][0F])
14 Bits	[00][00] to [3F][FF] (or Intel [FF][3F])
15 Bits	[00][00] to [7F][FF] (or Intel [FF][7F])
16 Bits	[00][00] to [FF][FF]
24 Bits	[00][00][00] to [FF][FF][FF]
32 Bits	[00][00][00][00] to [FF][FF][FF][FF]

Extra Options

Extra options are device type specific when setting up communications. For the specific settings for your device, refer to the device setup sheet for the device you are connecting to the switcher.

Audio Mixer Extra Options

Option	Value
ABMs	Set the number of 1RU Audio Breakout Units connected to Graphite.
Channel Label	Select where the switcher gets the names for audio channels. • **Switcher** — name stored on the switcher. • **Channel ID** — channel ID from the audio mixer. • **User Label** — user assigned channel name from the audio mixer. • **Fixed Label** — input channel number from the audio mixer. • **InheritedLabel** — source signal name from the audio mixer.
Converter	Select the MIDI to Serial converter that you are using to connect to the audio mixer. • **MIDIator** — MIDIator™ Systems MS-124W • **SMC** — GearLite SMC-9901
Delay	Set the length of time, in fields, after a fader is set from the switcher that the switcher ignores movements of that fader from the audio mixer.
Freq	Select the length of time, in fields, that the switcher will wait between polling the audio mixer for status information.
Max Channels	Select the maximum number of channels installed on your audio mixer.
Mixers	Select the number of audio mixers you are connecting together and controlling from the same communications port. You can connect up to two audio mixers together to a single serial communications port.
OD Master	Select the master level on the audio mixer that the switcher, and the OverDrive Production Control System, should be controlling.
Pairing	Select whether the audio channels are paired horizontally (**Horizontal**) or vertically (**Vertical**).
PGM Output	Select the master level control the switcher is assigned to.
SDI Inputs	Set the number of video inputs on your Graphite system.

Option	Value
Version	Select the version number of the audio mixer you are connecting to the selected communications port.
XPression Ch	Set the number of channels coming from the XPression subsystem in Graphite.

Audio Server Extra Options

Option	Value
Bus Address	Select the Remote Control Address that the audio server is set to.

Automation Extra Options

Option	Value
Clip Lists	Select whether the switcher updates/retrieves the clip list data from the video servers when Automation is enabled (**Yes**), or not (**No**).

Aux Panel Extra Options

Option	Value
RCP Model	Select the model of RCP panel you are connecting to.
Level	Select the level you want to assign the switcher to. Level is used to identify the switcher that the RCP is controlling. When you assign a Level to a switcher, you must select that Level on the RCP to control that particular switcher.
Index Type	Select whether to use the source/destination mapping from before Acuity® 7.1a (**Pre-V7.1a**) or from 7.1a and later (**Post-V7.1a default**).

Character Generator Extra Options

Option	Value
BackToBack	Have the switcher pre-load the second CG page if OverDrive® has back-to-back CG pages in a rundown (**Yes**), or pause to load the second CG page in a back-to-back rundown (**No**).
Def Chan Name	Select whether the default channel name (**Yes**), or the input source name (**No**) is used as the mnemonic name.
Display Mode	Select whether a CG template is taken on-air as soon as the Take command is sent (**Immediately**), or the template is hidden until the Play command is sent (**On Trigger**).

Option	Value
PlayTime	Select the maximum duration for playing an animation, in seconds.
Show On PV	Have a CG page shown on the preview of the CG when it is prepped by OverDrive® (**Yes**), or have it not shown on preview when it is prepped (**No**).
Software Ver	Select the version of software being used on your CG. The options depend on the CG you are using.
Timeout	Set the length of time that the switcher will wait for a response from a CG before reporting communication lost.

Editor Extra Options

Option	Value
Bus Mapping	Select either the original GVG4000 bus mapping (**Normal**), or the current direct one-to-one bus map of the switcher (**Simple**).
CustCtrl ME	Select whether memory recalls on a particular ME perform a custom control rather than recalling the memory. The specific custom control that is run is based on the memory that is being recalled. Memories 1-19 correspond to Bank 1, Custom Controls 1-20; memories 20-39 correspond to Bank 2, Custom Controls 1-20; and so on. • **Any** — memory recalls for any ME run a custom control rather than recall a memory. • **Pgm-Pst** — memory recalls for the main program ME run a custom control rather than recall a memory. • **ME*X*** — memory recalls on ME *X* run a custom control rather than recall a memory.
Editor Type	Select the type of editor you are connecting to the selected communications port.
Pattern	Select wipe patterns using wipe pattern numbers (**Pattern #**) or wipe button numbers (**Wipe Button**).
Use Break	Select whether the switcher must receive a break command and an address before going into active mode (**Yes**), or the switcher goes into active mode without receiving a break command (**No**).

Pbus Extra Options

Option	Value
Query Cmd	Select the type of query commands supported by the Pbus device. • **Relaxed** — control all devices connected to the Pbus device whether they respond to the query command or not. • **Strict** — control only devices connected to the Pbus device that respond to query commands. • **Silent** — control all devices connected to the Pbus device, without using query commands. The switcher does not sent query commands.

Robotic Camera Extra Options

Option	Value
Base	Select whether the camera controller starts counting connected camera heads at 0 or 1.
Cam Reselect	Select whether the switcher sends out a select camera command when the camera is already selected (**ON**), or the switcher doesn't send out the command when the desired camera is already selected (**OFF**)
Check timeout	Select whether the switcher checks for a device timeout (**Yes**) or ignores the timeout (**No**).
CmdDelay	Select the length of time, in 16ms increments, that the switcher waits between sending commands to the camera.
Command	Select the type of move commands (**Trace Memory** or **TecnoPoint**) that are sent to the camera.
Focus Speed	Select the maximum focus speed.
Iris Control	Select whether you want the iris of the camera controlled by the lens (**Lens**), or the camera controller (**Camera**).
Iris Mode	Select whether the size of the iris opening is changed by the velocity at which the iris ring is turned (**Velocity**), or incrementally by value (**Incremental**).
Iris Res	Select the number of bits in the camera control signal. Different camera head controllers use different numbers of bits. Choose the value that gives you a 100% display when the iris is fully open.
Iris Speed	Select the speed at which the iris opens and closes.
Lens Type	Select whether the camera is using a Rainbow-CCTV lens (**Rainbow**), or a Fujinon/Canon Telcon lens (**Fujinon**).

Option	Value
Master Ped	Add (**Yes**) or remove (**No**) the **Pedestal (Black)** button from the **Camera Head Control** menu.
Model	Select the make and model of camera head you are controlling using the VISCA protocol. • **Generic** — camera head supporting VISCA but not listed below. • **Sony BRC-300** — select for a Sony® BRC-300 and BRC-300p camera heads. • **Sony BRC-700** — select for a Sony® BRC-H700 camera head. • **Sony BRC-900** — select for a Sony® BRC-900 camera head. • **Ross PIVOTCam** — select for a Ross® PIVOTCam-20 camera head.
Pan/Tilt Damping	Select the amount of damping you want on pan and tilt movements. The higher the value, the more damping is applied.
Pan/Tilt Speed	Select the maximum pan and tilt speed. The higher the value, the faster the pan and tilt speed.
Panel ID	Select a unique ID that the camera uses to identify the switcher.
Pan Speed	Select the maximum pan speed for the camera head.
Poll	Select whether only the currently selected camera is polled (**Selected**), or all cameras are polled (**All**). We recommend that you only use **Selected** if instructed to do so by Ross Video Technical Support.
Protocol	Select the protocol that is used by the positioner on your camera controller. • **Level 0** — disable joystick/positioner control. • **Level 1** — enable Pan, Tilt, Zoom, and Focus control. • **Level 3** — enable Pan, Tilt, Zoom, Focus, Iris, Mped (Black Level) and Elevation control. • **Level 4** — enable all for controls of Level 3, plus Shot Store.
Protocol	Select whether the camera is being controlled using a **Serial** or **IP** protocol.
RclTime	Select the amount of time that the switcher allows for a camera to recall a shot.
Select Delay	Select the length of time, in fields, that the switcher will wait after selecting a camera.

Option	Value
SerialSwitch	Select the type of serial switch you are using to connect to your camera. • **STS-12** — assign an STS-12 Serial Control Transfer Switch to the selected port. • **CP-RMR-S** — assign a CP-RMR-S Serial Receiver to the selected port. • **DS-4** — assign a DS-4 Device Server to the selected port.
ShotOffset	Select whether shots are indexed based on 0 or 1.
Tally	Select whether the tally light on the camera is controlled by the switcher (**Yes**) or not (**No**).
Tilt Speed	Select the maximum tilt speed for the camera head.
Toggle Cam	Select whether the switcher selects another camera before selected the desired camera (**ON**), or selects the desired camera immediately (**OFF**).
Zoom Speed	Select the maximum zoom speed.
Z Speed	Select the speed that height or elevation changes are performed.

RossTalk Extra Options

Option	Value
Cmd Response	Select whether the switcher sends an acknowledgement after receiving a RossTalk command (**ON**) or not (**OFF**).
HTTP Protocol	Select whether to send the RossTalk command wrapped with an http header. • **None** — no HTTP method is used. • **POST** — send commands using the HTTP POST method. • **GET** — send commands using the HTTP GET method.
Ping	Select whether to send a ping to the device every 10 minutes (**On**) or not send a ping (**Off**).

Router Extra Options

Option	Value
Base	Select whether the router starts counting switcher sources at 0 or 1.
Connection	Select whether you are using the serial or ethernet protocol to connect to the router.
Dest Xpts	Select the number of destination crosspoints that are available on the router.

Option	Value
Level Base	Select whether the router starts counting levels at 0 or 1.
Num Levels	Select the number of levels that the router is using. This sets the number of levels that the router switches when the input BNC from the router is set to All levels.
Polling	Select whether the switcher scans only source or destination names, both, or neither.
Protocol	Select the **GVG7000** or **KUMO** protocol.
Src & Dest Base	Select whether the router starts counting source and destinations at 0 or 1.
Src Xpts	Select the number of source crosspoints that are available on the router.

Serial Tally Extra Options

Option	Value
At Black	Select whether the switcher reports that nothing is on-air when the switcher is at black (**All Off**), or have the switcher not report anything different when it goes to black (**Active On**).
Data Txfr	Select the message size protocol for the tally device. You can select **Minimal**, **Normal**, or **Complete**.
Rate	Select the rate, in fields, between update messages sent by the switcher to the tally device.
Slot *X*	Select theME that you want to assign to ME slot *X* on the tally device.
Source Name	Select whether the switcher used the source names from the router (**Router Src**), or from the input BNC (**BNC Name**).
Start	Select whether the switcher sends **None** or **Init** as the start message for the tally device.

Switcher Extra Options

Option	Value
Ping	Select whether the switcher sends a ping after 10 minutes of inactivity (**On**) or not (**Off**). This is designed to keep the connection active between the two devices so that network monitoring equipment don't close the connection. The ping message sent is NOOP<CR><LF>.

UMD Extra Options

Option	Value
Add Header	Select whether to include header data when communicating to a TCP device (**Header**) or not include the data for a serial device (**No Header**). If you are using a DeviceMaster® to communicate with a serial device
Brightness	Select the brightness value (**0** to **3**) that is sent to the UMD device.
Invert	Selects how tallies are displays and shows the active state of the keyer. • **Standard** — tallies are displays with preview on the left and program on the right. • **Inverted** — tallies are displays with preview on the right and program on the left. • **Bus Messages** — tallies are displayed on the right only and the left tally bits are used to show the active state of the keyer. • **Bus Messages Inv** — tallies are displayed on the left only and the right tally bits are used to show the active state of the keyer.
Justify	Select how the mnemonic names are justified on the output (**Left**, **Right**, or **Center**).
MV Names	Select whether the switcher shows the mnemonic names from the UMD device on the MultiViewer (**ON**) or the internal source names (**OFF**). The labels for the MultiViewer boxes must be turned on to see the names.
Rate	Select whether the switcher sends 1 (**Slow**) or 70 (**Fast**) messages per field to the UMD device.
Screen	Select the address of the screen that you want to send the information to (**0** to **65535**).
Version	Select the version of the TSL protocol you want to use.

Video Server Extra Options

Option	Value
Clip List	Associate a video server with either **Clip List A** or **Clip List B**, or use the **Floating** list. Clip lists A and B are cached for fast access when the associated video server is selected. Each clip list can only be associated with one physical device.

Option	Value
Cmd Queuing	Select whether the switcher requires a confirmation message from the video server for each command (**Strict**), or not (**Relaxed**). For Strict, the switcher will re-send a command (as set by the Send Tries value) until it receives a confirmation message from the video server.
Cue & Pause	Select whether the switcher sends a pause command immediately after a cue command (**Yes**), or not (**No**). This allows you to have the video server cue a clip and advance it so that you can preview the first frame of the clip.
Eject Clip	Select whether the video server ejects the current clip before it cues the next clip (**Yes**), or not (**No**).
ExtendedChar	Select whether the switcher allows non-printing characters (extended character set) for clip IDs (**Yes**), or replaces the characters with spaces (**No**).
Frame Rate	Select the framerate that the server is currently operating in.
LoopMinLength	Select the minimum length of a clip, in seconds, that can be looped. The minimum length is three (3) seconds.
LoopRecueTime	Select the amount of time, in frames, before the end of a clip that the switcher sends a loop command.
MediaIDLength	Select whether the video server uses clip IDs of up to 8 characters (**Short IDs**), or up to 32 characters (**Long IDs**).
Panel	Select the control panel, in a MultiPanel system, that the device is connected to.
Playback Mode	Select the playback mode that your video server is using. • **PB** — your device does not go to Electronic-to-Electronic (EE) mode. • **PB/EE** — if your device does go to EE mode. If you select this option, you enable the serial device to automatically go into PB/EE mode. If a stop command is issued, the device enters EE mode. If a pause command is issued, the device stays in Playback mode.
Play Skip Q	Select whether the switcher sends a play command immediately, skipping all other commands in the queue (**Yes**), or puts the play command at the end of the command queue (**No**).

Option	Value
Play w/Alpha	Select whether the switcher plays both the video and alpha channels from a video server (**Yes**), or only the video channel (**No**). Both the video and alpha input BNCs must have the video server assigned to them, and must be set up as an auto key to associate the video with the alpha. When set to yes, the switcher does not check the status of the video server channels before sending the play command.
Port Cmds	Select whether the video server supports (**Yes**), or does not support (**No**) the Open Port, Select Port, and Close Port commands.
Protocol	Select whether the switcher communicates with the video server using the serial protocol (**Serial**), or the ethernet (TCP_CHN) protocol (**IP**).
Record Time	Select the maximum number of minutes that the Video Server will record for when it received the Record custom control command.
Send Loop	Select whether the switcher sends loop commands to the server (**On**) or if the server handles the loop status (**Off**).
Send Tries	Select the number of times that the switcher will try to send the same command to the video server if the switcher has not received a confirmation response.
StatusInterval	Select the amount of time that the switcher waits between status check requests of the video server.
Status Tries	Select the number of times that the switcher will send a status check request to a video server without getting a ready response.
TargetMachine	Select the video server that you are assigning to the selected communications port.
TimeOut	Select the length of time, in fields, that the switcher will wait for a reply from the Video Server before trying to send a command again.

VTR Extra Options

Option	Value
Decode NAKs	Select whether the switcher decodes the NAK messages sent from the VTR to the switcher (**Yes**), or not (**No**). The NAK messages must be decoded for the switcher to act on them. You should only select no if you are encountering problems using the Play command with your device or as advised by Ross Video Technical Support.

Option	Value
NPlayRetries	Select the number of times the switcher attempts to send a Play command to the VTR.
Request TC	Select whether the switcher request timecode information from the VTR (**Yes**), or not (**No**). If the timecode information is returned from the VTR, it is displayed on the **Remote Control** menu and preview overlay.
TargetMachine	Select the video server that you are assigning to the selected communications port.
Wait nFields	Select the length of time the switcher waits before assuming that a Play command failed, or was not received by the VTR.

FlexDevice Drivers

> **Note:** FlexDevice drivers have been integrated into the switcher software. Individual FlexDevice drivers are no longer supported in v9.2a or higher.

Individual FlexDevice drivers are uploaded to the switcher using the web interface. Once a driver has been uploaded to the switcher, an instance of that driver is initialized and assigned to the port that the device is connected to. A single instance of a FlexDevice driver controls a single device. If you are connecting multiple devices of the same type to the switcher, you must activate multiple instances of that driver.

To Install a FlexDevice Driver

1. Open a web browser and navigate to the IP address of the switcher frame. You are prompted to enter a user name and password. The defaults are **user** and **password**.

2. Click **Other** > **FlexDevices**.

   The **FlexDevices** page lists all the FlexDevice drivers that are installed on the switcher, their version, and status. If a driver is not compatible with the current version of switcher software, the status will be Obsolete (OBSOL) or Unsupported (UNSUPP)

3. Click **Browse** and locate the FlexDevice driver you want to install in the switcher.

4. Click **Open**/**Choose** to select the file.

5. Click **Install Driver**.

To Initialize a FlexDevice Driver

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **More** > **Flex Devices**.
2. Press **Start Driver**
3. Use the **Interface** knob to select the control panel or frame that you want to initialize the FlexDevice driver on.

    For example, if you want to control the device from a serial port on the back of the master control panel, you must select **Panel0**.
4. Use the **Type** knob to select the type, or class, of driver you want to initialize.
5. Use the **Driver** knob to select the driver that you want to initialize an instance of.

    If the driver you want to initialize does not appear on the menu, ensure that the driver has been installed.
6. Press **Accept**.

A popup notifying you that an instance of the driver has been started appears on the menu.

Stopping a FlexDevice Driver

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **More** > **Flex Devices**.
2. Press **Stop Driver**.
3. Use the **Interface** knob to select the control panel or frame that the FlexDevice driver you want to stop is running on.
4. Use the **Type** knob to select the type of driver you want to stop.
5. Use the **Driver** knob to select the driver that you want to stop an instance of.
6. Press **Accept**.

To Delete a FlexDevice Drive

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **More** > **Flex Devices**.
2. Press **Delete Driver**.

3. Use the **Type** knob to select the type of driver you want to delete.
4. Use the **Driver** knob to select the driver that you want to delete.
5. Press **Accept**.

Clip Setup

To recall clips on the VTR or Video Server from the switcher, you must store the clips you want to use to Clip Registers on the switcher. These clip registers store the location, or timecode, on the device for the clip, and the name of the clip.

To Assign a Clip to a Clip Register

1. Press **HOME** > **Clips** > **Assign Clips** > **Clip type**.
2. Use the **Clip** knob to select the clip register that you want to store clip information to.
3. Press **Name Clip** and apply a name to the clip register.
    a) Enter the new name in the **New Name** field.
    b) Press **Accept New Name**.
4. Use the **Device** knob to select the video input that the clip will play on. When you set up the device, you associated a device and channel to a video input on the switcher.

5. Use the **Looping** knob to select if you want the clip to loop (**Enable**), or only play once (**Disable**).
6. Press **Refresh Choose ID** and use the **x1**, **x10**, and **x100** knobs to select the clip on the device that you want to assign to the clip register.

7. Press **Inpoint/Outpoint**.

8. Press **Enabled** to use the default start and end point of the clip from the server (**No**), or set a custom inpoint and endpoint (**Yes**).

9. Press **Edit** to select whether you are setting the inpoint (**In**), or the endpoint (**Out**).

> *Tip:* *If you do not know the timecode for the inpoint or outpoint you want to use, press* ***Next*** *and use the transport buttons to preview the clip to the location you want to use. Once you have the timecode position selected, press* ***Next*** *and* ***Grab Timecode****.*

10. Press **Hours/Minutes** and use the **Hours** and **Minutes** knobs to select the hours and minutes components for the new inpoint or outpoint.

11. Press **Second/Frames** and use the **Seconds** and **Frames** knobs to select the seconds and frames components for the new inpoint or outpoint.

> *Tip:* *Press* ***Cue to Inpoint/Cue to Outpoint*** *to preview the new inpoint or outpoint of the clip.*

12. Press **Grab Timecode** to store the new inpoint and outpoint for the clip.

Audio Channel Setup

Audio from an audio mixer can be configured as individual channels or grouped together, with up to three channels per group. When you set up the audio channels, you also set the Default Levels for the individual channels. These default levels are the ones that the switcher will set the channels to when you perform an audio reset custom control.

To Set Up an Audio Source

For some audio mixers, each audio source needs to be assigned to an audio channel that is controlled by the switcher. This allows you to select specific audio sources to be controlled when there are more audio sources than input channels on the Audio Mixer.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Audio** > **Assign Source**.

2. Use the **Audio Channel** knob to select the audio channel on the switcher that you want to assign an audio source from the mixer to.

   The number of channels listed is the number of channels selected for the **Max Channels** extra option for your audio mixer.

3. Use the **Audio Source** knob to select the audio source from the audio mixer you want to assign to the selected audio channel.

4. Press **Name Channel** and use the **Audio Src** knob to select the audio source that you want so name.

5. Enter the new name in the **New Name** field.

6. Press **Accept New Name**.

7. Press **HOME** > **Confirm**.

To Assign an Audio Channel to a Video Source

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **Audio**.

2. Use the **Input** knob to select the input source that you want to assign an audio channel to.

> *Tip:* *The* ***STIL X*** *sources at the bottom of the* ***Input*** *list are to allow OverDrive® to map the Media-Store audio sources to channels for mixer control.*

3. Use the **Audio X** knob to select the audio channel, or group, that you want to assign to the selected input.

   If you have programmed Audio Assign custom controls, the **Audio X** knobs will display the custom control that the channel has been assigned to.

4. Press **HOME** > **Confirm**.

To Set Audio Channel Level

Each audio channel can be set with a custom audio level that is used when the channel is taken on-air. This level can be adjusted manually using the sliders on the Audio Mixer, or by selecting the level on the menu.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Audio** > **Audio Level**.

2. Use the **Audio Channel** knob to select the audio channel that you want set up.

   If you have programmed **Audio Assign** custom controls, the Audio Channel knob will display the custom control that you assigned the channel to.

3. Use the **Level** knob to select the default audio level for the selected channel.

4. Use the **Include** to select whether the channel is controlled by the switcher (**Yes**), or not (**No**).

5. Press **HOME** > **Confirm**.

To Set Up an Audio Group

Up to three audio channels, or groups, can be grouped together. This allows you to assign multiple audio channels to a single Input BNC. Assigning audio channels will not change the default audio levels that have been set for each of the channels. When the group is taken on-air, each audio channel is taken up to the level set for that particular channel.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Audio** > **Audio Groups**.

2. Press **Group *X*** for the audio group you want to set up.

3. Use the **Audio Channel *X*** knobs to assign up to three audio channels, or groups, to the group.

   > *Note:* *If you have programmed Audio Assign custom controls, the custom control names will be displayed.*

4. Press **HOME** > **Confirm**.

To Name an Audio Channel

Each audio channel can have a unique name. This name appears on the mnemonic above the audio fader on the Audio Control module. The color of the mnemonic indicates the status of the audio channel. Orange for an on-air channel, and yellow for an off-air channel. Refer to *Audio Control Module* on page 82 for more information on audio fader mnemonics.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Audio** > **Name Channel**.

2. Use the **Channel Name** knob to select the channel you want to name.

3. Enter the new name in the **New Name** field.

4. Press **Accept New Name**.

To Set an Audio Fade Rate

Each audio channel can be set to use either the video transition rate, or a unique fade-in and fade-out rate when the audio channel is transitioned on, or off, air.

> *Note:* *If the Audio Cut Only personality option is set to On, any audio fade rate settings are ignored.*

1. Press **HOME** > **Setup** > **Installation** > **More** > **Audio**.

2. Press **Fade Rate** to select whether audio transitions use the video transition rate (**Video**), or a set audio transition rate (**Audio**).

3. Use the **Audio Channel** knob to select the audio channel you want to set the audio transition rate for.

4. Use the **Fade-in Rate** knob to set the length of time, in frames, that it will take for the audio channel to come up to the on-air level.

5. Use the **Fade-out Rate** knob to set the length of time, in frames, that it will take for the audio channel to go down to the off-air level.

6. Press **HOME** > **Confirm**.

To Set Auto Mute

You can have the switcher mute an audio channel when the audio level is set to 0. When the audio level is raised again the channel is un-muted. This setting is applied to all audio channels.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Audio** > **More** > **Auto Mute**.

2. Use the **Auto Mute Control** knob to set whether all channels are muted when their level is set to 0 (**All Yes**) or if the channel remains un-muted when set to 0 (**All No**).

3. Press **HOME** > **Confirm**.

Auxiliary Control Panels

An auxiliary control panel provides an extra row of source buttons that can be assigned to an aux bus. This single row of buttons can be used to select sources on the aux output, or to visually follow what is selected on an aux bus.

The switcher supports the V-053B, the V-159 series, and AP-AUX2RU series of auxiliary control panels.

AP-AUX2RU Series Auxiliary Control Panels

The V-159 series and AP-AUX2RU series of auxiliary control panels are available in various sizes to match the number of source buttons on your control panel. The panels can be installed either on the back of the control panel or into the desk. The V-159 auxiliary control panel can also be installed into a 19-inch rack frame.

To Assign an AP-AUX2RU Series Auxiliary Control Panel to a Panel Row

Refer to the documentation than came with your auxiliary control panel for information on cabling and physically connecting it to the switcher.

1. Press **HOME** > **Setup** > **More** > **Panel Modules**.
2. Press **Yes**.
3. Press **Quick Configuration**.
4. Press **Internal Rows** or **External Rows** to assign the auxiliary control panel to an internal or external panel row.
   - **Internal Rows** — if you need menu follows and double press actions. Actions such as double-pressing a crosspoint button to assign a color corrector to that video source must be done on an internal panel row.
   - **External Rows** — if you do not need menu follows or double press action.
5. Press the **Start Row *X*** button for the row that you want to start assigning modules to.

   If you are using internal panel rows, it is recommended that you select a row that is not used on the control panel (row 5, for example) so that the module assignment for the control panel is not affected.

6. Starting on the far left side, press a button on each module on the auxiliary control panel.
7. Press **Exit**.
8. Press **HOME** > **Confirm**.

V-053B Auxiliary Control Panels

The V-053B auxiliary control panel must be set up on one of the External Link ports on the back of the control panel. This includes the range of aux buses that you want to make available to all the V-053B auxiliary control panels connected to that port. You can daisy-chain a number of panels together.

To Set Up a V-053B Auxiliary Control Panel

Refer to the documentation that came with the V-053B for information on cabling and power connections.

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **Type**.
2. Use the **Com Port** knob to select the **ExtLnk X** port that the auxiliary control panel is connected to.
3. Use the **Device** knob to select **Remote Aux**.
4. Use the **Aux Buses** knob to select the range of aux buses that you want to make available to the remote aux panels connected to the selected port.
5. Press **HOME** > **Confirm**.

To Assign an Aux Bus to a V-053B Auxiliary Control Panel

1. Press **HOME** > **Setup** > **Installation** > **Aux Bus** > **Remote Panels** > **Remote Panel Setup**.

   This places all the V-053B panels connected to the switcher into programming mode. The On-Air indicators on the panels flash.

2. Press the source buttons that correspond to the aux buses you want to assign to the auxiliary control panel. Each auxiliary control panel can be assigned to one or all aux buses. Press the button repeatedly to assign a different mode to that aux bus on the panel.
   - **Off** — the aux bus is not assigned to the auxiliary control panel.

- **On** — the aux bus is assigned to the auxiliary control panel, allowing you full control to select sources on the aux bus.
- **Flashing** — the aux bus is assigned to the auxiliary control panel, allowing you to only view what is being selected on the aux bus. You will not be able to change the source selections for this aux bus from this auxiliary control panel.

Starting from the top left, the first 12 source buttons on the control panel correspond to the 12 aux buses that were assigned to the External Link port. For example, if aux buses 1:1 to 2:4 were assigned to the External Link port, button 1 on the auxiliary control panel will assign the panel to aux bus 1:1.

3. Press **Accept**.
4. Press **HOME** > **Confirm**.

Auxiliary Control Panel CCU Joystick Control

Once the auxiliary control panel GPIs have been set up, and the panels have been set up with the proper group, you can assign each GPI to an aux bus and an input BNC, as well as setting the trigger type.

To Set Up a CCU Joystick Control

1. Press **HOME** > **Setup** > **Installation** > **Aux Bus** > **Remote Panels** > **Remote GPI Assignment**.
2. Use the **Remote** knob to select the auxiliary control panel GPI input that you want to assign an aux bus to.
3. Use the **Aux Bus** knob to select aux bus that you want to assign to the selected GPI.
4. Use the **Source** knob to select the video source that you want to be selected on the aux bus when the GPI is triggered.
5. Press **Remote GPI Type**.
6. Use the **Remote** knob to select the auxiliary control panel GPI input that you want to set the trigger type for.
7. Use the **Type** knob to select the type of trigger signal that you want to use.
   - **Low-Override** — set the trigger as a temporary override when the circuit is closed (high to low signal). When the circuit opens again (low to high signal),

the aux bus output returns to the selected video signal.
- **Low-Toggle** — set the trigger as a toggle when the circuit closes (high to low signal). Every time the circuit closes, the override state will toggle.
- **High-Toggle** — set the trigger as a toggle when the circuit opens (low to high signal). Every time the circuit opens, the override state will toggle.
- **Latch** — set the trigger to latch when the circuit opens or closes. Once latched, the trigger cannot be released except by selecting a different source on the Auxiliary Panel itself.
- **Off** — disable GPI trigger.

8. Press **HOME** > **Confirm**.

Panel Modules

The control panel supports a number of different modules installed into blank slots on the control panel or a SideBox or SideBoxNet connected to the switcher.

For information on installing a module into the control panel, SideBox, or SideBoxNet, refer to the documentation that came with your module.

Installing or Replacing a Module

To install a module, you must first remove the existing module, or blank cover plate, that is installed in the module opening. After the module has been removed, you must install and cable the new module into the empty module opening.

To Remove a Module

1. Lift up the control panel lid and turn off all power supplies in the control panel.
2. Disconnect the power supplies from mains power.
3. Identify the module or blank cover plate that you want to remove.
4. If you are removing a module, you must disconnect the cables to the module.
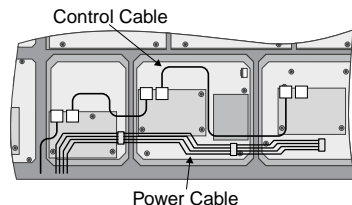
Figure 13: Module Cables

   a) Disconnect the 4-conductor Module Power Cable from the module.

   This cable delivers power to all of the modules in the row. When unplugging the cable, ensure that you do not accidentally unplug it from any neighbouring modules.

   b) Disconnect both the CAT5 Module Control Link Cables from the module.

   This cable delivers all of the command signal to and from the module, as well as other modules in the same row.

5. Use a 1/4 inch hex driver to remove the four Retaining Nuts located at each corner of the module.
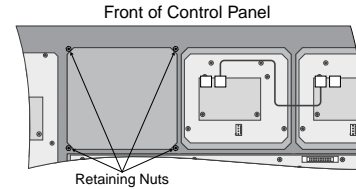
Figure 14: Remove Module Cover Plate

6. Remove the module or blank cover plate from the control panel.

To Install a Module

1. Lift up the control panel lid and turn off all power supplies in the control panel.
2. Disconnect the power supplies from mains power.
3. Install the module into the control panel.
4. Use a 1/4 inch hex driver to install the four Retaining Nuts located at each corner of the module.
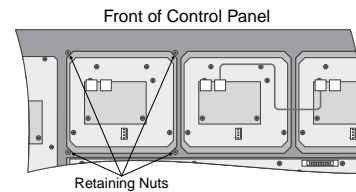
Figure 15: Install Module

5. Connect the cables to the module.
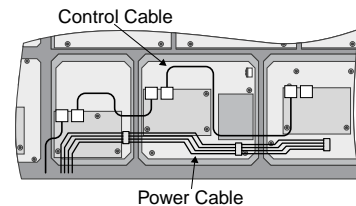
Figure 16: Module Cables

   a) Connect the 4-conductor Module Power Cable to the module.

   This cable delivers power to all of the modules in the row. When connecting the cable, ensure that you do not accidentally unplug it from any neighbouring modules.

   b) Connect both of the CAT5 Module Control Link Cables to the module.

   This cable delivers all of the command signals to and from the module, as well as other modules in the same row.

To Upgrade a PMC

The Panel Module Controllers (PMCs) may need to be upgraded if you perform a software upgrade or replace a module. If PMCs need to be upgraded, the message PMCs need to be upgraded; please go to Panel Modules menu is displayed on the main menu.

1. Press **HOME** > **Setup** > **More** > **Panel Modules**.
2. Press **Yes**.
3. Press **Upgrade PMCs**.

Module Setup

Modules must be mapped to an internal or external control panel row. This allows the switcher to apply color schemes to the module, as well allow modules to be assigned to MEs or aux buses.

If you are using an external module, such as a SideBox, or SideBoxNet, you must set up communications with that module before you can configure it.

To Set Up Communication to a SideBox Module

The SideBox must be set up on an external link on the Acuity® control panel.

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **Type**.
2. Use the **Com Port** knob to select the port (**ExtLnk X**) on the switcher that the external module is connected to.
3. Use the **Device** knob to select **Ext Module**.

   If the OverDrive® production control system is set up with the switcher, you cannot assign **ExtLnk 2** to **Ext Module**.

4. Press **HOME** > **Confirm**.

To Set Up Communication to a SideBoxNet Module

You can connect up to 15 unique SideBoxNet enclosures to a switcher. The number of each SideSlideNet, SideShotNet, and SideStick modules depends on the type of module you are connecting.

> *Note:* *You cannot have more than one SideShotNet, SideSlideNet, and SideStick on the same external row. For example, you cannot have two SideStick modules on the same row, but you can have a SideShotNet and a SideStick on the same row.*

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **Type**.
2. Press **Type** and use the **Com Port** knob to select the Remote or PanelNet port that you want to use to connect to the SideBoxNet.
3. Use the **Device** knob to select **OGP**.
4. Press **Select Device** and use the **Device** knob to select **ePCH**.
5. Press **Com Type** and use the **Type** knob to select **Network TCP**.
6. Press **Com Settings** and use the **Client/Server** knob to select **Client** and enter the IP address of the device in the **Remote IP Address** field and 5253 in the **Remote Port** field.
7. Press **Extra Options**.

Option	Value
Unit ID	Each SideBoxNet must be assigned to a different number (**1**-**15**).
Row	Select the panel row that you want to assign the SideBoxNet to. The panel row corresponds to the SideStick or SideBoxNet in that the module assigned to row 1 is numbered 1 in the menus (SideStick1 for example). You can only assign the SideStick to an internal panel row.
First Fader	Assigns the number, or position, of the first audio slider on the SideSlideNet module. Each audio module has 8 sliders, so the first slider on module 1 is 1, the first slider on module 2 is 9, and so on.

8. Press **HOME** > **Confirm**.

To Manually Map Modules to a Row

Modules are mapped to rows so that the system can identify where the hardware is located on the panel.

> ❗ *Important:* *Do not manually map SideShotNet, SideSlideNet, or SideStick modules to the panel. Panel mapping for these modules is done from the communications menu when you set them up.*

1. Press **HOME** > **Setup** > **More** > **Panel Modules**.

2. Press **Yes**.

3. Press a button on the module that you want to assign to a row. This sets the **Link/Node** knob to that module.

> *Note: The term Virtual after the link/node indicates that it is a virtual module on a Acuity Virtual Panel.*

4. Press **Panel Row & Crosspoint**.

5. Use the **Panel Row** knob to select the panel row that you want to assign the module to.

6. Use the **First Crosspoint** knob to select the number, or position, of the first source button on the module. Only the source button modules have this knob.

Each source button module on the control panel has 8 buttons, so the first button on module 1 is 1, the first button on module 2 is 9, and so on.

> *Tip: If you are assigning a module with custom control buttons, press **Custctrl & GPI Group** and use the **First Custctrl** knob to select the number, or position, of the first custom control button on the module. This is usually the same as the **First Crosspoint** selection.*

7. Press **HOME** > **Confirm**.

To Automatically Map Modules to a Row

Modules are mapped to rows so that the system can identify where the hardware is located on the panel.

> ❗ *Important: Do not manually map SideShotNet, SideSlideNet, or SideStick modules to the panel. Panel mapping for these modules is done from the communications menu when you set them up.*

1. Press **HOME** > **Setup** > **More** > **Panel Modules**.

2. Press **Yes**.

3. Press **Quick Configuration**.

4. Select whether you want to assign modules to an internal panel row (**Internal Rows**), or an external panel row (**External Rows**).

- **Internal Rows** — rows inside the control panel, or connected to the touchscreen display.
- **External Rows** — rows outside the control panel, such as on an auxiliary control panel, SideBox, not including the touchscreen display.

5. Press the **Start Row *X*** button for the row that you want to start assigning modules to.

> *Note: Any module assignments to the selected row are lost.*

6. Press a button on all the modules that you want to assign to the selected row starting with the first source button/crosspoint module on the left. Remember to include memory and transition modules as well.

The order that source button modules are assigned to a row sets the order that the switcher maps to the buttons.
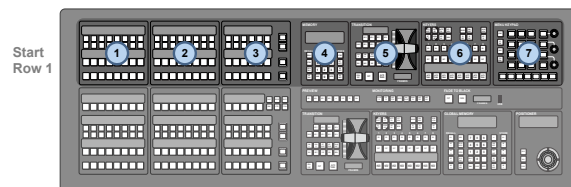
7. Repeat for each additional row you want to assign modules to.
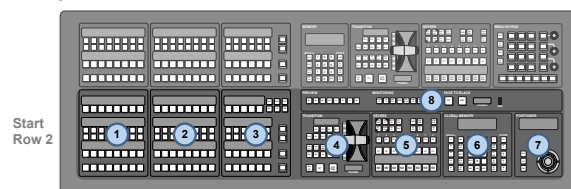
8. Press **Exit**.

Custom Control Shot Box Module

The Custom Control Shot Box Module allows you to map custom controls from various banks to any of the 28 buttons on the Shot Box. Each custom control is mapped to a position on a Shot Box page that corresponds to a button on the Shot Box. When the button on the Shot Box is pressed, the corresponding custom control is run. Additional commands such as selecting other pages can also be assigned to buttons on a page.

Shot Box pages can be assigned to control buttons on the V-159/AP-AUX2RU auxiliary control panel when it is in Aux Bus mode.

To Create a Page

1. Press **HOME** > **Custom Controls** > **More** > **Setup Shot Box Pages**.

2. Use the **Page** knob to select the page that you want to assign custom controls to buttons on.

3. Select the button on the page that you want to assign a custom control to.

4. Use the **Bank** and **Button** knobs to select the custom that you want to assign to the selected button.

To Name a Page

1. Press **HOME** > **Custom Controls** > **More** > **Setup Shot Box Pages**.
2. Use the **Page** knob to select the page that you want to name.
3. Press **Modify Page Name**.
4. Enter the new name in the **New Name** field.
5. Use the **Font** knob to select the size and layout of the font you want to use on the mnemonic displays.
6. Use the **Color** knob to select the color you want to use for the mnemonics. This can be the background or text color, depending on whether you have selected an invert font.
   * **Standard** — use the standard mnemonics color.
   * **Green** — use a green color.
   * **Red** — use a red color.
   * **Blue** — use a blue color.
   * **Yellow** — use a yellow color.
   * **Orange** — use an orange color.
   * **Purple** — use a purple color.
   * **ME *X* Glow** — use ME Glow color *X*.
   * **Aux Glow** — use the aux glow color.
   * **CC Glow** — use the CC glow color.
   * **User Color *X*** — use User Color *X*.
   * **None** — don't use a color for the mnemonic.
7. Press **Accept New Name**.

To Assign a Page to a Shot Box

Assigning pages to buttons allows you to switch between pages by pressing the button on the Shot Box module, just like switching between custom control banks on the bus.

Note: *If more than one Shot Box module is assigned to the same panel row, both modules will mirror each other. You cannot have two Shot Box modules operate independently if they are assigned to the same panel row. The A1S Acuity Virtual Panel is the exception where the second Shot Box is assigned to row 2 (the row of the first module +1).*

1. Press **HOME** > **Setup** > **Installation** > **More** > **Custom Controls** > **Setup Shot Box Modules**.
2. Use the **Module Row** knob to select the row that the Shot Box or auxiliary control panel is assigned to.
3. Use the **Set Current Module Page** knob to select the shot box page that you want to assign to the modules on the selected row.
4. Use the **Set Link on Button** knob to select the button that you want to assign the selected page to or select **None**.

   Only buttons 1 through 14 are available on the auxiliary control panel.
5. Press **HOME** > **Confirm**.

To Copy or Move a Page

1. Press **HOME** > **Custom Controls** > **More** > **Setup Shot Box Pages** > **Copy/Move Pages**.
2. Use the **Source** knob to select the page you want to copy or move.
3. Use the **Destination** knob to select the page that you want to paste to source page to.
4. Press **Copy** or **Move** to copy or move the selected source page to the destination page.

   All the content of the destination page are replaced with the contents of the source page. In the case of a move, the source page is left empty after the move.

Audio Control Module

The Audio Control module allows you to map audio channels, or groups, from an audio mixer to any of the audio fader on the Audio Control module.
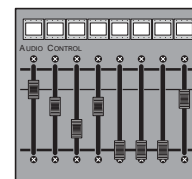

Figure 17: Audio Control Module

When an audio channel, or group, is assigned to a slider, the source name for that audio channel is shown in the mnemonic above the audio fader. Audio channels, or groups, can be dynamically assigned to audio faders with a custom control.

The color of the mnemonic above each audio fader indicates the state of the audio channel, or group, assigned to the fader

- **Orange** — Indicates that a channel assigned to that fader is on-air.
- **Yellow** — Indicates that all channels assigned to that fader are off-air.

To Map an Audio Control Module to a Panel Row

1. Press **HOME** > **Setup** > **More** > **Panel Modules**.
2. Press **Yes**.
3. Press a button on the module that you want to assign to a row. This sets the **Link/Node** knob to that module.
4. Press **Panel Row & Crosspoint**.
5. Use the **Panel Row** knob to select the panel row that you want to assign the module to.
6. Press **Audio Fader**.
7. Use the **First Fader** knob to select the number, or position, of the first audio slider on the module.

   Each audio module has 8 sliders, so the first slider on module 1 is 1, the first slider on module 2 is 9, and so on.

8. Press **HOME** > **Confirm**.

To Assign Audio Channels to an Audio Fader

1. Press **HOME** > **Setup** > **Installation** > **More** > **Audio** > **Assign Source**.
2. Use the **Fader** knob to select the audio fader that you want to assign an audio channel to.
3. Use the **Audio Source** knob to select the audio source that you want to assign to the selected fader.
   - **NONE** — no audio channel is assigned to the fader.
   - **Chan *X*** — assign an audio channel to the fader.

- **Group *X*** — assign an audio group to the fader.
- **Floating** — have the switcher dynamically assign the audio channel, or group, that is on-air to the fader. Audio channel assignment starts with the lowest number channel that is on-air.
- **Master** — assign the master level to the fader.

4. Press **HOME** > **Confirm**.

To Unassign an Audio Channel

Each audio channel can be prevented from being assigned to a fader on the Audio Control module. This is useful if you only want a single channel from a stereo pair to be assigned to the Audio Control module. The single fader will control both channels in the stereo pair, or all channels in the group.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Audio** > **More** > **On Fader Module**.
2. Use the **Audio Channel** knob to select the audio channel you do not want assigned to the Audio Control module.
3. Use the **On Fader Module** knob to select whether the channel can be assigned to the Audio Control module (**Yes**), or not (**No**).

SideStick Module

The SideStick module allows you to have a dedicated module for camera control that is separate from the control panel.
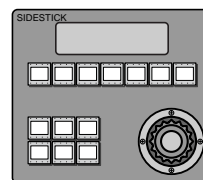

Figure 18: SideStick Module

Keep the following in mind:

Keep the following in mind when using the SideStick:

- Navigating between cameras requires that the SideStick module be assigned to a camera first.

- Press the hold the **Page SEL** button and use the other buttons to select a specific page or camera.
- The **NEXT** and **Prev** buttons cycle through the cameras assignable to the SideStick module. If you have locked the module to on-air or preview cameras only, the buttons cycle through only those cameras.
- The **On Air** button selects the first camera that is tallied as on-air. A C: appears before the camera name on the display.
- The **Preset** button selects the first camera that is tallied on preview. A C: appears before the camera name on the display.
- Double-press the **On Air** or **Preset** button to have the SideStick module follow whichever camera is on-air or preview. As you perform transitions and select sources the SideStick module jumps to controlling whichever camera is on-air or preview. A F: appears before the camera name on the display.

To Set SideStick Mnemonic Brightness

The mnemonics on the SideStick module have enhanced and dimmed brightness levels that apply to all SideStick modules connected to the switcher.

1. Press **HOME** > **Setup** > **Personality** > **More** > **SideStick Settings** and press **Global SideStick Setup**.
2. Use the **Options** knob to select **Enhanced Brightness** and use the **Value** knob to select the level of brightness for selected buttons.
3. Use the **Options** knob to select **Dimmed Brightness** and use the **Value** knob to select the level of brightness for unselected buttons.

To Configure a SideStick Module

Each SideStick module can be configured for how it follows camera selections on the switcher and preferences for the sensitivity of the positioner.

1. Press **HOME** > **Setup** > **Personality** > **More** > **SideStick Settings** > **Individual SideStick Setup**.
2. Press the **SideStick*X*** button for the SideStick module you want to configure.
3. Use the **Options** and **Value** knobs to configure the selected module.

Option	Value
InvertTilt	Invert the direction that the camera moves when using the positioner (**Inverted**), or not (**Normal**).
InactiveDelay	Select the amount of time, in seconds, that the switcher will wait after the positioner is last moved before allowing the SideStick module to be assigned to another camera.
CameraFollow	Select whether the SideStick module is automatically assigned to the camera selected on program (**Follow On Air**), on preview (**Follow Preview**), or whether it must be manually assigned to each camera (**None**).
PageFollow	Select whether mnemonic button pages on the SideStick module are automatically selected based on the camera that is selected (**Follow Camera**), or whether pages must be manually selected (**Don't Follow**).
X DeadZone	Select the amount that the positioner can be moved from the rest/zero position in the x-axis before the switcher acts on the movement. This can help prevent drift when the positioner is at rest/zero.
Y DeadZone	Select the amount that the positioner can be moved from the rest/zero position in the y-axis before the switcher acts on the movement. This can help prevent drift when the positioner is at rest/zero.
Z DeadZone	Select the amount that the positioner knob can be twisted from the rest/zero position in the z-axis before the switcher acts on the movement. This can help prevent drift when the positioner is at rest/zero.

To Configure SideStick Buttons/Pages

The mnemonic buttons on the SideStick module can be assigned to various functions. The button functions are presented on pages. Each page can have custom functions assigned to each button with the exception of some global functions. Global functions are the same across all pages. All assignments are specific to the selected SideStick module

1. Press **HOME** > **Setup** > **Personality** > **More** > **SideStick Settings** > **Set Button Type**.

The buttons on the menu represent the mnemonic buttons on the SideStick module.

2. Press the **SideStick*X*** button for the SideStick module you want to configure.

3. Select the mnemonic button that you want to configure and use the **Type** knob to assign a function to that button.

   - **None** — no function is assigned to the button.
   - **Page Select** — put the SideStick module into selection mode where some of the remaining buttons can be used to switch to another page or assign the SideStick module to a specific camera.
   - **On Air** — assign the SideStick module to the camera that is tallied as on-air.
   - **Preset** — assign the SideStick module to the camera that is tallied as on preset.
   - **Configurable** — allow the button to have a different function on each page.

4. Press **Configure Pages**.

   Note: Only those buttons that were assigned an Configurable can be assigned a different function.

5. Select the button that you want to assign a camera to and use the **Page Type** knob to select functionality you want to assign.

   - **None** — the button remains as a page selection button.
   - **Camera** — use the **Params** knob to select **Camera** and the **Camera** knob to select the camera you want to assign the button to.

   Tip: You can assign a custom control to a page or camera button. When the button is pressed, the custom control is run at the same time as the assigned function.

6. Press **Configure Buttons**.

   Note: Only those buttons that were assigned an Configurable can be assigned a different function.

7. Use the **Page** knob to select the page that you want to set up and use the **Params** knob to assign functions to the buttons on the page.

Param	Type	Description
Type	None	Assign to a button that you want use to select a different page. The button will use the page selection from **Configure Pages**.
	Camera	Assign to a button that you want use to select a different camera. The button will use the camera selection from **Configure Pages**.
	Next	Select the next camera in the list.
	Previous	Select the previous camera in the list.
CustCtrl		Use the **CustCtrl** knob to select the custom control that you want to assign to the selected button.
Go to page		Use the **Go to page** knob to select the page that you want to jump to.
Camera		Use the **Camera** knob to select the camera that you want to assign to the selected button
Mode		Use the **Mode** knob to select how the positioner is used to control the active camera.
Shot		Use the **Shot** knob to select the shot on the camera that you want to recall. The camera must support shot recalls.
Duration		Use the **Duration** knob to select the length of time, in seconds, that it takes for the camera to move to the recalled shot. The camera must support shot duration.

To Name a SideStick Button

1. Press **HOME** > **Setup** > **Personality** > **More** > **SideStick Settings** > **Config Button Label**.

2. Use the bottom knob to select the button that you want to name.

3. Enter the new name in the **New Name** field.

4. Use the **Font** knob to select the size and layout of the font you want to use on the mnemonic displays.

5. Use the **Color** knob to select the color you want to use for the mnemonics. This can be the background or text color, depending on whether you have selected an invert font.

- **Standard** — use the standard mnemonics color.
- **Green** — use a green color.
- **Red** — use a red color.
- **Blue** — use a blue color.
- **Yellow** — use a yellow color.
- **Orange** — use an orange color.
- **Purple** — use a purple color.
- **ME *X* Glow** — use ME Glow color *X*.
- **Aux Glow** — use the aux glow color.
- **CC Glow** — use the CC glow color.
- **User Color *X*** — use User Color *X*.
- **None** — don't use a color for the mnemonic.

6. Press **Accept New Name**.

Color Correction

Color correction is performed by either Processing Amplifiers (Proc Amps) in the HSL (Y-Cr-Cb) color space or by RGB Color Correctors in the RGB color space. Both Proc Amps and RGB Color Correctors allow you to apply color correction to video sources on the fly to input video signals, entire buses, or aux bus outputs.

- **Input Based Correction** — color correction is applied to the video input regardless of which ME or Aux Bus it is selected on. Input-based color correction is not stored in switcher memories. Only supported on the MultiProcessor Input board.
- **ME Input Based Correction** — color correction is applied to a video input on the ME. Color correction is only applied to the video signal when it is selected on an ME, and not when the same signal is selected on a MultiViewer or Aux. Color correction will follow the source from ME to ME.Not required with the MultiProcessor Input boards.
- **ME Bus Based Correction** — color correction is applied to the entire bus of the selected ME. Any source selected on that bus has the color correction applied to it. Unlike the other color correction types, bus-based color correction is stored and recalled with memories. This allows you to include a color correction element as part of an effects dissolve.
- **Aux Bus Based Correction** — color correction is applied to the output of an Aux Bus. Like input-based color correction, Aux Bus color correction is not stored in switcher memories.

Color correction is additive, allowing you to apply any combination of Proc Amp and RGB Color Corrector based adjustment to a video signal on the input, as well as on the bus. If multiple color corrections are applied, the input-based correction is applied first, and the bus-based correction is applied after that.

Proc Amp Color Correction

The Proc Amp video correction allows you to adjust the gain, black level, and gamma of the video signal.

To Apply Proc Amp Video Correction to a Source

Both the **Input Proc Amp Mode** menu and **Bus Proc Amp Mode** menu work the same. The rest of this procedure shows the **Input Proc Amp Mode** menu, but the procedures apply to both.

> **Tip:** You can revert the color correction back to the default settings by pressing the **Default** button.

1. Double-press the source button for the input video source, or bus, that you want to apply the Proc Amp to.
2. Press **Input Proc Amp** or **Bus Proc Amp** to select the type of proc amp that is applied.
   - **Input Proc Amp** — input-based color correction. The input BNC that is displayed on the menu is used.
   - **Bus Proc Amp** — bus-based color correction. The ME and bus that is displayed on the menu is used.
3. (Optional: Input Proc Amp Only) Use the **Color Gamut** buttons to set the color gamut of the source.

   > **Tip:** If the color gamut or dynamic range differ from what the switcher is operating in they will be converted.

   > **Note:** There are restrictions on the types of HDR and color gamut conversion you can do, and you can adjust the scaling of the conversion. Refer to *High Dynamic Range (HDR) and Wide Color Gamut (WCG) Conversion* on page 90 for more information.

   - **BT.709** — color gamut recommended for HD video signals.
   - **BT.2020** — wide color gamut recommended for UHDTV1 video signals.
4. (Optional: Input Proc Amp Only) Use the **Dynamic Range** buttons to set the dynamic range of the source.
   - **SDR** — Standard Dynamic Range.
   - **HLG** — Hybrid Log Gamma.
   - **PQ** — Perceptual Quantizer.
   - **S-Log3** — Sony® S-Log3.
5. Press **Gain** and use the **Gain**, **Chroma Gain**, and **Lum Gain** knobs to adjust the gain.
   - **Gain** — adjust the luminance and chrominance gain simultaneously.
   - **Chroma Gain** — adjust only the chrominance gain.
   - **Lum Gain** — adjust only the luminance gain.

6. Press **Cr Adjust** and use the **Cr Gain** and **Cr Offset** knobs to adjust the red color difference component.

- **Cr Gain** — adjust the gain of the red color difference.
- **Cr Offset** — adjust the offset of the red color difference.

7. Press **Cb Adjust** and use the **Cb Gain** and **Cb Offset** knobs to adjust the blue color difference component.

- **Cb Gain** — adjust the gain of the blue color difference.
- **Cb Offset** — adjust the offset of the blue color difference.

8. Press **Hue/Black Level** and use the **Hue Rotate** and **Black Level** knobs to adjust the hue and black levels.

- **Hue Rotate** — increasing the hue rotation turns the color wheel clockwise, and decreasing the hue rotation turns the color wheel counter-clockwise.
- **Black Level** — acts as a luminance offset and moves the line towards the top left or bottom right corner on the luminance graph.

9. Press **Lum Gamma** and use the **Gamma Value** and **Gamma Offset** knobs to adjust luminance gamma.

- **Gamma Value** — adjust the luminance gamma control point.
- **Gamma Offset** — adjust the luminance gamma offset of the control point.

RGB Color Correction

The RGB Color Correctors allow you to adjust the red, green, and blue component gain, offset, and gamma of the video signal.

To Apply RGB Color Correction to a Source

Both the **Input RGB Mode** menu and **Bus RGB Mode** menu work the same. The rest of this procedure shows the **Input RGB Mode** menu, but the procedures apply to both.

*Tip: You can revert the color correction back to the default settings by pressing the **Default X** button for the component you want to default.*

1. Double-press the source button for the input video source, or bus, that you want to apply the RGB color corrector to.

2. Press **Input RGB** or **Bus RGB** to select the type of RGB color corrector that is applied.

- **Input RGB** — input-based color correction. The input BNC that is displayed on the menu is used.
- **Bus RGB** — bus-based color correction. The ME and bus that is displayed on the menu is used.

3. (Optional: Input RGB Only) Use the **Color Gamut** buttons to set the color gamut of the source.

Tip: If the color gamut or dynamic range differ from what the switcher is operating in they will be converted.

Note: There are restrictions on the types of HDR and color gamut conversion you can do, and you can adjust the scaling of the conversion. Refer to High Dynamic Range (HDR) and Wide Color Gamut (WCG) Conversion on page 90 for more information.

- **BT.709** — color gamut recommended for HD video signals.
- **BT.2020** — wide color gamut recommended for UHDTV1 video signals.

4. (Optional: Input RGB Only) Use the **Dynamic Range** buttons to set the dynamic range of the source.

- **SDR** — Standard Dynamic Range.
- **HLG** — Hybrid Log Gamma.
- **PQ** — Perceptual Quantizer.
- **S-Log3** — Sony® S-Log3.

5. Press **Red Adjust**, **Green Adjust**, or **Blue Adjust** to adjust an individual color component, or **RGB Adjust** to adjust all three simultaneously.

6. Use the **Gain**, **Offset**, and **Lower Offset** knobs to adjust the selected color component(s).

- **Gain** — adjust the gain of the selected component(s).
- **Offset** — adjust the offset of the selected component(s). Offset moves the line towards the top left or bottom right corner of the graph.
- **Lower Offset** — adjust the lower offset, lift, of the selected component(s). The lower offset moves the minimum point on the graph along either the vertical axis or horizontal axis.

7. Press **Red Gamma**, **Green Gamma**, or **Blue Gamma** to adjust the gamma of an

individual color component, or **RGB Gamma** to adjust all three simultaneously.

8. Use the **Gamma Value** and **Gamma Offset** knobs to adjust the gamma of the selected color component(s).

   * **Gamma Value** — adjust the gamma control point of the selected component(s).
   * **Gamma Offset** — adjust the offset of the gamma control point of the selected component(s). The gamma offset control point value moves the control point along the graph line and the gamma value alters how much perpendicular offset is applied to the control point.

Defaulting Color Correctors

You can default each color corrector element as you are adjusting them, or you can default all the inputs or buses that you have applied color correction to.

To Default a Color Corrector

1. Double-press a source button for the color corrector that you want to default.

2. Press **More**.

3. Press **Default Bus & Inputs** or **Default All Inputs** to default the selected color corrects.

   * **Default Bus & Inputs** — default the color correctors assigned to the current source or bus.
   * **Default All Inputs** — default all color correctors.

4. Press **Confirm**.

Copying and Pasting Color Correctors

Once you have applied Proc Amp and RGB Color Corrector adjustments to a specific input or video bus, you can copy these settings to other inputs or buses.

To Copy and Paste a Color Corrector

1. Double-press a source button for the color corrector that you want to copy.

2. Press **More**.

3. Press **Copy Input** to copy an input based color corrector, or **Copy Bus** to copy a bus based color corrector.

4. Toggle **HOLD** to on. This locks the menu system to the current menu.

5. Press a different source button to select the source or bus that you want to copy the color corrector settings to. The current selection is shown in the upper left corner of the menu.

6. Press **Paste Input** or **Paste Bus** to paste the color corrector setting.

   A new color corrector is assigned if one was not already assigned to the input or bus.

7. Toggle **HOLD** to off.

High Dynamic Range (HDR) and Wide Color Gamut (WCG) Conversion

The RGB color correctors are used to convert between different SDR and HDR ranges and between color gamuts (WCG).

> **Note:** *HDR and WCG input conversion is only supported on the MultiProcessor Input and 12G MultiProcessor Input boards. Output conversion is supported on any Video Output board.*

HDR and WCG conversion can be applied on the fly to input video signals, entire buses, or aux bus outputs.

To configure the dynamic range and color gamut conversion of input sources you must set the MultiProcessor Input to a mode that supports HDR/WCG conversion. This will convert the input source to the format that the switcher is operating in. Video signals can again be converted for individual output BNCs.

Supported Color Gamuts:

- **BT.709** — color gamut recommended for HD video signals.
- **BT.2020** — wide color gamut recommended for UHDTV1 video signals.

Supported Dynamic Ranges

- **SDR** — Standard Dynamic Range.
- **HLG** — Hybrid Log Gamma.
- **PQ** — Perceptual Quantizer.
- **S-Log3** — Sony® S-Log3.

Supported HDR and WCG Conversion

The switcher supports both dynamic range and color gamut conversion.

> **Note:** *The switcher uses the color correctors for conversion.*

Table 14: Supported HDR/Color Gamut Conversion

Input	Supported Conversions
SDR BT.709	HLG BT.709
	PQ BT.709
	S-Log3 BT.709
	SDR BT.2020
	HLG BT.2020
	PQ BT.2020
	S-Log3 BT.2020
HLG BT.709	SDR BT.709
	PQ BT.709
	S-Log3 BT.709
	SDR BT.2020
	HLG BT.2020
PQ BT.709	SDR BT.709
	HLG BT.709
	S-Log3 BT.709
	SDR BT.2020
	PQ BT.2020
S-Log3 BT.709	SDR BT.709
	HLG BT.709
	PQ BT.709
	SDR BT.2020
	S-Log3 BT.2020
SDR BT.2020	SDR BT.709
	HLG BT.709
	PQ BT.709
	S-Log3 BT.709
	HLG BT.2020
	PQ BT.2020
	S-Log3 BT.2020
HLG BT.2020	SDR BT.709
	HLG BT.709
	SDR BT.2020
	PQ BT.2020
	S-Log3 BT.2020

Input	Supported Conversions
PQ BT.2020	SDR BT.709
	PQ BT.709
	SDR BT.2020
	HLG BT.2020
	S-Log3 BT.2020
S-Log3 BT.2020	SDR BT.709
	S-Log3 BT.709
	SDR BT.2020
	HLG BT.2020
	PQ BT.2020

HDR and WCG Conversion Methods

Conversion for HDR and WCG can be applied at a number of points in the video stream through the switcher. Where you apply conversion will depend on how you want to use the video.

- **Switcher** — the switcher is operating in a particular HDR and WCG mode. These are the color gamut and dynamic range that all sources are converted to and all outputs are set to. Refer to *To Set a Reference Format* on page 21 for information.
- **Input Conversion** — conversion is applied to the input video to match the mode the switcher is operating in. Like video format conversion, you must select the HDR and WCG that the source is coming into the switcher in. The switcher will then convert the video to the same color gamut and dynamic range that it is operating in. Refer to *To Set Up Video Sources* on page 25 for information.
- **Output Conversion** — conversion is applied to the output video. You can set an output to convert the color gamut and dynamic range of any video source being fed out it. This conversion is only applied to the selected output. Refer to *To Assign an Output Source to an Output BNC* on page 33 for more information.
- **Individual Conversion** — the internal color correctors are used to convert a particular source on a particular bus. You can manually convert a source on a bus and use the color correction menu to adjust the video. Refer to *To Apply Proc Amp Video Correction to a Source* on page 87 for more information.

To Set the Scaling for Dynamic Range Conversion

You can set the scaling used for the HDR conversion. These values are applied universally when video is converted from one range to another.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Reference** > **Dynamic Range**.
2. Use the **Convert from** knob to select the range you will be converting from.
3. Use the **Convert to** knob to select the range you will be converting to.
4. Use the **Gain** knob to select the linear optical scale you want to use for this conversion.

   Note: *Only supported conversions are shown.*

   Tip: *Press **Default** to return the scale back to the default value.*

5. Repeat this procedure for each conversion scenario you want to adjust the linear scaling for.

HDR and WCG Reset

You can reset both the input and output correction to a particular settings.

To Reset HDR/WCG on Inputs

You can select the particular dynamic range and color gamut that you want to reset all video inputs to.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Reference**.
2. Use the **Color Gamut** and **Dynamic Range** buttons to select the format you want to reset the inputs to.
3. Press **Reset Input CG/DR**.
   The format that you are resetting the inputs to is shown on the confirmation page.
4. Press **Confirm.**.

To Reset HDR/WCG on Outputs

You can select the particular dynamic range and color gamut that you want to reset all video outputs to.

1. Press **HOME** > **Setup** > **Installation** > **More** > **Reference**.
2. Use the **Color Gamut** and **Dynamic Range** buttons to select the format you want to reset the outputs to.

3. Press **Reset Output CG/DR**.
   The format that you are resetting the outputs to is shown on the confirmation page.
4. Press **Confirm.**.

SmartConversion

SmartConversion, with Aux Bus Tie Line Management technology, is an up/down conversion loopthrough that allows you to produce an output video that uses both SD and HD inputs simultaneously. With all buses in the switcher supported, including key and utility buses, true multi-format production is extremely easy. Simply route the signal to be converted through one of the aux bus outputs to an external cross converter, and re-enter the converted signal back into a switcher input.

> *Note: SmartConversion is not supported on the MultiProcessor Input or Evertz® IP Input boards.*

Conversion Loops

Each conversion loop has an output BNC that goes to the up/down converter and an input BNC that comes from the up/down converter. Along with the input and output BNCs, each conversion loop is assigned an input and output video format. This allows SmartConversion to route video signal that need to be converted to the proper format.

> *Tip: Up/down converters can only be used on a single video signal at a time. You should plan ahead to ensure that you will have enough up/down converters of each video format for all the video signals you will want on-air at any one time. This includes video signals that are being transitioned off-air.*

A conversion loop ties an aux bus output and an input BNC together so that when SmartConversion sends a video signal out to an up/down converter, it knows on which input BNC the converted video signal is returned on.

> *Note: You cannot use an aux bus for SmartConversion and an AuxKey at the same time.*

To Set Up a Conversion Loop

> *Tip: If you want the video selections for the aux buses that you are using for up/down converters to be stored in memories, you must enable aux bus in the memory attributes.*

1. Press **HOME** > **Setup** > **Installation** > **Aux Bus** > **Ext Device Assign**.
2. Use the **Aux Bus** knob to select the aux bus output that is connected to the input of your up/down converter.

   This is the video signal that needs to be converted. The aux bus name and number is used to identify the conversion loop on the switcher.

3. Use the **BNC** knob to select the input BNC that is connected to the output of your up/down converter.

   This is the video signal that has been converted.

4. Use the **Tally when** knob to select **XPT On Air**.

   This allows the switcher to identify when a video signal is going on-air, and needs to be converted.

5. Press **SmartConversion** > **Aux To Converters**.
6. Use the **Aux Bus** knob to select the aux bus output that is connected to the input of your up/down converter.
7. Use the **Used for Conv.** knob activate the selected conversion loop (**Yes**), or turn the conversion loop off (**No**).

   > *Note: If an aux bus is set up as an AuxKey, you cannot assign it to a SmartConversion loop.*

8. Use the **Delay** knob to select the amount of time that is required for the up/down converter to convert the video signal and send it back to the switcher.
9. Press **Converter Format**.
10. Use the **Input Format** knob to select the video format that is being sent to the up/down converter.
11. Use the **Output Format** knob to select the video format that is being received from the up/down converter.
12. Press **HOME** > **Confirm**.

SmartConversion Setup

You can specify which MEs and video feeds that SmartConversion is used on. This allows you to turn SmartConversion on or off for specific ME video feeds or lock a specific conversion loop to an ME or key. The display on the Fade to Black module can be used to show the number of conversion loops that are still available.

To Enable a Bus to Use SmartConversion

Selecting which buses, or video signals, SmartConversion can convert allows you to prevent SmartConversion from converting video signals that you want to remain in non-native video format. This will also help to limit the

usage of conversion loops for buses that do not need to be converted.

1. Press **HOME** > **Setup** > **Installation** > **Aux Bus** > **SmartConversion** > **Bus Disabling**.

2. Use the **Bus** knob to select the bus, or video source, that you want to assign to use SmartConversion.

   • **ME*X* Program** — ME *X* Program
   • **ME*X* Program** — ME *X* Program
   • **ME*X* K*Y* Video** — ME *X* Key *Y* video
   • **ME*X* K*Y* Alpha** — ME *X* Key *Y* alpha
   • **ME*X* Utility*Y*** — ME *X* Utility Bus *Y*
   • **ME*X* DSK*Y* Video** — ME *X* DSK *Y* video
   • **ME*X* DSK*Y* Alpha** — ME *X* DSK *Y* alpha
   • **ME*X* K*Y* BackV** — ME *X* Key *Y* backside video
   • **ME*X* K*Y* BackA** — ME *X* Key *Y* backside alpha
   • **Aux Bus *X*** — Aux Bus *X*

3. Use the **Conv. Enable** knob to allow the selected bus to use SmartConversion (**Yes**), or not (**Off**).

4. Press **HOME** > **Confirm**.

To Lock a Conversion Loop to a Bus

You can lock a specific conversion loop to a bus. This dedicates that up/down converter to the selected bus preventing SmartConversion from using it somewhere else.

1. Press **HOME** > **Setup** > **Installation** > **Aux Bus** > **SmartConversion** > **Converter Locking**.

2. Use the **Aux Bus** knob to select the conversion loop you want to lock to a bus.

3. Use the **Lock To Bus/Pair** knob to select the bus, or bus pair, that you want to lock the selected conversion loop to.

   • **None** — the conversion loop is floating.
   • **ME*X* BKGD+PST** — the conversion loop is locked to the background and preset buses of the ME. You should lock two conversion loops to pair to ensure that there is a conversion loop for each bus.
   • **ME*X* Key*Y*** — the conversion loop is locked to the key bus of the ME.
   • **Aux Bus *X*** — the conversion loop is locked to the aux bus.

4. Press **HOME** > **Confirm**.

To Set the Fade to Black Display Mode

The display on the Fade to Black module can display either the current fade rate or the number of available up/down converters.

1. Press **HOME** > **Setup** > **Personality**.

2. Use the **Option** knob to select **FTB**.

3. Use the **Value** knob to select whether the display on the Fade to Black module shows the fade to black transition rate (**FTB**), or the number of available conversion loops (**SmrtConv**).

Status

Switcher status information helps to diagnose problems and communicate your current setup to technical support.

Software Version

Software version provides information on the software version that is running on the control panel, and frame, as well as the IP addresses of the control panel and frame, and the size of the Global-Store.

To View Software Version Information

Press **HOME** > **Status** > **Version Info**.

Switcher Status

The web interface provides an overview of all the boards, cards, and modules in the frame and control panel, as well as their current status.

To View the Switcher Status Pages

1. Open a web browser and navigate to the IP address of the switcher frame. You are prompted to enter a user name and password. The defaults are **user** and **password**.
2. Click **Status...** and select the status page you want to view.
   • **Software Status** — lists all the boards in the frame and the software status of the components on those boards.
   • **System Status** — lists the current hardware status of the control panels and frame, including memory/disk/flash usage, power and temperature levels, as well as allowing you to download a status file.
   • **Frame Boards** — lists all the boards in the frame, their part number, hardware revision, and current software version.

Software Status Overview

This page provides a list of all the functional components in the frame of the switcher. Components are identified by the slot in the frame they are installed in. For each of these components, the current version of software that is running on the it, the date of the software

build, and the current status of the component are displayed.

• **Component** — The name of the board or card that is installed in the frame.
• **Function** — The function component on the board or card. These functional components can be chips, processors, or applications/processes running on the boards, cards or modules.
• **Slot** — The slot on the front or rear of the frame that a particular board is installed in.
• **Version** — The current software version and build number that is running on the component. If a component is running a different software version than the other components on the switcher, this may indicate a problem with that component.
• **Date** — The date of the software that is running on the component. This is not the date that the software was upgraded, but the date that the software upgrade was created. This date, along with the version number, helps a Ross Video Technical Support person correctly identify the software you are running.
• **Status/Message** — The status of the component upgrade.
   • ⚠ **Pending** — requires upgrading and is in the queue to be upgraded.
   • ⚠ **In Progress** — being upgraded.
   • ⚠ **No Status** — has not reported a status. It could be rebooting, or there is a failure. If this message remains on for an extended period of time, contact Ross Video Technical Support.
   • ⛔ **Failed** — reporting a failure to upgrade. Contact Ross Video Technical Support.
   • 🟢 **Initializing** — being initialized.
   • 🟢 **Done** — has been upgraded successfully.

System Status Overview

The system status page provides information on various aspect of the health of the switcher. These are broken into storage (Frame Info), frame health (Frame Status), and panel health (Panel Status).

> **Tip:** Click **Get Current System Status File** to download a file with a printout of the current status of the switcher.

Frame Info

This region provides a list of all the storage both used and available on the switcher. This includes the hard drive located on the Frame CPU board, as well as the flash memory located on the other boards and cards on the switcher.

Note: *If the message* `Hard disk log contains errors!` *is displayed, contact Ross Video Technical Support for information on diagnosing this warning.*

Note: *A warning is displayed if the hard drive reaches 90% full. Consider clearing out some of the contents of the drive to improve performance.*

Frame Status

This region provides a list of all the critical components in the frame and the health and status of them.

Panel Status

This region provides a list of all the critical components in the master and satellite control panels and the health and status of them.

Frame Boards

This page provides a list of all the boards in the frame along with their part number, slot they are installed in, and hardware version.

Status and Warnings

The operational status of all the critical components in the switcher are monitored and reported. This provides information on operating temperatures, hard drive condition, fans, and power supplies.

Tip: *If the Switcher Status button on the quick navigation region of the menu show a caution or failure symbol, you can press the menu to go directly to the **Status** menu.*

To View the Status of the Switcher

Press **HOME** > **Status** and select the type of status information you want to view.

- **Complete Status** — view the status of all components in the switcher.
- **Warnings** — view the status of only the components that are indicating a warning.

Status Definitions

If a board, card, or power supply is not present in the system, it is not shown on the list.

Table 15: Status Icons

Icon	Definition
🟢	Indicates that a component or condition is operating properly.
⚠️	Indicates that a condition is outside of the normal operating parameters. For example, the temperature inside the panel may be slightly above or below the safe operating temperature.
⛔	Indicates a major problem with a component or condition that the switcher is monitoring. For example, the temperature inside the control panel could be dangerously above or below the safe operating temperature. The fail icon will also indicate control panel modules that are not properly assigned to rows.

Table 16: Status Definitions

Component	Definition
3D DVE Card Temperatures	Are the 3D DVE cards in the frame operating in the normal temperature range.
Crosspoint Board Temperature	Is the 4RU Crosspoint or 8RU Crosspoint board in the frame operating in the normal temperature range.
Device Driver Status	What is the status of the FlexDevice drivers that are currently installed on the switcher. A driver can be OK, Obsolete, or Unsupported.
Frame Application Flash	The status of the flash memory used for the application on the Frame CPU.
Frame CAN Bus	Are the internal communications between components in the frame working properly.
Frame Fans	Are the cooling fans in the frame operating normally, or have a number of fans failed.
Frame Graphics Buffer FPGA Temperature	Is the graphics buffer FPGA operating in the normal temperature range. If the graphics buffer goes over temperature, it is shut down and a warning message is shown on the display.
Frame Power Supplies	Are there enough power supplies in the frame, are they operating normally, or is one, or more, of them failing. If the status for the power supply is `Temperature not available`, the temperature sensor in the power supply is not functioning normally. A warning is displayed if a power supply is drawing more than 50A, indicating a possible problem with the power supply or configuration of the frame. A popup and warning is displayed if the current (Amps) range across multiple power supplies is more than 25A, indicating that load sharing may not be functioning. Contact Ross Video Technical Support.

Component	Definition
Frame Power Supply	Are the power output and temperature of the power supplies in the frame.
Frame Power Supply Fans	Are the fans in the frame power supplies operating normally.
Frame Present	A frame has been detected and is communicating with the control panel. If the message, `Unsupported frame board configuration.` is displayed, one or more of the boards in the frame is in the wrong slot.
Frame System Flash	The status of the flash memory used for the system functions on the Frame CPU.
Frame Temperature	The temperature of the air coming into the frame (inlet temperature) is in the normal range.
Frame Uptime	The length of time that the frame CPU has been up and running.
Global Still-Store Memory Size	What is the total amount of cache available for the Global-Store.
Hard Drive Status	Is the hard drive on the Frame CPU board reporting any Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.) warnings or has experiences a complete failure. If a warning or failure is displayed, contact Ross Video Technical Support for information on diagnosing the warning or replacing your hard drive.
Input Board Temperature	Are the video input boards operating in the normal temperature range and is the on-board fan operating normally. IP Input Board refers to the Evertz® IP Input board.
Output Board Temperature	Are the video output boards operating in the normal temperature range and is the on-board fan operating normally. IP Output Board refers to the Evertz® IP Output board.
Panel and Frame Software Versions	Is the software version on the control panel the same as the software version on the frame. An upgrade must to be performed so that both the frame and the control panel are on the same software version.
Panel Fans	Are the cooling fans in the control panel operating normally, or has one, or more, of them failed. The Power Supply Modules that contain the cooling fans are closed units and not field serviceable. If a fan needs to be replaced, the entire module is replaced.
Panel Flash Drive Size	What is the size of the main drive in the control panel.
Panel Module Discovery	Have the modules on the control panel been successfully discovered and set up. If a module is not properly set up, or is not present, a warning is displayed.

Component	Definition
Panel OS Version	What is the current version of the Operating System running on the control panel Control Panel CPU module and is up to date.
Panel Power Supplies	Are the power supplies in the control panel operating normally, or has one, or more, of them failed.
Panel SBC	What is the model number of the single board computer installed in the control panel.
Panel Uptime	How long has the control panel CPU has been up and running.
PCH Temperature	Is the Panel Communications Hub operating in a safe temperature range.
PMC Status	Are the Panel Module Controllers running the current version of software.
Reference	Is the current input reference format properly locked. If the reference is not locked, the time when reference was lost is noted.
SBC CPU Temperature	Is the CPU in the Control Panel CPU module operating in the normal temperature range.
SBC Motherboard Temperature	Indicates whether the motherboard in the Control Panel CPU module is operating in the normal temperature range.
Stuck Buttons	Indicates whether there are any stuck buttons on the control panel.
Vid Board Temperatures	Are the 3G Video Processor boards in the frame operating in the normal temperature range.

Input Status

You can check if a video signal is present on any video input on the switcher. This can be used to diagnose missing video sources or cable connection problems.

To View the Input Status

Press **HOME** > **Status** > **Input Status**.

Only boards that are installed in the frame report the status of their video inputs.

A green or yellow indicator is shown for each input on the board. A green indicator shows that there is a valid video signal detected on that input. A yellow indicator shows that there is no valid video input detected on that input.

Non-Sync Status

You can check if a video signal into a MultiProcessor Input, selected on a source bus, or the video outputs of the switcher, is synchronized with the switcher reference format. The Non-Sync indicators serve as a warning only, indicating that the timing of the input should be fixed at the source. If the source is non-synchronous with the switcher reference format, cuts, dissolves and other effects can still be performed, but the source is shifted vertically.

If a non-synchronous source is selected on a crosspoint bus, and the non-sync detection feature is turned on, the crosspoint button flashes, indicating that the source is mistimed.

Refer to *Non-Sync Detection* on page 30 for information on turning non-sync detect on for a source.

To View the Non-Sync Status

1. Press **HOME** > **Status** > **Non-Sync Status** > **MultiProcessor Input Boards**.

   A green or yellow indicator is shown for each input on each MultiProcessor Input. A green indicator shows that the source is synchronized with the switcher reference. A yellow indicator shows that the source is not synchronized with the switcher reference.

2. Press **MEs**.

   A green or yellow indicator is shown for each bus on each ME. As you select different sources on each bus, the indicator updates, showing if the source is synchronized or not. A green indicator shows that the source selected on the corresponding bus and ME is synchronized with the switcher reference. A yellow indicator shows that the source selected on the corresponding bus and ME is not synchronized with the switcher reference. This source should be synchronized to the switcher reference from the source.

3. Press **Output Boards**.

   Note: *If an output is set to UHDTV1, only the first output in the group of four outputs that make up the UHDTV1 output is shown. The remaining outputs are grayed out.*

   A green or yellow indicator is shown for each output BNC on each Video Output

board installed in the frame. A green indicator shows that the video being output on the corresponding output BNC is synchronized with the switcher reference. A yellow indicator shows that the video being output on the corresponding BNC is not synchronized with the switcher reference.

Bus Selection Status

You can view what is selected on every bus of every ME on the switcher. This can be useful for diagnosing switcher behaviour.

To View the Bus Selection Status

Press **HOME** > **Status** > **More** > **ME XPT Status**.

Tx/Rx Status

The switcher tracks the status of the communication ports on the control panel and frame and records errors.

To View the Tx/Rx Status of the Control Panel Ports

Press **HOME** > **Status** > **More** > **Tx/Rx Status**.

The menu shows the current status of the remote ports (R1-R8), the external link ports (L2-L4), the network ports (P1-P64), and the communication between the control panel and the frame (Panel/Frame).

To View the Serial Tx/Rx Errors

1. Press **HOME** > **Status** > **More** > **Tx/Rx Errors**.

   Tip: *Press **Reset Count** to reset the error count. This will clear all the error counters on the control panel and frame.*

2. Use the **Panel** knob to select the port on the control panel that you want to view the errors for. The errors for the selected port are listed in the Panel Errors area.
   - **Total Errors** — view all errors for the ports on the control panel.
   - **ExtLnk *X*** — view errors for the external link ports only.
   - **REMOTE *X*** — view errors for the remote ports only.
   - **PAN NET *X*** — view errors for the panel network ports only.

3. Use the **Frame** knob to select the port on the frame that you want to view the errors for. The errors for the selected port are listed in the Frame Errors area.

- **Total Errors** — view all errors for the ports on the frame.
- **FRM2PAN** — view errors for the panel port only.
- **FMR NET** *X* — view errors for the frame network ports only.
- **PERIPH** *X* — view errors for the peripheral ports only.

FSFC Status

The switcher tracks the status of the frame synchronizers and format converters on the MultiProcessor Input and 12G MultiProcessor Input boards.

To View the FSFC Status

Press **HOME** > **Status** > **More** > **FSFC Status**.

The menu shows the current status of the Frame Syncs and Format Converters on each input board.

Running Custom Controls Status

The switcher provides a list of all running custom controls, including the panel they are running on and their current status.

To View the Custom Controls Currently Running

Press **HOME** > **Status** > **More** > **Custom Controls Running**.

The menu shows a list of all the custom controls that are currently running.

Options

Switcher options can be hardware or software based and are tied to the serial number of the switcher. You can view the installed options for your switcher, install new options, and backup the option codes for the software options installed on your switcher.

To Install a Serial Number

If the serial number of your switcher appears as 0000000, you need to install a new serial number.

1. Press **HOME** > **Setup** > **Installed Options** > **Enter Serial Number**.
2. Call Ross Video at the number shown on the menu.

   Have the following information available when you call:

   * Your name.
   * The name of the facility that the switcher is installed in.
   * The Ross Encrypt Code that is shown on the menu.

   > **Note:** *The Encrypt Code is regenerated every time the switcher is powered on.*

3. Use the keypad on the Global Memory module to enter the numeric code you are given by Ross Video Technical Support, including any leading zeros.
4. Press **Finished**.

Installed Options

Only the master control panel can access the **Installed Options** menu.

1. Press **HOME** > **Setup** > **Installed Options** > **Software Options**.
2. Use the middle knob to scroll the list of options.

   * **Router** — adds support for router control.
   * **Character Generator** — adds support for character generator control.
   * **Small Audio Mixer** — adds support for small audio mixer control.

   * **Large Audio Mixer** — adds support for large audio mixer control.
   * **Robotic System** — adds support for robotic camera system control.
   * **3G (1080p)** — adds support for 3G video formats.
   * **ME** *X* — adds support for the selected ME. May require additional hardware.
   * **8 Keys in Full MEs** — adds support for 4 additional keys per full ME, for a total of 8 keys per full ME.

To Install a Software Option

> **Note:** *You cannot add software options using a Carbonite Black control panel.*

1. Press **HOME** > **Setup** > **Installed Options** > **Add Option**.
2. Call Ross Video at the number shown on the menu.

   Have the following information available when you call:

   * Your name.
   * The name of the facility that the switcher is installed in.
   * The serial number of the switcher you want to install the option on.
   * The name and code of the option you want to install.

3. Use the keypad on the Global Memory module to enter the numeric code you are given by Ross Video Technical Support, including any leading zeros.

   > **Note:** *Temporary option codes are only valid for 72 hours, or until the switcher is powered down.*

4. Press **Finished**.

To Backup Options Codes

The switcher uses the active disk type for storing and recalling option codes. You must set the disk and then perform the backup or recall.

1. Press **HOME** > **Disk**
2. Use the **Disk Type** knob to select whether you want to use the hard drive of the switcher (**Hard Drive**), or a USB drive (**USB**).

   > **Note:** *You cannot store or recall files from the USB on the Acuity Rack Panel server. You must store or recall the files from the **Local Disk** and access it over the network. Point your file explorer to the* `localdisk`

3. Press **HOME** > **Setup** > **Installed Options** > **More**.

> **Important:** *The **Delete Selected SW Option** and **Delete All SW Options** commands allow you to delete selected, or all, installed software options. Do not attempt to delete your options unless instructed to by Ross Video Technical Support. Ensure that you have stored your option codes before attempting to delete the options.*

4. Press **Backup Codes To USB**/**Backup Option Codes**.

To Recall Options Codes

The switcher uses the active disk type for storing and recalling option codes. You must set the disk and then perform the backup or recall.

1. Press **HOME** > **Disk**

2. Use the **Disk Type** knob to select whether you want to use the hard drive of the switcher (**Hard Drive**), or a USB drive (**USB**).

> **Note:** *You cannot store or recall files from the USB on the Acuity Rack Panel server. You must store or recall the files from the **Local Disk** and access it over the network. Point your file explorer to the localdisk folder on the server (\\##.##.##.##\localdisk). The user name is nobody and there is no password.*

3. Press **HOME** > **Setup** > **Installed Options** > **More**.

> **Important:** *The **Delete Selected SW Option** and **Delete All SW Options** commands allow you to delete selected, or all, installed software options. Do not attempt to delete your options unless instructed to by Ross Video Technical Support. Ensure that you have stored your option codes before attempting to delete the options.*

4. Press **Recall Codes From USB**/**Recall Option Codes**.

Calibration

Calibration allows you to reset the limits of the faders on the control panel, re-center the positioner with X, Y and Z limits, and align the touchscreen display.

Calibration can also be used to have the LEDs in the buttons of the control panel display in a calibrated, or uncalibrated mode. When the control panel is manufactured, the LEDs for each button are calibrated to a single standard so that all the buttons appear as a consistent color. This color offset is stored in each module.

To Calibrate the Fader and Positioner

1. Press **HOME** > **Setup** > **Installation** > **More** > **Calibration** > **ADC Calibration**.
2. Move a fader handle from one limit to the other and back again. Be sure not to pressure the fader into the stop. Doing so may make it difficult to end a transition, or cause the fader to accidentally start a new transition when it is released.
3. Move the positioner forwards and backwards, left and right, and twist the positioner clockwise and counter-clockwise. This calibrates the positioner in all three directions.
4. Press **Accept**.
5. Press **HOME** > **Confirm**.

To Turn Button LED Calibration Off

1. Press **HOME** > **Setup** > **Installation** > **More** > **Calibration**.
2. Use the **LED Calibration** knob to turn the calibration of the LED buttons off (**Yes**), or use the calibration offsets (**No**).
   - **Yes** — the factory installed calibration offset values are not used. The LED buttons may appear to be slightly different colors.
   - **No** — the factory installed calibration offset values are used.
3. Press **HOME** > **Confirm**.

Control Panel Diagnostics

The control panel supports a number of diagnostic tests that can be used to identify issues with your switcher.

These tests are designed to be used by Ross Video Technical Support and other qualified Ross Video personnel.

Installed Control Panel Boards

You can view the specifications of the Control Panel CPU module, the current Operating System (OS) version, and the status of the power supplies in the control panel.

To View the Installed Control Panel Boards

Press **HOME** > **Setup** > **Installed Options** > **Panel Boards**.

The Board column lists all the boards installed in the control panel, and their current status, as well as any USB devices connected to the panel.

Module Tests

These tests allow you to test the functionality of the knobs, buttons, faders, and positioner of the switcher, as well as test the color of the buttons. Additional tests are provided for the control panel displays and the memory for each module.

To Perform a Button Color Test

The button color test allows you to test the LEDs in each button on a module. Each Button LED on the module illuminates, and then transition to the next LED, cycling through the different colors. The brightness of the LEDs is also be cycled between max and min brightness.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test**.
2. Press **LED Test**.
3. Press the button that you want to test.

    All buttons on the module should change at the same time, and the colors and brightness should be consistent.

To Perform a Button Function Test

The button function test allows you to test if the buttons on the control panel are working properly or not. This test requires you to press the button that you want to test and the switcher reports where and what that button is.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test** > **Device Test**.
2. Press the button that you want to test.

    The name or function of the button is listed on the menu, as well as the module and hardware location of the button.

3. Confirm that the button you pressed is the one that is shown on the menu.
4. Double-press **Exit**.

To Perform a Stuck Button Test

The stuck button test allows you to identify any and all buttons that the switcher reports as being stuck. A button is considered to be stuck when it is held for more than 30 seconds.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test** > **Stuck Buttons**.
2. Any buttons that the switcher reports as being stuck are listed on the menu. The button is identified by the module it is on, as well as the label of the button.

To Perform a Fader Test

The fader test allows you to test the functionality of the faders on the control panel. This test requires you to move the fader that you want to test from one limit to the other. The switcher reports where that fader is, and whether the fader has been moved from one limit to the other.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test** > **Device Test**.
2. Move the fader that you want to test.

    The illustration of the fader handle moves as you move the fader on the control panel. The module and hardware location of the fader are displayed on the menu.

3. Double-press **Exit**.

To Perform a Positioner Test

The positioner test allows you to test the functionality of the positioner on the control panel. This test requires you to move the positioner left and right, up and down, as well as twist it. The switcher reports where that positioner is, and how it is being moved.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test** > **Device Test**.

2. Move the positioner forward and backward, left and right, and twist the knob.

An illustration of the positioner on the menus shows the movement of the positioner. As you move the positioner, the X, Y, and Z value for the positioner are displayed.

3. Double-press **Exit**.

To Perform a Control Panel Display Test

The control panel display test allows you to test the color pixel functionality of all the displays and mnemonics on the control panel. Each display and mnemonic on the control panel is illuminate, and then transitions to the next color, cycling through the different colors. The brightness of the displays and mnemonics is also cycled between max and min brightness.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test** > **Display Test**.

2. Confirm that all displays and mnemonics are changing at the same time, and that the colors and brightness are consistent.

To Perform a Knob Test

The knob test allows you to test the functionality of the knobs of the control panel.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test** > **Knob Test**.

2. Press **Change Only**.

3. Rotate the knob that you want to test.

An illustration of the knob is shown on the menu and the position graph is updated as the knob is rotated.

4. Press the knob that you want to test.

The text below the illustration of the knob changes from Up to Down when the knob is pressed.

To Perform a Module Memory Test

The module memory test allows you to test the integrity of the button and mnemonic memory used in a module.

Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test** > **Memory Test**.

The switcher tests each module on the control panel, including the touchscreen display, and report any errors on the menu.

To Perform an Audio Fader Test

The Audio Fader test allows you to test the functionality of the audio faders on the Audio Control module. This test moves the audio faders on the menu and on the module, and shows you which audio fader is currently being touched.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Module Test** > **Audio Fader**.

2. Use the **Link/Nodes** knob to select the Audio Control module that you want to test.

3. Move each audio fader on the Audio Control module and confirm that the menu shows the correct position of the slider. As you touch each audio fader, a finger icon appears below that fader on the menu.

4. Press **Up**, **Down**, or **Wave** to run one of the automated tests.

- **Up** — all the audio faders on the module move to the top position.
- **Down** — all the audio faders on the module move to the bottom position.
- **Wave** — all the audio faders on the module move up and down in a wave pattern.

Control Panel Power Supply Failure

The Acuity™ control panel can have a maximum of two power supply modules. Each power supply module can contain up to two power supplies. A failure of one of the power supplies in the power supply module requires the replacement of the entire module.

When a control panel power supply or cooling fan fails, the switcher identifies the failed component on the Status menu. Use this information to trouble-shoot the power supply module and replace it if required.

To Identify a Failed Power Supply

When the switcher reports that a power supply has failed, the failure could be in the power supply, or in the power distribution board for the control panel.

1. Press **HOME** > **Status** and identify which power supply is reporting a failure.

If you have the Redundant Power option installed, power supplies 1 and 2 are located in the Primary Power Supply module and power supplies 3 and 4 are located in the Secondary Power Supply module. If you do

not have the Redundant Power option, only the Primary Power Supply module is present with power supplies 1 and 2.
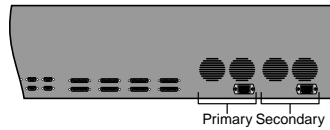
Figure 19: Power Supply Modules

2. Check the AC power cords for the failed Power Supply module. Ensure that they are securely plugged into the control panel power supply, as well as the power outlet.

3. If each Power Supply is connected to a separate circuit, check that there has not been an interruption to the AC power for the failed power supply.

4. Lift up on the control panel lid to gain access to the control panel tub.

5. Locate the Power Distribution board at the back of the tub above the Control Panel CPU module.

6. Using the Power Supply Indicators, identify the power supply that has failed. If a power supply is not providing power, or is not installed, the Power Supply Indicator is not lit.

   If all the Power Supply Indicators are lit, check the cables between the power supplies and the Power Distribution board.
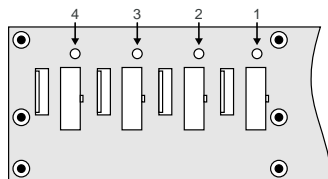
Figure 20: Power Indicators on Power Distribution Board

7. Remove the failed Power Supply module. Refer to *To Replace a Control Panel Power Supply* on page 117.

To Identify a Failed Cooling Fan

1. Press **HOME** > **Status** and identify which cooling fan is reporting a failure.

   If you have the Redundant Power option installed, cooling fans 1 and 2 are located in the Primary Power Supply module and cooling fans 3 and 4 are located in the Secondary Power Supply module. If you do not have the Redundant Power option, only the Primary Power Supply module is present with cooling fans 1 and 2.
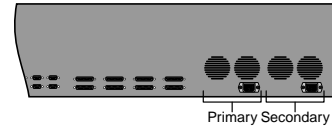
Figure 21: Power Supply Modules

2. Place a small piece of paper in front of each cooling fan in the Power Supply Module to determine if the fan is moving air.

3. If a cooling fan is not moving air, or is moving much less than the other fans, that Power Supply module must be replaced. Refer to *To Replace a Control Panel Power Supply* on page 117.

   If all the cooling fans appear to be moving air properly, check that the cables between the Power Supply module and the Power Distribution board are not damaged.

Panel Communications Hub Tests

The Panel Communications Hub (PCH) tests allow you to test the functionality of the PCH communication links with the various components of the switcher. Some of these tests require the use of a loopback adapter on the communications port.

To Perform a PCH Tx/Rx Test

The PCH Tx/Rx test allows you to test the various serial communications ports on the control panel. This test helps to diagnose communication problems with external devices that you may be having on a particular serial communications port on the control panel.

A loopback adapter is required to be connected to the port you want to test.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **PCH Test** > **Tx/Rx Test**.

2. Use the **Com Port** knob to select there serial port that you want to test.

   • **REMOTE X** — test one of the remote ports.
   • **ExtLnk X** — test one of the external link ports.

3. Use the **Mode** knob to select the transmission standard that you want to use to test the selected port.

   • **RS-422** — use the RS-244 (TIA/EIA-422) transmission standard.
   • **RS-422 Null** — use the RS-422 (TIA/EIA-422) transmission standard configured for a null modem cable.

- **RS-232** — use the RS-232 (TIA/EIA-232) transmission standard.

4. Press **Test**.

The outcome of the test is reported on the menu as passed or failed.

To Perform an LVDS Test

The Low Voltage Differential Signalling (LVDS) test allows you to test the various communications between the Panel Communications Hub (PCH) and all the Panel Module Controllers (PMC) installed on the switcher. This test includes both internal and external modules.

> *Note:* *Some external devices contain multiple modules and will show up as more modules than devices connected to a link.*

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **PCH Test** > **LVDS Test**.

2. Press **LVDS Links** to select whether you want to test the link to an internal panel module (**Intern**), or an external panel module (**Extern**).

> *Tip:* *If you want to test an LVDS link without connecting a module to it, you must connect a loopback adapter to the port and set **Use Dongle** to **Yes**.*

3. Press **Run Test**.

The switcher tests the integrity of the communications between the PCH and each of the PMCs connected on a link.

To Perform a Tally Test

The tally test allows you to test the standard parallel tally system of the control panel. A Tally Test Box is required to ensure that the tally relays are operating properly. The number of tallies you have available to test depends on whether you have the Extended Tallies option installed.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **PCH Test** > **Tally Test**.

2. Press **All On** to turn all the tallies on, **All Off** to turn all tallies off, and **Prev** and **Next** to run through the tallies one-by-one.

   The current tally is listed on the menu.

To Perform a PCI Bridge Test

The Peripheral Component Interconnect (PCI) Bridge test allows you to test the PCI bridge that is used to pass information between the control panel CPU and the PCH.

Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **PCH Test** > **PCI Test**.

The outcome of the test is reported on the menu as Passed or Failed.

Touchscreen Tests

The touchscreen tests allow you to test the functionality and performance of the display. These tests include how well the display shows content, and if the touch sensor is properly calibrated.

To Perform a Pattern Test on the Touchscreen

The pattern test allows you to visually check the performance of the touchscreen as it cycles through a number of patterns and colors.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Touch Screen** > **Test Pattern**.

   The touchscreen cycles through a number of test patterns of different colors.

2. Confirm that the touchscreen is showing the pattern correctly, and that the colors and brightness are consistent.

   > *Tip:* *You can tap the screen to pause and resume the test.*

The test will repeat three times and then exit. You can exit the test early by pressing any key on an attached keyboard.

To Perform a Draw Test on the Touchscreen

The Draw Test allows you to visually check the functionality of the touchscreen by having it feedback the location of where you touch with an X on the screen.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Touch Screen** > **Draw Test**.

2. Tap the screen to start the test.

3. Trace the yellow line from the X to the O with your finger.

4. Press **Quit**.

To Perform the Burn Mode Test of the Touchsreen

The burn mode performs a number of tests on the control panel to ensure that all internal

memory and communications ports are operating properly. To ensure that all external communications ports are operating properly, a loopback adapter must be installed on each serial port.

A loopback adapter is required to be connected to each of the serial ports on the control panel, and any LVDS port that does not have a module connected to it.

1. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics**.

    > **Tip:** If you want to test an LVDS link without connecting a module to it, or a serial port, you must connect a loopback adapter to the port and set **LVDS Dongles** or **RS422 Dongles** to **Yes** on the **Burn Mode** menu 2-2.

2. Press **Start Test**.

    The switcher cycles through the LED tests, Display and Mnemonics tests, LVDS tests, Memory tests, and all the Tx/Rx tests for the control panel. The tests continues until stopped.

3. Press **Stop Test**.

    > **Tip:** The **View Summary** and **View Log** options allow you to view the outcome of the test on the menu. The Log can then be saved to a USB flash drive by pressing **Save Log to USB**.

Frame Diagnostics

The switcher supports a number of diagnostic tests that can be used to identify issues with your system.

These tests are designed to be used by Ross Video Technical Support and other qualified Ross Video personnel.

Installed Frame Boards

You can view information for all the boards that are installed into the frame, including the slot they are installed in, the hardware and software version, and any specific build information for that board.

To View the Installed Frame Boards

Press **HOME** > **Setup** > **Installed Options** > **Frame Boards**.

The columns list what slot the board is installed in, the name of the board, the hardware and software versions of the board, and the specific compile date of the software.

Frame Diagnostic Tests

These tests allow you to test the functionality of various components of the switcher frame.

To Perform a DIP Switch Test

The DIP test allows you to verify the current settings of the DIP Switch on the Frame CPU board (4810AR-002). To confirm this test, you must remove the Frame CPU board to verify the setting of the DIP Switch. Contact Ross Video Technical Support before attempting to change any DIP switch setting on the Frame CPU board.

Press **HOME** > **More** > **Diagnostics** > **Frame Diagnostics** > **DIP Test**.
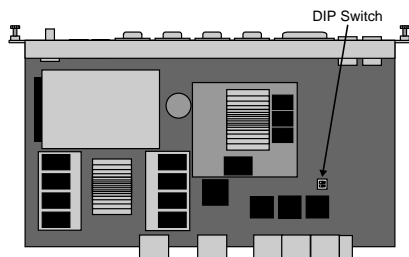
Figure 22: DIP Switch

The menu shows the number of DIP switches on the Frame CPU board, what they do, and what position they are currently in.

To Perform a Frame Tx/Rx Test

The frame Tx/Rx test allows you to test the various serial communications ports on the frame. This helps to diagnose communications problems with external devices that you may be having on a particular serial communications port on the frame.

1. Press **HOME** > **More** > **Diagnostics** > **Frame Diagnostics** > **Tx/Rx Test**.
2. Use the **Com Port** knob to select the serial port on the frame you want to test.

   *Tip: Press **Loop** to select whether the switcher performs the test continuously (**Yes**, or only once (**No**).*

3. Press **Test**.

To Perform a GPI Test

The GPI test allows you to test the functionality of each GPI input and output on the switcher. A graphical representation of each GPI indicates whether a particular GPI is on or off.

1. Press **HOME** > **More** > **Diagnostics** > **Frame Diagnostics** > **GPI Test**.
2. Use the **Slot** knob to select the board that you want to perform the test on.
3. Press **All On** to turn all the GPIs on, **All Off** to turn all GPIs off, and **Prev** and **Next** to run through the GPIs one-by-one.

   The current GPI is listed on the menu.

To Perform a Tally Test

The tally test allows you to test the standard parallel tally system of the frame. A Tally Test Box is required to ensure that the tally relays are operating properly.

1. Press **HOME** > **More** > **Diagnostics** > **Frame Diagnostics** > **Tally Test**.
2. Use the **Slot** knob to select the board that you want to perform the test on.
3. Press **All On** to turn all the tallies on, **All Off** to turn all tallies off, and **Prev** and **Next** to run through the tallies one-by-one.

   The current tally is listed on the menu.

To Perform a Contact Closure Test

The contact closure test allows you to test the contact closure system of the frame. A graphical representation of each contact closure indicates

whether a particular contact closure is on or off.

1. Press **HOME** > **More** > **Diagnostics** > **Frame Diagnostics** > **Contact Closure Test**.
2. Use the **Slot** knob to select the board that you want to perform the test on.
3. Press **All On** to turn all the contact closures on, **All Off** to turn all contact closures off, and **Prev** and **Next** to run through the contact closures one-by-one.

   The current contact closure is listed on the menu.

Frame Fan Failure

In order to diagnose and repair a cooling fan failure, you must identify the fan that the switcher is reporting as failed on the Status Menu, and replace the fan.

All the fans on the 4RU Fan and 8RU Fan boards are assigned a number. This number is what is reported on the menu for which fan has failed.
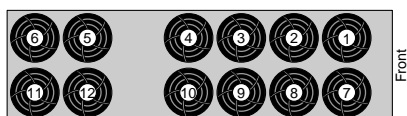
Figure 23: 4RU Fan Board
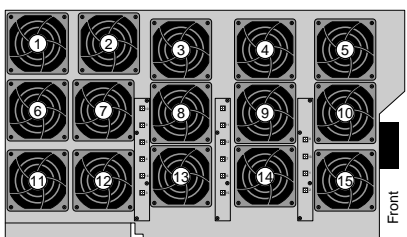
Figure 24: 8RU Fan Board

To Identify a Failed Fan

1. Press **HOME** > **Status** > **Complete Status**.

   The **Frame Fans** item identify which fans have failed by the fan numbers. These numbers identify individual fans. The location of the fan on the board depends on the board you have.

2. Contact Ross Video technical support for a replacement fan.

Frame Power Supply Failure

The number of power supplies in the frame depends on the size of frame you have, and if the redundant power option is installed.

When a frame power supply fails, the switcher identifies the failed component on the Status menu. Use this information to trouble-shoot the power supply and replace it if required.

There are a number of LEDs on the power supply that can identify what is wrong with the power supply.

Table 17: Power Supply Failure Diagnosis

Power Switch	Power LED (Green)	Standby LED (Yellow)	Fail LED (Red)	Status
ON	ON	OFF	OFF	**Normal Operation** • Check the network connection between control panel and frame.
OFF	OFF	ON	OFF	**Standby Mode (4RU)** • Toggle the power switch on the power supply On for normal operation.
ON	OFF	ON	OFF	**Standby Mode (8RU)** • Toggle the power switch on the power supply On for normal operation. • Check that the Main Power switch is on.
ON	OFF	OFF	ON	**Fail** • Check the AC power cable and building circuit breakers. • Replace the power supply if needed.
ON	OFF	OFF	OFF	**Fail** • Check the AC power cable and building circuit breakers. • Check the AC power input fuse and replace if needed. • Replace the power supply if needed.
OFF	OFF	OFF	OFF	**Fail** • Check the AC power cable and building circuit breakers. • Check the AC power input fuse and replace if needed. • Replace the power supply if needed.

To Identify a Failed Power Supply

1. Press **HOME** > **Status** and identify which power supply is reporting a failure.

2. Check the AC power cords for the failed Power Supply module. Ensure that they are securely plugged into the control panel power supply, as well as the power outlet.

3. If each Power Supply is connected to a separate circuit, check that there has not been an interruption to the AC power for the failed power supply.

4. Open the frame door and use the LEDs on the power supplies to help diagnose the failure. Refer to *Control Panel Power Supply Failure* on page 104 for a description of the LEDs.

5. Remove the failed power supply. Refer to *To Replace a Frame Power Supply* on page 117.

Port Monitoring and Logs

Port monitoring and log files allow Ross Video technical support to assist in diagnosing problems with your switcher, or studio setup. All the communications ports on the switcher can be set up to log the signals that are being passed back and forth from the switcher to an external device. The switcher can be set up to log various actions it has taken and any problems that were encountered.

Port Monitor Files

You can view and save the information that is being sent to or received by serial or ethernet communications ports.

To Monitor a Serial Port

1. Navigate to the appropriate menu for the serial port you want to monitor.
   * **Control Panel Port** — Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **PCH Test** > **Tx/Rx Test**.
   * **Frame Port** — Press **HOME** > **More** > **Diagnostics** > **Frame Diagnostics** > **Tx/Rx Test**.

2. Use the **Com Port** knob to select the serial port you want to monitor.

3. If you are monitoring a serial port, use the **Mode** knob to select the transmission standard you want to use for the test.

4. Press **Monitor**.

   > **Tip:** If data is already showing, toggle **Freeze** to **Yes** and press **Clear**.

5. Toggle **Format** to view the data in hexadecimal (**Hex**) or ASCII (**ASCII**).

6. Toggle **View** to view the data being sent by the switcher (**Tx**), or the data being received by the switcher (**Rx**).

7. Toggle **Freeze** to **No** to start viewing the data.

8. Save the data to a file by turning **Streaming** on (**Yes**) or by pressing **Save**.

   > **Note:** You cannot save or turn on stream for a communications port that is operating at a baud rate of 115200.

   * **Streaming** — store up to an hour of data
   * **Save** — store just the contents of the screen

To Monitor an Ethernet Port

The ethernet port monitor collects packet information between the switcher and the device you are trying to communicate with.

> **Note:** This feature is intended to be used for debugging purposes and should not be used during live productions.

1. Insert a USB drive into the USB port on the control panel.

2. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **PCH Test** > **Tx/Rx Test** > **eMonitor**.

3. Use the **Com Port** knob to select the port you want to monitor. The IP address and remote port set up for the external device on that port are shown on the menu.

4. In the **Duration** field, enter the amount of time you want to capture for.

5. Select the format of the captured data as required.
   * **Add Hex Encoding** — adds hex encoding to the recorded data.
   * **Wireshark Format** — records the data in a Wireshark® format.

6. Press **Start**.

   Data will be recorded to the USB until you press **Stop** or the **Duration** completes.

To Download Port Monitor Data Files

After you have saved the port monitor data to the hard drive on the frame, you have to navigate to the frame to access the data file.

1. On your computer, open your Web Browser and, in the address bar, type in the following address and press enter `http://<frame IP>/cgi-bin/pmbrowser`.

2. When the **Login Dialog Box** appears, enter your username (`user`) and password (`password`) and click **OK**.

3. Click on the file you want to view. Files are identified by where they come from, what port that are from, and whether they are transmit or receive data. For example, the file `pan04tx.txt` is from the control panel, remote port 4, transmit data.

Device Logging

The switcher can be set to log different types of events when communicating with an external device. This is used to debug problems

communicating with the external device from the switcher.

To Set the Device Log Level

1. Press **HOME** > **Setup** > **Installation** > **Com Setup** > **More** > **Device Log Level**.
2. Use the **Com Port** knob to select the communications port that you want to debug.
3. Use the **Layer** knob to select the communications layer between the switcher and the device that you want to set the log level for.
   - **Driver** — within the device driver layer.
   - **TagMsg** — between the frame/panel application and the device driver.
   - **DevComm** — between the device driver and the hardware.
4. Use the **Log Level** knob to select the logging level you are instructed to use.
5. Press **Reset Device Port** to reset the internal variables for the device driver on the selected port. This may re-initialize the device.
6. Press **Reset DevComm Port** to reset the low level hardware for the selected port. If the port is set to serial, the baud rate and parity are reset. If the port is set to Ethernet, the port is closed and reopened.

Frame Logs

The frame stores up to a week worth of log data at any time on the frame. This log data is usually broken up into eight (8), 24-hour sets of log files.

To Set the Log Level

1. Press **HOME** > **Setup** > **Installation** > **Output** > **More** > **More** > **Minimum Log Level**.
2. Use the log level knob to select the minimum log level you want recorded. Only events of the selected priority, or higher, are recorded to the logs.

- **Log Emergency** — only emergency events are logged.
- **Log Alert** — only alert and emergency events are logged.
- **Log Critical** — only critical or higher events are logged.
- **Log Error** — only error or higher events are logged.
- **Log Warning** — only warning or higher events are logged.
- **Log Notice** — only notice or higher events are logged.
- **Log Info** — only info or higher events are logged.
- **Log Debug** — all listed events are logged.

To Collect Frame Logs

At any one time there is a current log file, and up to eight archived log files. When you collect the log files, you can either get all of the logs for the past week, or only the current log file that the switcher is writing to.

1. On your computer, open your web browser and go to the IP address of your frame.
2. When the **Login Dialog Box** appears, enter your username (`user`) and password (`password`) and click **OK**.

3. Click **Logs...** > **Get All Logs** to display the **Get All Switcher Log Files** page.
4. Click **Get All Switcher Log Files**.
   The switcher starts collecting all of the log files together into a single archive. This process may take several seconds to complete.
5. Click the **stills/all-logs.tar.gz** link to open or download the archive to your computer.

To Delete Frame Logs

You can delete all or only the archived log files from the switcher. This allows you to free up space on the switcher, or clean up the logs before starting to debug an issue for technical support.

1. On your computer, open your web browser and go to the IP address of your frame.

2. When the **Login Dialog Box** appears, enter your username (`user`) and password (`password`) and click **OK**.

> *Tip: You can delete only the archived log files by clicking **Delete Old Logs** and following the instructions. Only the archived log files are deleted and the current log files are unaffected.*

3. Click **Logs...** > **Delete All Logs** to display the **Delete All Switcher Log Files** Page.

4. Click **Delete All Switcher Log Files**.

To Cycle Frame Logs

You can manually have the switcher start a new set of current log files. The old set of log files are added to the archive, and the oldest set of archived log files are deleted.

1. On your computer, open your web browser and go to the IP address of your frame.

2. When the **Login Dialog Box** appears, enter your username (`user`) and password (`password`) and click **OK**.

3. Click **Logs...** > **Cycle Logs** to display the **Cycle Switcher Log Files** Page.

4. Click **Cycle Switcher Log Files**.
The switcher archives the current set of log files and starts a new set of current log files.

Panel Logs

The panel stores log data independent of the frame. These logs can be easily copied to a USB drive inserted into the control panel.

To Collect Panel Logs

1. Insert a USB drive into the USB port on the control panel.

2. Press **HOME** > **More** > **Diagnostics** > **Panel Diagnostics** > **Copy Panel Logs to USB**.

Sending Files to Ross Video

Log files can be quite large, making electronic transfer the easiest way to transfer them. Ross Video has a transfer application specially set up to send logs and setup files.

> *Note: It is recommended that when sending multiple log files that you ZIP the files together with a text file describing the situation and a detailed description of the surrounding conditions.*

To Send Files To Ross Video

1. In your web browser, navigate to *http://transfer.rossvideo.com*.

2. Enter the username (`customer`) and password (`guestwho`) and click **Submit**.

3. If a folder does not exist for your facility, please click 🖼 to create a new folder and name it after your facility.

4. Click on the new folder and click 🔼 to upload a new file.

　　a) In the **File Number** box, select the number of files you want to upload.

　　b) In the **File** field, click **Choose File** and select the file you want to upload.

　　c) Click **Accept** to upload all the selected files.

5. After all the files have been uploaded, send an email to your Ross Video support specialist with the folder path and a description of the problem.

Switcher Maintenance

There are a number of maintenance and support procedures that are performed to safeguard the proper operation of your switcher, as well as backup your setups.

Backup and Restore

The content of the hard drive in the switcher can be backed up for archiving, or if you are replacing the hard drive.

Note: *The backup and restore should not be used as a method of copying setups between switchers.*

Keep the following in mind:

Keep the following in mind when working with the restore and backup feature:

- The backup requires a Linux-compatible USB storage device with at least 25GB of available space. If the drive is not Linux-compatible, you will be prompted to format the drive.
- Backup and restore can only be performed from a master panel.
- All panels connected to the switcher during the backup will be unresponsive.
- Option codes and serial number are not stored with the backup.
- Only files that are different on the USB drive compared to the hard drive will be backed up or restored.

To Backup the Switcher Hard Drive

The backup requires a Linux-compatible USB storage device with at least 25GB of available space. If the drive is not Linux-compatible, you will be prompted to format the drive.

1. Insert the USB drive into the control panel.
2. Press **HOME** > **Disk** > **More** > **System Backup**.
3. Select how the backup handles existing backup files on the USB.
   - **Clean Up** – any backup files on the USB that are not used by the switcher are deleted. All other backup files are replaced with the new backup.
   - **Don't Clean Up** – any backup files on the USB that are not used by the switcher are not deleted. All other backup files are replaced with the new backup.

4. If you selected **Clean Up**, press **Yes** to confirm the deletion of the files.
5. Press **Continue**.

   The progress of the backup is shown at the top of the **System Info** page from the web interface.

   *Tip: Press **Abort Backup** to stop the backup at any time. The backup can be started again from where it left off.*

To Restore the Switcher Hard Drive

1. Insert the USB drive with the backup files into the control panel.
2. Press **HOME** > **Disk** > **More** > **System Restore**.
3. Select how the restore handles existing files on the switcher.
   - **Clean Up** – any files on the switcher that are not in the backup are deleted. All other files are replaced with the files from the backup.
   - **Don't Clean Up** – any files on the switcher that are not in the backup are not deleted. All other files are replaced with the files from the backup.

4. If you selected **Clean Up**, press **Yes** to confirm the deletion of the files.
5. Press **Continue**.

   The progress of the restore is shown at the top of the **System Info** page from the web interface.

Configuration Files

The configuration files allow you to backup and restore the current configuration setting of your switcher. The configuration settings, as opposed to the switcher setups, are the working sets that your switcher has stored in flash. This includes the IP addresses and current software version running on each panel and the frame.

To Download Configuration Files

Configuration files can be stored as individual frame and panel files, or as a single archive of all the configuration files.

1. Open a web browser and navigate to the IP address of the switcher frame. You are prompted to enter a user name and password. The defaults are **user** and **password**.

2. Click **Files** > **Configuration**.

3. Click on a link to download that file to your computer or click **Download All** to download an archive of all the configuration files.

The file is downloaded by your browser to the default "downloads" folder on your computer.

To Upload Configuration Files

You can use individual or archived configuration files to restore your switcher configuration.

1. Open a web browser and navigate to the IP address of the switcher frame. You are prompted to enter a user name and password. The defaults are **user** and **password**.

2. Click **Files** > **Configuration**.

3. Click **Choose File** and use the window to select the configuration file you want to upload.

4. Click **Upload Configuration**.

A list of the configurations to be uploaded is shown. These configurations will overwrite the current configurations.

5. Click **Restore**.

Force Panel Upgrade

Ross Technical Support may require you to upgrade the control panel to fix an issue. This procedure upgrades the software on the control panel but not the frame.

> **Important:** *Do not upgrade the control panel using this method unless instructed to do so by Ross Technical Support.*

To Force an Upgrade of the Control Panel

Press **HOME** > **More** > **System Shutdown** > **Upgrade Panel**.

Still-Store Permissions

Using a third-party application to upload, edit, or move media items or directories on the switcher can cause the permissions to those files or directories to be set incorrectly. This can cause problems working with the files or directories from the switcher. These permissions need to be cleaned up to restore proper access.

To Clean Still-Store Permissions

> **Important:** *Cleaning the permissions for the still-store can take a long time and cannot be stopped once started. The switcher may be unresponsive during this time.*

1. Open a web browser and navigate to the IP address of the switcher frame. You are prompted to enter a user name and password. The defaults are **user** and **password**.

2. Click **Other...** > **Still-Store Permissions**.

3. Click **Clean Still-Store Permissions**.

Dusting Mode

Dusting mode allows you to clean the surface of the control panel, including the touchscreen display, without the switcher reacting to any accidental pressing of buttons. Dusting mode does not affect the operation of the switcher, but prevents the switcher from acting upon button presses.

> **CAUTION:** *Do not use water, or any other liquid cleaner, to clean the surface of the control panel. Doing so can cause personal injury and/or damage to the control panel itself. A dry duster, vacuum, or low pressure compressed air should be used to clean the surface of the control panel.*

To Put the Switcher in Dusting Mode

1. Press **HOME** > **More** > **System Shutdown** > **More** > **Dust**.

2. Dust the surface of the control panel as required. In dusting mode the switcher will not act upon any input from the control panel.

3. Press the two **Exit** buttons at the same time to exit dusting mode.

Factory Default Settings

Each switcher comes pre-configured from the factory with a number of default settings. Recalling these default settings allows you to return the switcher to a known state for diagnostic purposes, creating new setups, or if advised to do so by Ross Technical support.

The recalling of factory default setting is performed on individual register types. Defaulting one of these register types will return all the entries stored in registers of that type to the factory installed state. Any entries in the registers are destroyed.

The following registers can be defaulted:

- **Personality** — all the user interface settings. These registers contain items such as mnemonic settings, preview overlay positions and settings, and transition rates. As a rule, anything that is set up from the **Personality** menus is stored in these registers.
- **Memories** — all the memories that are stored on the switcher.
- **Switcher** — all keyer settings and ME settings.
- **Installation** — all the external device setup and software configurations settings for the switcher. As a rule, anything that is set up from the **Installation** menus is stored in this register.

    Note: Factory Default will not change the reference or video format. The reference and video format remain the same as they were before the factory default.

- **Custom Controls** — all the custom controls that are stored on the switcher. Bank setting are stored in the Installation setup.
- **Default VTR Clips** — all VTR and video server timecode and clip information on the switcher.
- **Default NV-RAM** — all the information stored in the NV-RAM. Non-Volatile RAM on the switcher contains information such as active key effects and some personality settings.
- **Default DVE Sequences** — all the sequences that have been stored on the switcher.
- **Default Bus Maps** — all the bus maps on the switcher.
- **Default Shot Box Pages** — all the Shot Box pages that have been stored on the switcher.
- **Camera File** — all the stored shots for cameras that do not store shots on the camera itself.
- **CC/Macro Attachments** — all the mappings of custom controls that are attached to buttons.
- **Default MultiViewer** — all the layouts and assigned sources for the MultiViewer that have been stored on the switcher. The assignment of a MultiViewer to output BNCs is stored in the **Installation** register, as well

as all the mapping of what layout is assigned to each MultiViewer.
- **Default CC Variables** — all custom control variables.

To Recall Default Settings

1. Press **HOME** > **Setup** > **Installation** > **More** > **More** > **Recall Factory**.
2. Press the button for the register you want to default or press **Factory Reset All** to recall all factory default setting.
3. Press **HOME** > **Confirm**.

Frame Over-Temperature Shutdown

In the event that the frame over-heats, the switcher can be set to shutdown boards to prevent damage. When the frame over-heats, a warning is provided with the option to over-ride the shutdown. If you do not cancel the shutdown in 15 minutes, the frame will shutdown the boards automatically.

Frame over-heating can be caused by a high ambient temperature in the equipment rack room, poor airflow through the frame fan filter, or failing frame or power supply fans.

After the frame has shutdown the boards, you must correct the conditions that caused the over-heating and restart the frame.

To Set the Frame Over-Temperature Shutdown Mode

1. Press **HOME** > **Setup** > **Installation** > **More** > **More** > **Temperature Alarm**.
2. Press **Shutdown** to toggle the over-temperature shutdown **On** or **Off**.
    - **On** — the switcher shuts down all the frame boards, except the Frame CPU, when the frame is over-heating
    - **Off** — the switcher does not shut down boards when the frame is over-heating.
3. Press **Yes** to confirm the new settings.

Locking Menus

You can lock both the Installation and Personality menus. Locking a menu makes it so that a password is required to make changes to the menus, or recall the installation or personality register.

To Lock a Menu

The same procedure is used to unlock a menu that has already been locked.

1. Navigate to the lock menu for the menu you want to lock.

   • **Installation** — Press **HOME** > **Setup** > **More** > **Lock/Unlock Installation**.
   • **Personality** — Press **HOME** > **Setup** > **More** > **Lock/Unlock Personality**.

2. Press **Installation Lock** or **Personality Lock** to select whether the menus are locked (**On**), or unlocked (**Off**).

   > *Tip: Press **Clear Password** to delete the current password that is used to lock the menu.*

3. Press **Add/Change Password**.
4. Enter the new password in the **New Password** field.
5. Press **Accept New Password**.
6. Press **HOME** > **Confirm**.

Power Supply Replacement

The power supplies in both the control panel and frame are designed to be easily replaced. The power supplies in the frame can be removed with the frame powered on, but the power supplies in the control panel require the panel to be powered off.

To Replace a Control Panel Power Supply

1. Toggle the Primary and, if installed, Secondary AC Power switches for the control panel to OFF.
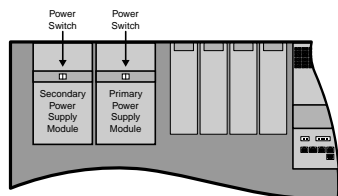
2. Disconnect the AC power cords from the back of the Power Supply module that contains the failed power supply.
3. Label and remove the Power Supply Status cables and Power Supply cables for each power supply in the Power Supply module before you remove them. If there is only power supply in the module, you do not need to label the cables.

4. Disconnect the Power Supply Status cables and Power Supply Power cables for the power supplies in the Power Supply module that you want to remove.
5. Remove the 2 retaining screws along the front flange of the Power Supply module.
6. Slide the failed Power Supply module out of the control panel tub and place on a clean, dry surface.
7. Slide the new Power Supply module into the open slot in the control panel tub that you just removed the failed Power Supply module from.
8. Replace the 2 retaining screws along the front flange of the Power Supply module.
9. Reconnect the Power Supply Status cables and Power Supply Power cables for each power supply in the Power Supply module.
10. Reconnect the AC power cords to the back of the Power Supply module.

To Replace a Frame Power Supply

The power supplies in the frame are hot-swappable only if the Redundant Power option is installed. If you do not have redundant power supplies, you must power down the frame before attempting to remove a power supply.

1. Remove the front door of the frame.
2. Locate the power supply to be replaced.
3. Switch the power supply Off by toggling the power switch down.
4. Loosen the 2 screws holding the latch in place and move the latch so that you can remove the power supply.
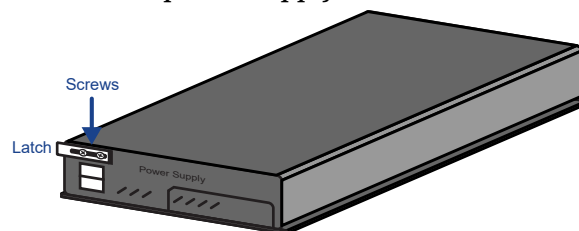
5. Remove the failing power supply.
6. Verify that all the power supplies are switched off before installing them into the frame.

Power
Switch → Power Supply
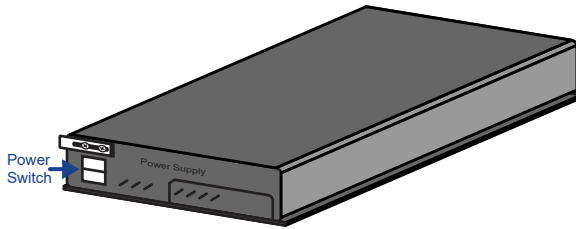
7. Install the new power supply into the slot that you removed the old power supply from.

8. Secure each power supply into the frame by moving the latch to the left until it hooks the slot edge and tighten the screws.

9. Switch the new power supply On.

The switcher will automatically detect the new power supply and clear the fail message.

Replacing a Frame Board

Boards can be installed or replaced in the frame to increase the available resources of your switcher, or replace a failing component. With the exception of the Frame CPU, all boards in the frame are hot-swappable.

Note: *Any resources provided by that board will be lost when the board is removed. For example, if you remove the Crosspoint board there will be no video routing in the frame.*

Note: *If you are replacing a Video Input board with a MultiProcessor Input board, ensure that all of the inputs are set to the same format that the switcher is operating in. If an input is not set to the same format that the switcher is operating, the MultiProcessor Input board may become unresponsive.*

To Install a Frame Board

1. Refer to any instructions that came with your new board for special installation instructions.

2. Refer to the Upgrade Notes for the version of software on your switcher to ensure that the board you are installing is supported.

3. Locate the slot in the front or rear of the frame where the new board is to be installed. Board location can be found on the label on the inside of the frame door and on the quick-start poster that came with your frame.

Important: *If you are installing an Evertz® IP Input or Evertz® IP Output board you must remove the existing input or output boards and install the new IP boards starting from*

the top position. Due to the size of the SFP cages and the EMI gasket it is not recommended to try to install a board into the slot above an IP board.

Tip: *If a board is already installed in that slot and needs to be removed, use the ejector tabs to unseat the board (front boards) or undo the retaining bolts (rear boards) and slide it out of the frame. Some ejector tabs have locks or screws that hold them closed.*

4. Inspect the power connector blades on the edge of the board to ensure that they are not bent or damaged.
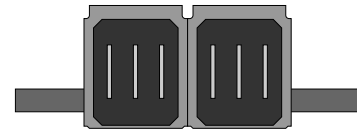
Figure 25: Power Connector Blades

Important: *If the blades in the power connectors are bent or damaged, contact Ross Video Technical Support. Do not attempt to install a damaged board.*

5. With the ejector tabs in the open position (front boards), align the edges of the board with the guide rails and slide the board into the slot. When the board stops sliding freely, push firmly to seat the board and secure it with the ejector tabs (front boards) or retaining bolts (rear boards).

Important: *If there is significant resistance when seating the board, remove the board from the frame and inspect the connectors for bent pins or other damage to the connectors.*
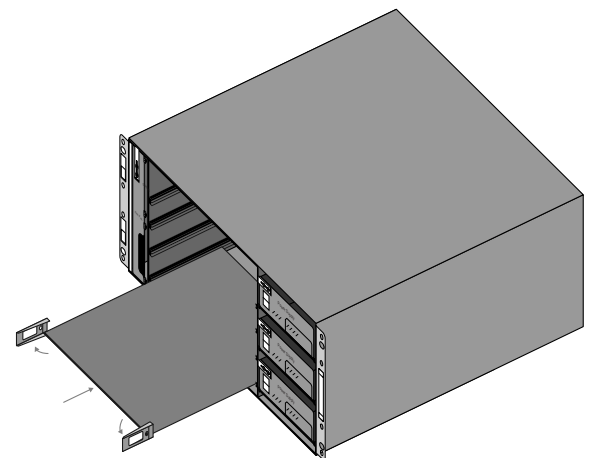
Figure 26: Board Installation (front boards)

When the board is installed the switcher checks the version of software on the board and upgrades/downgrades the board as required to

match the version of software that is running
on the switcher.

Specifications

The information is this section is subject to change without notice.

Switcher Resources

The number of resources specific to your switcher depends on the options installed.

Table 18: Switcher Resources in SD/HD and UHDTV1 Modes

Resource	4RU HD	8RU HD	4RU UHDTV1	8RU UHDTV1
Custom Controls	2304 (48 Banks × 48 CCs)			
Custom Controls Running	96 (running at the same time)			
Aux Buses	64 (8 Banks × 8 Buses)			
Keyers per ME	8		4	
Proc Amp/Color Correctors per ME	2		1	
Input Proc Amp/Color Correctors per input	1^1			
Output Proc Amp/Color Correctors per Aux output	1^2			
Input Frame Synchs per input board	8^1		2^1	
Input Format Converters per input board	8^1		0	
Chroma Keys per ME	2		1	
2D DVE Channels per ME	16		8	
3D DVE Channels per ME	2^1		1^1	
3D DVE Warp channels per ME	1		0	
Maximum DVE Sequences	1,000			

Resource	4RU HD	8RU HD	4RU UHDTV1	8RU UHDTV1
Max AuxKeys	10	15	0	
Maximum GPI Inputs or Outputs	34 (10 fixed + 24 config)	58 (10 fixed + 48 config)	34 (10 fixed + 24 config)	58 (10 fixed + 48 config)
Maximum Fame Tallies	36	72	36	72
Maximum Contact Closures	12	24	12	24
Serial Remote Ports (panel)	8			
Serial Peripheral Ports (frame)	4			
Ethernet Ports (virtual)	64			
MultiViewers	6	8	6	8
Heads per MultiViewer	4	4	4	4
MultiProcessor Input MultiViewers (1 per board)	3	6	3	6
Maximum Video Inputs	60 (20 BNCs × 3 Boards)	120 (20 BNCs × 6 Boards)	15 (5 UHD-2SI × 3 Boards)	30 (5 UHD-2SI × 6 Boards)
Maximum Video Outputs	40 (20 BNCs × 2 Boards)	60 (20 BNCs × 3 Boards)	10 (5 UHD-2SI × 2 Boards)	15 (5 UHD-2SI × 3 Boards)
Max MEs	6	8	3	4
Memories	1,000 (100 Banks × 10 Memories)			
Mix/DSK Keyers	4		0	
MultiViewer Grids	41			
MultiViewer Layouts	50			
MultiViewer Input Sources	32			
MultiViewer Boxes	20			
Global-Store Channels	4	4	1 (vid+alpha)	1 (vid+alpha)
Global-Store RAM CACHE (Video)	4 Gigabytes			

Resource	4RU HD	8RU HD	4RU UHDTV1	8RU UHDTV1
Global-Store RAM CACHE (Audio)	4 Gigabytes			
ME-Store Channels	4	4	2 (vid+alpha)	2 (vid+alpha)
ME-Store RAM CACHE	8 Gigabytes per ME			
Media-Store Capture	3,000 frames in SD or 773 frames in 3G or 1080i			
Clip Register List (VTR/Video Server)	31,837 Clips			

Notes:

[1] Only available on the MultiProcessor Input board.

[2] Output Proc Amp/Color Correctors are not available on the Evertz® IP Output board.

[3] A DVE channel is made up of 2 channel resources (video + alpha). These channel resources can be used separately for 2 Preset Pattern (**PST PATT**) keys per DVE channel.

Rack Requirements

The ambient temperature inside a rack-mount cabinet may be greater than the ambient temperature within a room. To ensure your switcher operates within its the maximum operating temperature range, maintain the following minimum dimensions within the equipment rack:

- 3 inches of clearance on both the right and left-hand sides of the switcher frame with unrestricted vertical airflow.
- 2RU of space, or the equivalent, for intake air at the bottom of the rack.
- 4RU of space, or the equivalent, for exhaust air at the top of the rack (open equipment rack top for example).

Hardware Weights

Hardware	Weight
4RU Frame	59lbs (26.8kg)
8RU Frame	92lbs (41.7kg)
A1S Panel	48lbs (21.8kg)

Hardware	Weight
A2M Panel	57lbs (25.9kg)
A2X Panel	62lbs (28.1kg)
A3 Panel	75lbs (34.0kg)
A3M Panel	74lbs (33.6kg)
A4 Panel	103lbs (46.7kg)

Operating Temperature

The switcher has been qualified at an operational temperature range of **0-35°C (32-95°F)**.

System Timing

The switcher has the following system timing characteristics:

- All video inputs are zero-time relative to reference input
- Auto timing correct for inputs out of sync by up to ± ¼ line (16us)

LTC Timecode Input

Specification	Value
Signal Level	0.5-2.0V (1.0V nominal)
Termination	600 ohm, soft-selectable

Video Input Specifications

Input Specification	Value
Equalization (using Belden 1694A cable)	>40m @ 12Gb/s
	>50m @ 3Gb/s
	>75m @ 1.5Gb/s
	>150m @ 270Mb/s (5°-40°C)
Impedance	75 ohms, terminating
Video Inputs, SDI	SMPTE 259M/292M/424M/ST-2082 (non-looping)
Reference Inputs (non-terminating, looping)	Standard Definition — analog black
	High Definition — tri-level sync

Video Output Specifications

Output Specification	Value
Return Loss	>4dB 6GHz to 12GHz
	>7dB 3GHz to 6GHz
	>10dB 1.485GHz to 3GHz
	>15dB 5MHz to 1.485GHz
Timing Jitter	UHD Video Format - <8.0UI
	HD Video Format - <1UI
	SD Video Format - <0.2UI
Alignment Jitter	UHD Video Format - <0.3UI
	HD Video Format - <0.2UI
	SD Video Format - <0.2UI
Rise and Fall Time	UHD Video Format - <10% amplitude
	HD Video Format - <240ps
	SD Video Format - 450ps to 700ps
Signal Level	800mV ±10%
DC Offset	0 Volts
Overshoot	<8%
Video Outputs (SDi)	UHD Video Format - SMPTE ST 2082-1:2015 (Amendment 1:2016)
	HD Video Format - 10-bit SMPTE 292M/424M
	SD Video Format - 10-bit SMPTE 259M-C

Power Rating

Table 19: Input Voltage

Component	Power Rating
Panel	90-250V~
	47-63Hz
Frame	100-120V~
	220-240V~
	47-63Hz
	9A 650W
	(Canada 120V~ only)

Table 20: Power Consumption

Component	Power Consumption (Full Load)
4RU Frame	1022W
8RU Frame	1412W
A1S Panel	159W
A2M Panel	247W
A2X Panel	289W
A3M Panel	340W
A3 Panel	379W
A4 Panel	526W

Aux Power Ports

The aux power ports on the back of the control panel provide power for the touchscreen display and an auxiliary control panel.

⚠️ **CAUTION:** *Only use the cables provided to connect your Acuity Auxiliary Control Panel or Touchscreen display to the Auxiliary Power module.*
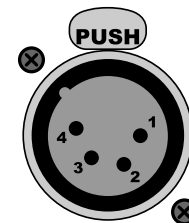
Tip: The status LEDs just below the port indicate whether each port is ok (green), or if there is a fault (red). Specific faults are reported on the Status menu.

Table 21: Aux Power Rating

Specification	Value
Output Voltage	12VDC
Maximum Current	4A

Pin	Signal
1	GND
2	n/c
3	n/c
4	+12VDC

Serial Ports

The serial ports on the back of the frame and control panel support the RS-232 (TIA/EIA-232)

and RS-422 (TIA/EIA-422) transmission standards.

The serial ports us a female DB9 connector.
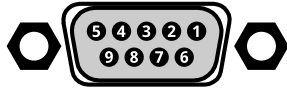
Table 22: Peripheral Port Pinouts

Pin	RS-232	RS-422
1	n/c	Odd/Even Tx+
2	Rx	Tx-
3	Tx	Rx+
4	Ground	Ground
5	Ground	Ground
6	n/c	Odd/Even Tx-
7	n/c	Tx+
8	n/c	Rx-
9	n/c	5V 1K Pull-up

Table 23: Remote Port Pinouts

Pin	RS-232	RS-422
1	n/c	n/c
2	Tx	Rx-
3	Rx	Tx+
4	Ground	Ground
5	Ground	Ground
6	n/c	n/c
7	n/c	Rx+
8	n/c	Tx-
9	n/c	5V 1K Pull-up

External Link Ports

The External Link ports use a female RJ-45 connector.
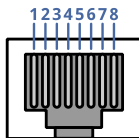
Table 24: External Link Port Pinouts

Pin	Signal
1	Rx+
2	Rx-

Pin	Signal
3	Tx+
4	PMC_SDI_Load+
5	PMC_SDI_Load-
6	Tx-
7	PMC_SDI_Latch+
8	PMC_SDI_Latch-

GPI Ports

There are GPI ports located on two types of boards in the frame. The GPI I/O port is located on the Frame CPU board in slot A, and the GPIO ports are located on the Reference with Tally board in slot G in the 4RU frame and slot L and M in the 8RU fame.

The GPI ports use a female DB25 connector.
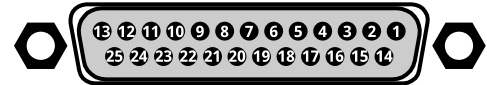
Table 25: GPI I/O Port Pinouts (Frame CPU)

Pin	Signal
1	Ground
2	n/c
3	n/c
4	GPI In 10
5	GPI In 9
6	GPI In 8
7	GPI In 7
8	GPI In 6
9	GPI In 5
10	GPI In 4
11	GPI In 3
12	GPI In 2
13	GPI In 1
14	n/c
15	n/c
16	GPI Out 10
17	GPI Out 9
18	GPI Out 8
19	GPI Out 7
20	GPI Out 6

Pin	Signal
21	GPI Out 5
22	GPI Out 4
23	GPI Out 3
24	GPI Out 2
25	GPI Out 1

Table 26: GPIO Port Pinouts (Reference with Tally)

Pin	Signal
1	Ground
2	GPI I/O 1
3	GPI I/O 2
4	GPI I/O 3
5	GPI I/O 4
6	GPI I/O 5
7	GPI I/O 6
8	GPI I/O 7
9	GPI I/O 8
10	GPI I/O 9
11	GPI I/O 10
12	GPI I/O 11
13	GPI I/O 12
14	GPI I/O 13
15	GPI I/O 14
16	GPI I/O 15
17	GPI I/O 16
18	GPI I/O 17
19	GPI I/O 18
20	GPI I/O 19
21	GPI I/O 20
22	GPI I/O 21
23	GPI I/O 22
24	GPI I/O 23
25	GPI I/O 24

Tally Ports

There are tally ports on the control panel and the frame. The tally ports 1 and 2 on the control panel and the frame have the same pinouts. On the frame, the tally ports are identified by the slot and the port number.

The tally ports use a female DB25 connector.
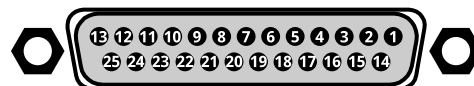
Table 27: Tally Rating

Specification	Value
Type	Solid-State Contact Closure
Input Voltage	100VDC
Maximum Current	120mA

Note: Tally ports 3 through 6 on the control panel are used for the extended tallies option and require the extended tallies hardware to be installed before they can be used.

Table 28: Panel Tally Locations

Pin	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6
1	1	19	37	55	73	91
2	3	21	39	57	75	93
3	5	23	41	59	77	95
4	7	25	43	61	79	97
5	9	27	45	63	81	99
6	11	29	47	65	83	101
7	13	31	49	67	85	103
8	15	33	51	69	87	105
9	17	35	53	71	89	107
10	Common					
11	Common					
12	Common					
13	Common					
14	2	20	38	56	74	92
15	4	22	40	58	76	94
16	6	24	42	60	78	96
17	8	26	44	62	80	98
18	10	28	46	64	82	100
19	12	30	48	66	84	102
20	14	32	50	68	86	104
21	16	34	52	70	88	106
22	18	36	54	72	90	108
23	Common					
24	Common					

Pin	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6
25	Common					

Pin	Port 1
24	CtCl 11 Common
25	CtCl 12 Common

Contact Closure Ports

The contact closure (CtCl) ports are located at the back of the frame and use a female DB25 connector.
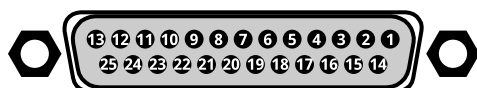
Table 29: Contact Closure Rating

Specification	Value
Type	Solid-State Contact Closure
Input Voltage	100VDC
Maximum Current	120mA

Table 30: Contact Closure Locations

Pin	Port 1
1	CtCl 1 Out
2	CtCl 2 Out
3	CtCl 3 Out
4	CtCl 4 Out
5	CtCl 5 Out
6	CtCl 6 Out
7	CtCl 7 Out
8	CtCl 8 Out
9	CtCl 9 Out
10	CtCl 10 Out
11	CtCl 11 Out
12	CtCl 12 Out
13	n/c
14	CtCl 1 Common
15	CtCl 2 Common
16	CtCl 3 Common
17	CtCl 4 Common
18	CtCl 5 Common
19	CtCl 6 Common
20	CtCl 7 Common
21	CtCl 8 Common
22	CtCl 9 Common
23	CtCl 10 Common

Glossary

Interlaced

An Interlaced video format starts at the top of the screen and draws all the odd number scan lines and then all the even number scan lines in sequence. This results in half the image being drawn in one pass and the other half of the image being drawn in the second. These two passes are called Fields, where the first pass is called Field 1 and the second pass is called Field 2. When both Field 1 and Field 2 have been drawn, resulting in a complete image, you have a single Frame.

Progressive

A Progressive scan video format draws each scan line in sequence, starting from the top of the screen and working to the bottom. Unlike Interlaced, with Progressive scan the entire image is drawn at one time, in a single pass. This means that there are no fields in a Progressive scan image.

Auto Key

A pairing of two video signals, a key video and a key alpha, to create a key. In the switcher, you associate the fill and alpha so that the switcher knows which alpha to use when the video is selected.

Auto Transition

An automatic transition in which the manual movement of the fader handle is simulated electronically. The transition starts when the **AUTO TRANS** button is pressed and takes place over a pre-selected time period, measured in frames.

Chroma Key

Chroma Key is a key in which the hole is cut based on a color value, or hue, rather than a luminance value or alpha signal. The color is removed and replaced with background video from another source.

Chroma Key Background

Background elements are those pixels in the source video that are the same color as the one you chose to key out. Note that the Shadow and translucent areas (see below) are completely contained within the Background area.

Chroma Key Edge Softness

Edge Softness lets you apply varying degrees of softening to the Foreground edges to help it blend in with the underlying background image that it is being keyed over.

Chroma Key Foreground

Foreground elements are those pixels that are not within the Background, Shadow, Translucency, or Transition ranges. This is the area with colors that will not be keyed out and will remain solid.

Chroma Key Luminance

Luminance allows you to control the overall brightness of Shadow, Translucency, and Transition areas as well as partial reflections to more closely match the Foreground brightness.

Chroma Key Shadow

Shadow elements are those pixels in the source video with colors that are within the Background range, but with lower luminance values, depending on the shadow range. You modify the Shadow range to cover darker areas of the background (e.g. where the foreground is casting a shadow on the background screen).

Chroma Key Spill Suppress

Spill Suppression elements are those pixels in the Foreground that have a noticeable tint of the Background color. This typically occurs around the edge of the foreground subject as glow from the background blue-screen or green-screen "spills" onto them.

Chroma Key Translucency

Translucent elements are those pixels in the source video that are in the Background range, but with higher luminance values than the Shadow range. You can control the upper-end of the Translucency range by setting a wider hue-range to constrain the area. You can also control the transparency of the Translucent area.

Chroma Key Transition

Transition elements are those pixels in the source video with colors that are not within any of the previous three ranges and are also not considered part of the Foreground area. These are typically the pixels near the edge of the

foreground, where it blends into the background.

Cut

An instantaneous switch from one video signal to another.

Dissolve

A transition from one video signal to another in which one signal is faded down, while the other is simultaneously faded up. The terms mix or cross-fade are often used interchangeably with dissolve.

Dynamic Host Configuration Protocol

An Ethernet protocol where a device, such as the switcher, is given an IP address by the network host. This eliminates the need to manually enter the network parameters and IP address.

Field

One half of a complete picture (or frame) interval containing all of the odd, or all of the even, lines in interlaced scanning. One scan of a TV screen is called a field; two fields are required to make a complete picture (which is a frame).

Frame

One complete picture consisting of two fields of interlaced scanning lines.

File Transfer Protocol

A network protocol that is used to transfer files from one host computer to another over a TCP-based network.

Gain

Gain represents the range of signal values present in a video signal from a lowest to a highest point (from black to white for example). Increasing gain expands this range, while decreasing gain compresses this range. Clipping occurs if applied gain changes cause output signal values to fall outside the allowable range. Generally, increasing the gain for a specific color component causes the video signal colors to become increasingly saturated with that color. Similarly, decreasing the gain for a specific color component progressively removes that color component from the output video signal.

Gamma

Gamma corrections introduce non-linear corrections to a video signal. A gamma correction can be described as taking a point on the output versus input video signal line and pulling it perpendicularly away from the line. The result is a Bezier curve between the start, the new point, and the end point. Generally, increasing the gamma value adds more of the component to the video signal in the location of the gamma offset point. Decreasing the gamma value reduces the amount of the component in the video signal in the location of the gamma offset point. Moving the gamma offset point allows you to select which part of the input video signal receives the gamma correction. For example, if you increase the red gamma correction to the part of the video signal that has no red component you will add red to those areas while having little effect on areas that already contain a significant amount of red. This allows you to add a red tint to the image while minimizing the amount of red-clipping that occurs.

General Purpose Interface

A simple high/low signal that is used to trigger an action either on an external device or on the switcher. A GPI can be an input or an output to the switcher.

High Definition

A high definition (720p, 1080i, or 1080p/3G) video signal.

Hue

The characteristic of a color signal that determines whether the color is red, yellow, green, blue, purple, etc. (the three characteristics of a TV color signal are chrominance, luminance, and hue). White, black, and gray are not considered hues.

Hue Rotation

Hue rotate affects the color of the entire video signal by rotating the input video hues. This produces an output video signal with colors that are shifted from their original hues. By rotating colors around the wheel, hue values will shift. For example, a clockwise rotation where yellows become orange, reds become magenta, blues become green. The more rotation applied, the further around the wheel colors are shifted.

Interlaced

An Interlaced video format starts at the top of the screen and draws all the odd number scan lines and then all the even number scan lines in sequence. This results in half the image being drawn in one pass and the other half of the image being drawn in the second. These two passes are called Fields, where the first pass is called Field 1 and the second pass is called Field 2. When both Field 1 and Field 2 have been drawn, resulting in a complete image, you have a single Frame.

Key

An effect produced by cutting a hole in the background video, then filling the hole with video or matte from another source. Key source video cuts the hole, key fill video fills the hole. The video signal used for cut and fill can come from the same, or separate, sources.

Key Alpha

The video signal which cuts a hole in the background video to make a key effect possible. Also called Key Video or Source. In practice, this signal controls when a video mixer circuit will switch from background to key fill video.

Key Invert

An effect that reverses the polarity of the key source so that the holes in the background are cut by dark areas of the key source instead of bright areas.

Key Mask

A keying technique in which a pattern is combined with the key source to block out unwanted portions of the key source.

Key Video

A video input which is timed to fill the hole provided by the key source video. An example of key video is the video output of a character generator.

Linear Key

Linear keys make it possible to fully specify the transparency of a key from opaque, through transparent, to fully off. The transparency is specified by the key alpha that is associated with the key video. A keyer capable of a linear key converts the key signal voltage directly to the transparency effect on the screen.

Mnemonics

A multicolored display used to show the names of a source above or below the source button or used as a custom command or pattern button.

Offsets

Offsets shift the video signal by a set amount. Depending on the offset applied, different parts or all of the video signal may be affected. Clipping occurs if applied offsets cause output signal values to fall outside the allowable range.

Pre-Delay

A pre-delay is a delay that is inserted into a transition between the triggering of a GPI output and performing the transition. The length of the pre-delay is usually the length of time your video server requires to start playing a clip or your character generator required to load a page.

Progressive

A Progressive scan video format draws each scan line in sequence, starting from the top of the screen and working to the bottom. Unlike Interlaced, with Progressive scan the entire image is drawn at one time, in a single pass. This means that there are no fields in a Progressive scan image.

RossTalk

An ethernet based protocol that allows the control over Ross devices using plain english commands.

Standard-Definition

A standard definition (480i or 576i) video signal.

Self Key

A key effect in which the same video signal serves as both the key signal and key fill.

Shaped Key

An additive key where the Key Alpha cuts a hole based on the monochrome value of the alpha. Shades of gray are translated into either white or black, giving the key a hard edge. Shaped Key alphas are sometimes used with Character Generators to cut very precise holes for the fill.

Split Key

A Split key allows you to assign a different alpha source for a key than the fill/alpha associations that are set up during configuration or to use a separate alpha source for a Self key.

SuperBlack

In broadcast video, the legal color range is 7.5 IRE (black) to 100 IRE (white). However, if a graphic is coming from a computer, the legal color range on a computer is 0 IRE to 109 IRE. The color range from 0 to 7.5 IRE is called SuperBlack and the color range from 100 to 109 IRE is called SuperWhite.

Tally

An indicator which illuminates when the associated button, or control, is selected or is on-air.

Unshaped Key

A multiplicative key where the Key Alpha cuts a hole based on the gradient values of the alpha. Shades of gray are translated into transparency levels, giving the key a soft edge. Unshaped Key alphas can also be considered true linear alphas. Key alphas are set to unshaped by default.

Index